Biomimetic 4D printing

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Citation Report

| # | Article | IF | CITATIONS |
|----|---|------|-----------|
| 1 | Modeling Defects, Shape Evolution, and Programmed Auto-Origami in Liquid Crystal Elastomers. Frontiers in Materials, 2016, 3, . | 1,2 | 24 |
| 2 | Current status of 4D printing technology and the potential of light-reactive smart materials as 4D printable materials. Virtual and Physical Prototyping, 2016, 11, 249-262. | 5.3 | 144 |
| 3 | Optimal Design and Manufacture of Active Rod Structures with Spatially Variable Materials. 3D Printing and Additive Manufacturing, 2016, 3, 204-215. | 1.4 | 27 |
| 4 | 3D printed hydrogel soft actuators. , 2016, , . | | 15 |
| 5 | Printed shape-shifting materials mimic biological structures. Physics Today, 2016, 69, 19-21. | 0.3 | 0 |
| 6 | Polymers with autonomous life-cycle control. Nature, 2016, 540, 363-370. | 13.7 | 322 |
| 7 | Printing soft matter in three dimensions. Nature, 2016, 540, 371-378. | 13.7 | 1,134 |
| 8 | The extracellular microscape governs mesenchymal stem cell fate. Journal of Biological Engineering, 2016, 10, 16. | 2.0 | 14 |
| 9 | Design and fabrication of bio-hybrid materials using inkjet printing. Biointerphases, 2016, 11, . | 0.6 | 9 |
| 10 | Anisotropic Swelling in Fiber-Reinforced Hydrogels: An Incremental Finite Element Method and Its Applications in Design of Bilayer Structures. International Journal of Applied Mechanics, 2016, 08, 1640003. | 1.3 | 22 |
| 11 | 3D printed bionic nanodevices. Nano Today, 2016, 11, 330-350. | 6.2 | 116 |
| 12 | Rising beyond elastocapillarity. Soft Matter, 2016, 12, 4886-4890. | 1.2 | 18 |
| 13 | Grayscale gel lithography for programmed buckling of non-Euclidean hydrogel plates. Soft Matter, 2016, 12, 4985-4990. | 1.2 | 72 |
| 14 | Morphing in nature and beyond: a review of natural and synthetic shape-changing materials and mechanisms. Journal of Materials Science, 2016, 51, 10663-10689. | 1.7 | 109 |
| 15 | Embedding flexible fibers into responsive gels to create composites with controllable dexterity. Soft Matter, 2016, 12, 9170-9184. | 1.2 | 6 |
| 16 | Large Scale Production of Continuous Hydrogel Fibers with Anisotropic Swelling Behavior by Dynamicâ€Crosslinkingâ€Spinning. Macromolecular Rapid Communications, 2016, 37, 1795-1801. | 2.0 | 33 |
| 17 | Self-expanding/shrinking structures by 4D printing. Smart Materials and Structures, 2016, 25, 105034. | 1.8 | 147 |
| 18 | Bioink properties before, during and after 3D bioprinting. Biofabrication, 2016, 8, 032002. | 3.7 | 783 |

| # | ARTICLE | IF | CITATIONS |
|----|---|------|-----------|
| 19 | Poly(p-phenylenebenzobisoxazole) nanofiber layered composite films with high thermomechanical performance. European Polymer Journal, 2016, 84, 622-630. | 2.6 | 15 |
| 20 | <i>In situ</i> UV curable 3D printing of multi-material tri-legged soft bot with spider mimicked multi-step forward dynamic gait. Smart Materials and Structures, 2016, 25, 115009. | 1.8 | 42 |
| 21 | Programmed planar-to-helical shape transformations of composite hydrogels with bioinspired layered fibrous structures. Journal of Materials Chemistry B, 2016, 4, 7075-7079. | 2.9 | 74 |
| 22 | Using intra-microgel crosslinking to control the mechanical properties of doubly crosslinked microgels. Soft Matter, 2016, 12, 6985-6994. | 1.2 | 19 |
| 23 | Design strategies and applications of biomaterials and devices for Hernia repair. Bioactive Materials, 2016, 1, 2-17. | 8.6 | 103 |
| 24 | A decade of progress in tissue engineering. Nature Protocols, 2016, 11, 1775-1781. | 5.5 | 570 |
| 25 | Programming the shape-shifting of flat soft matter: from self-rolling/self-twisting materials to self-folding origami. Materials Horizons, 2016, 3, 536-547. | 6.4 | 129 |
| 26 | Shape-Morphing Chromonic Liquid Crystal Hydrogels. Chemistry of Materials, 2016, 28, 8489-8492. | 3.2 | 31 |
| 27 | Gels with sense: supramolecular materials that respond to heat, light and sound. Chemical Society Reviews, 2016, 45, 6546-6596. | 18.7 | 395 |
| 28 | Solid organ fabrication: comparison of decellularization to 3D bioprinting. Biomaterials Research, 2016, 20, 27. | 3.2 | 77 |
| 29 | A bioink by any other name: terms, concepts and constructions related to 3D bioprinting. Future Science OA, 2016, 2, FSO133. | 0.9 | 20 |
| 30 | Lightâ€Mediated Manufacture and Manipulation of Actuators. Advanced Materials, 2016, 28, 8328-8343. | 11.1 | 186 |
| 31 | A Method for the Efficient Fabrication of Multifunctional Mosaic Membranes by Inkjet Printing. ACS Applied Materials & Samp; Interfaces, 2016, 8, 19772-19779. | 4.0 | 35 |
| 32 | 4D printing smart biomedical scaffolds with novel soybean oil epoxidized acrylate. Scientific Reports, 2016, 6, 27226. | 1.6 | 296 |
| 33 | 4D sequential actuation: combining ionoprinting and redox chemistry in hydrogels. Smart Materials and Structures, 2016, 25, 10LT02. | 1.8 | 29 |
| 34 | 3D Printing of Ultratough Polyion Complex Hydrogels. ACS Applied Materials & Samp; Interfaces, 2016, 8, 31304-31310. | 4.0 | 105 |
| 35 | Thermomechanics of printed anisotropic shape memory elastomeric composites. International Journal of Solids and Structures, 2016, 102-103, 186-199. | 1.3 | 28 |
| 36 | Multimaterial 4D Printing with Tailorable Shape Memory Polymers. Scientific Reports, 2016, 6, 31110. | 1.6 | 751 |

| # | Article | IF | Citations |
|----|--|------|-----------|
| 37 | Predicting origami-inspired programmable self-folding of hydrogel trilayers. Smart Materials and Structures, 2016, 25, 11LT02. | 1.8 | 22 |
| 38 | The Design for Additive Manufacturing Worksheet. , 2016, , . | | 19 |
| 39 | Shape-Changing Photodegradable Hydrogels for Dynamic 3D Cell Culture. ACS Applied Materials & Interfaces, 2016, 8, 17885-17893. | 4.0 | 65 |
| 40 | Shaped after print. Nature Materials, 2016, 15, 379-380. | 13.3 | 19 |
| 41 | 3D Bioprinting for Tissue and Organ Fabrication. Annals of Biomedical Engineering, 2017, 45, 148-163. | 1.3 | 507 |
| 42 | Modular assembly of soft deployable structures and robots. Materials Horizons, 2017, 4, 367-376. | 6.4 | 48 |
| 43 | Extreme Mechanics: Self-Folding Origami. Annual Review of Condensed Matter Physics, 2017, 8, 165-183. | 5.2 | 55 |
| 44 | 3D printing of self-assembling thermoresponsive nanoemulsions into hierarchical mesostructured hydrogels. Soft Matter, 2017, 13, 921-929. | 1.2 | 40 |
| 45 | 3D bioprinting: improving <i>in vitro </i> models of metastasis with heterogeneous tumor microenvironments. DMM Disease Models and Mechanisms, 2017, 10, 3-14. | 1.2 | 123 |
| 46 | A general patterning approach by manipulating the evolution of two-dimensional liquid foams. Nature Communications, 2017, 8, 14110. | 5.8 | 99 |
| 47 | Microactuation and sensing using reversible deformations of laser-written polymeric structures. Nanotechnology, 2017, 28, 124001. | 1.3 | 63 |
| 48 | Colloidal processing: enabling complex shaped ceramics with unique multiscale structures. Journal of the American Ceramic Society, 2017, 100, 458-490. | 1.9 | 119 |
| 49 | Reconfigurable Microscale Frameworks from Concatenated Helices with Controlled Chirality. Advanced Materials, 2017, 29, 1606111. | 11.1 | 53 |
| 50 | Direct Writing of Flexible Barium Titanate/Polydimethylsiloxane 3D Photonic Crystals with Mechanically Tunable Terahertz Properties. Advanced Optical Materials, 2017, 5, 1600977. | 3.6 | 33 |
| 51 | Hierarchically Arranged Helical Fiber Actuators Derived from Commercial Cloth. Advanced Materials, 2017, 29, 1605103. | 11.1 | 51 |
| 52 | Directed assembly of bio-inspired hierarchical materials with controlled nanofibrillar architectures. Nature Nanotechnology, 2017, 12, 474-480. | 15.6 | 134 |
| 53 | Deformation of an amorphous polymer during the fused-filament-fabrication method for additive manufacturing. Journal of Rheology, 2017, 61, 379-397. | 1.3 | 143 |
| 54 | Cellulose Nanocrystal Inks for 3D Printing of Textured Cellular Architectures. Advanced Functional Materials, 2017, 27, 1604619. | 7.8 | 447 |

| # | ARTICLE | IF | CITATIONS |
|----|--|------|-----------|
| 55 | Blooming Knit Flowers: Loop‣inked Soft Morphing Structures for Soft Robotics. Advanced Materials, 2017, 29, 1606580. | 11.1 | 72 |
| 56 | Highâ€Power Actuation from Molecular Photoswitches in Enantiomerically Paired Soft Springs. Angewandte Chemie - International Edition, 2017, 56, 3261-3265. | 7.2 | 110 |
| 57 | Shape-Morphing Materials from Stimuli-Responsive Hydrogel Hybrids. Accounts of Chemical Research, 2017, 50, 161-169. | 7.6 | 360 |
| 58 | Direct ink writing of geopolymeric inks. Journal of the European Ceramic Society, 2017, 37, 2481-2489. | 2.8 | 119 |
| 59 | Sequential self-folding of polymer sheets. Science Advances, 2017, 3, e1602417. | 4.7 | 254 |
| 60 | Thermal cure effects on electromechanical properties of conductive wires by direct ink write for 4D printing and soft machines. Smart Materials and Structures, 2017, 26, 045008. | 1.8 | 55 |
| 61 | Bioinspired, Mechanoâ€Regulated Interfaces for Rationally Designed, Dynamically Controlled Collection of Oil Spills from Water. Global Challenges, 2017, 1, 1600014. | 1.8 | 8 |
| 62 | Direct 4D printing via active composite materials. Science Advances, 2017, 3, e1602890. | 4.7 | 455 |
| 63 | 3D–printing of materials with anisotropic heat distribution using conductive polylactic acid composites. Materials and Design, 2017, 126, 135-140. | 3.3 | 72 |
| 64 | Interplay between materials and microfluidics. Nature Reviews Materials, 2017, 2, . | 23.3 | 236 |
| 65 | Stimuli-responsive hydrogel microfibers with controlled anisotropic shrinkage and cross-sectional geometries. Soft Matter, 2017, 13, 3710-3719. | 1.2 | 54 |
| 66 | On the subtle tuneability of cellulose hydrogels: implications for binding of biomolecules demonstrated for CBM 1. Journal of Materials Chemistry B, 2017, 5, 3879-3887. | 2.9 | 28 |
| 67 | Current developments in multifunctional smart materials for 3D/4D bioprinting. Current Opinion in Biomedical Engineering, 2017, 2, 67-75. | 1.8 | 70 |
| 68 | Self-Supporting Nanoclay as Internal Scaffold Material for Direct Printing of Soft Hydrogel Composite Structures in Air. ACS Applied Materials & Interfaces, 2017, 9, 17456-17465. | 4.0 | 183 |
| 69 | Tissue Engineering and Regenerative Medicine: New Trends and Directions—A Year in Review. Tissue Engineering - Part B: Reviews, 2017, 23, 211-224. | 2.5 | 133 |
| 70 | Optically Switchable Luminescent Hydrogel by Synergistically Intercalating Photochromic Molecular Rotor into Inorganic Clay. Advanced Optical Materials, 2017, 5, 1700149. | 3.6 | 33 |
| 71 | Advances in engineering hydrogels. Science, 2017, 356, . | 6.0 | 1,836 |
| 72 | Synergistic Thermoresponsive Optical Properties of a Composite Self-Healing Hydrogel. Macromolecules, 2017, 50, 3671-3679. | 2.2 | 61 |

| # | Article | IF | Citations |
|----|---|------|-----------|
| 73 | Spatial Control of Functional Response in 4D-Printed Active Metallic Structures. Scientific Reports, 2017, 7, 46707. | 1.6 | 109 |
| 74 | Origami by frontal photopolymerization. Science Advances, 2017, 3, e1602326. | 4.7 | 193 |
| 75 | 4D bioprinting: the next-generation technology for biofabrication enabled by stimuli-responsive materials. Biofabrication, 2017, 9, 012001. | 3.7 | 271 |
| 76 | Synthetic biology engineering of biofilms as nanomaterials factories. Biochemical Society Transactions, 2017, 45, 585-597. | 1.6 | 33 |
| 77 | A robust Riks-like path following method for strain-actuated snap-through phenomena in soft solids. Computer Methods in Applied Mechanics and Engineering, 2017, 323, 416-438. | 3.4 | 14 |
| 78 | Harnessing the hygroscopic and biofluorescent behaviors of genetically tractable microbial cells to design biohybrid wearables. Science Advances, 2017, 3, e1601984. | 4.7 | 170 |
| 79 | Transformative Appetite. , 2017, , . | | 127 |
| 80 | Instant tough bonding of hydrogels for soft machines and electronics. Science Advances, 2017, 3, e1700053. | 4.7 | 359 |
| 81 | Programming 2D/3D shape-shifting with hobbyist 3D printers. Materials Horizons, 2017, 4, 1064-1069. | 6.4 | 216 |
| 82 | 3D Printing by Multiphase Silicone/Water Capillary Inks. Advanced Materials, 2017, 29, 1701554. | 11.1 | 140 |
| 83 | Current and emerging applications of 3D printing in medicine. Biofabrication, 2017, 9, 024102. | 3.7 | 390 |
| 84 | A monolithic hydro/organo macro copolymer actuator synthesized via interfacial copolymerization. NPG Asia Materials, 2017, 9, e380-e380. | 3.8 | 71 |
| 85 | From 3D models to 3D prints: an overview of the processing pipeline. Computer Graphics Forum, 2017, 36, 537-564. | 1.8 | 100 |
| 86 | Liquid Resins-Based Additive Manufacturing. Journal of Molecular and Engineering Materials, 2017, 05, 1740004. | 0.9 | 20 |
| 87 | Robust sacrificial polymer templates for 3D interconnected microvasculature in fiber-reinforced composites. Composites Part A: Applied Science and Manufacturing, 2017, 100, 361-370. | 3.8 | 37 |
| 88 | New Bioengineering Breakthroughs and Enabling Tools in Regenerative Medicine. Current Stem Cell Reports, 2017, 3, 83-97. | 0.7 | 5 |
| 89 | 3D-printed vascular networks direct therapeutic angiogenesis in ischaemia. Nature Biomedical Engineering, 2017, 1 , . | 11.6 | 118 |
| 90 | Rayleigh–Taylor instability in soft elastic layers. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2017, 375, 20160421. | 1.6 | 20 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 91 | Pixelated Polymers: Directed Self Assembly of Liquid Crystalline Polymer Networks. ACS Macro Letters, 2017, 6, 436-441. | 2.3 | 63 |
| 92 | Textures and shapes in nematic elastomers under the action of dopant concentration gradients. Soft Matter, 2017, 13, 2886-2892. | 1.2 | 4 |
| 93 | Recyclable 3D printing of vitrimer epoxy. Materials Horizons, 2017, 4, 598-607. | 6.4 | 339 |
| 94 | Printing, folding and assembly methods for forming 3D mesostructures in advanced materials. Nature Reviews Materials, 2017, 2, . | 23.3 | 463 |
| 95 | Highâ€Power Actuation from Molecular Photoswitches in Enantiomerically Paired Soft Springs. Angewandte Chemie, 2017, 129, 3309-3313. | 1.6 | 26 |
| 96 | Enabling the sunlight driven response of thermally induced shape memory polymers by rewritable CH ₃ NH ₃ Pbl ₃ perovskite coating. Journal of Materials Chemistry A, 2017, 5, 7285-7290. | 5.2 | 39 |
| 97 | Fundamentals and applications of 3D printing for novel materials. Applied Materials Today, 2017, 7, 120-133. | 2.3 | 925 |
| 98 | 3D-Printed Ultratough Hydrogel Structures with Titin-like Domains. ACS Applied Materials & Samp; Interfaces, 2017, 9, 11363-11367. | 4.0 | 39 |
| 99 | Decoupling local mechanics from large-scale structure in modular metamaterials. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3590-3595. | 3.3 | 43 |
| 100 | 4D Printing of Shape Memoryâ€Based Personalized Endoluminal Medical Devices. Macromolecular Rapid Communications, 2017, 38, 1600628. | 2.0 | 280 |
| 101 | Desolvation Induced Origami of Photocurable Polymers by Digit Light Processing. Macromolecular Rapid Communications, 2017, 38, 1600625. | 2.0 | 116 |
| 102 | Direct-Write Fabrication of 4D Active Shape-Changing Structures Based on a Shape Memory Polymer and Its Nanocomposite. ACS Applied Materials & Interfaces, 2017, 9, 876-883. | 4.0 | 351 |
| 103 | Three-Dimensional Printing of Shape Memory Composites with Epoxy-Acrylate Hybrid Photopolymer. ACS Applied Materials & Diterfaces, 2017, 9, 1820-1829. | 4.0 | 132 |
| 104 | Ultrafast Digital Printing toward 4D Shape Changing Materials. Advanced Materials, 2017, 29, 1605390. | 11.1 | 348 |
| 105 | Additive Manufacturing of Metal Structures at the Micrometer Scale. Advanced Materials, 2017, 29, 1604211. | 11.1 | 279 |
| 106 | Kirigami/Origamiâ€Based Soft Deployable Reflector for Optical Beam Steering. Advanced Functional Materials, 2017, 27, 1604214. | 7.8 | 71 |
| 107 | Topography-guided buckling of swollen polymer bilayer films into three-dimensional structures. Soft Matter, 2017, 13, 956-962. | 1.2 | 14 |
| 108 | Hierarchically self-morphing structure through 4D printing. Virtual and Physical Prototyping, 2017, 12, 61-68. | 5.3 | 70 |

| # | ARTICLE | IF | Citations |
|-----|--|------|-----------|
| 109 | Biomimetic Inks Based on Cellulose Nanofibrils and Cross-Linkable Xylans for 3D Printing. ACS Applied Materials & Samp; Interfaces, 2017, 9, 40878-40886. | 4.0 | 106 |
| 110 | Increasing dimension of structures by 4D printing shape memory polymers via fused deposition modeling. Smart Materials and Structures, 2017, 26, 125023. | 1.8 | 82 |
| 111 | Four-dimensional Printing of Liquid Crystal Elastomers. ACS Applied Materials & Elastomers, 2017, 9, 37332-37339. | 4.0 | 354 |
| 112 | Catalytically Initiated Gel-in-Gel Printing of Composite Hydrogels. ACS Applied Materials & Samp; Interfaces, 2017, 9, 40898-40904. | 4.0 | 44 |
| 113 | Siteâ€Specific Preâ€Swellingâ€Directed Morphing Structures of Patterned Hydrogels. Angewandte Chemie - International Edition, 2017, 56, 15974-15978. | 7.2 | 105 |
| 114 | Multi-stage responsive 4D printed smart structure through varying geometric thickness of shape memory polymer. Smart Materials and Structures, 2017, 26, 125001. | 1.8 | 53 |
| 115 | Functional and Biomimetic Materials for Engineering of the Three-Dimensional Cell Microenvironment. Chemical Reviews, 2017, 117, 12764-12850. | 23.0 | 582 |
| 116 | Smart patterned surfaces with programmable thermal emissivity and their design through combinatorial strategies. Scientific Reports, 2017, 7, 12908. | 1.6 | 14 |
| 117 | 4D Biofabrication Using Shapeâ€Morphing Hydrogels. Advanced Materials, 2017, 29, 1703443. | 11.1 | 315 |
| 118 | Stretchable 3D lattice conductors. Soft Matter, 2017, 13, 7731-7739. | 1.2 | 13 |
| 119 | Computer Simulations of Continuous 3-D Printing. Macromolecules, 2017, 50, 7794-7800. | 2.2 | 17 |
| 120 | Smart biomimetic micro/nanostructures based on liquid crystal elastomers and networks. Soft Matter, 2017, 13, 8006-8022. | 1.2 | 66 |
| 121 | Tissue-mimicking materials for elastography phantoms: A review. Extreme Mechanics Letters, 2017, 17, 62-70. | 2.0 | 28 |
| 122 | Growth patterns for shape-shifting elastic bilayers. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 11597-11602. | 3.3 | 96 |
| 123 | Bioinspired Programmable Polymer Gel Controlled by Swellable Guest Medium. ACS Applied Materials & Samp; Interfaces, 2017, 9, 30900-30908. | 4.0 | 38 |
| 124 | 3D-Printed Self-Folding Electronics. ACS Applied Materials & Samp; Interfaces, 2017, 9, 32290-32298. | 4.0 | 90 |
| 125 | Bio nano ink for 4D printing membrane proteins. RSC Advances, 2017, 7, 41429-41434. | 1.7 | 11 |
| 126 | Accurately controlled sequential self-folding structures by polystyrene film. Smart Materials and Structures, 2017, 26, 085040. | 1.8 | 21 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 127 | Cooperative deformations of periodically patterned hydrogels. Science Advances, 2017, 3, e1700348. | 4.7 | 100 |
| 128 | Four-Dimensional (4D) Printing: Applying Soft Adaptive Materials to Additive Manufacturing. Journal of Molecular and Engineering Materials, 2017, 05, 1740003. | 0.9 | 13 |
| 129 | Large Shape Transforming 4D Auxetic Structures. 3D Printing and Additive Manufacturing, 2017, 4, 133-142. | 1.4 | 71 |
| 130 | Graphene Oxide: An All-in-One Processing Additive for 3D Printing. ACS Applied Materials & Samp; Interfaces, 2017, 9, 32977-32989. | 4.0 | 74 |
| 131 | Synthesis, Assembly, and Applications of Hybrid Nanostructures for Biosensing. Chemical Reviews, 2017, 117, 12942-13038. | 23.0 | 258 |
| 132 | Harnessing Photochemical Shrinkage in Direct Laser Writing for Shape Morphing of Polymer Sheets. Advanced Materials, 2017, 29, 1703024. | 11.1 | 66 |
| 133 | Hybrid 3D Printing of Soft Electronics. Advanced Materials, 2017, 29, 1703817. | 11.1 | 501 |
| 134 | Biomimicry, Biofabrication, and Biohybrid Systems: The Emergence and Evolution of Biological Design. Advanced Healthcare Materials, 2017, 6, 1700496. | 3.9 | 49 |
| 135 | Gel Microrods for 3D Tissue Printing. Advanced Biology, 2017, 1, e1700075. | 3.0 | 31 |
| 136 | Highly Elastic, Transparent, and Conductive 3Dâ€Printed Ionic Composite Hydrogels. Advanced Functional Materials, 2017, 27, 1701807. | 7.8 | 162 |
| 137 | Amyloid Fibrils form Hybrid Colloidal Gels and Aerogels with Dispersed CaCO ₃ Nanoparticles. Advanced Functional Materials, 2017, 27, 1700897. | 7.8 | 38 |
| 138 | Origami and Kirigami Nanocomposites. ACS Nano, 2017, 11, 7587-7599. | 7.3 | 172 |
| 139 | Towards 4D printed scaffolds for tissue engineering: exploiting 3D shape memory polymers to deliver time-controlled stimulus on cultured cells. Biofabrication, 2017, 9, 031001. | 3.7 | 121 |
| 140 | Matrix-Assisted Three-Dimensional Printing of Cellulose Nanofibers for Paper Microfluidics. ACS Applied Materials & Diterfaces, 2017, 9, 26438-26446. | 4.0 | 52 |
| 141 | Effective software solutions for 4D printing: A review and proposal. International Journal of Precision Engineering and Manufacturing - Green Technology, 2017, 4, 359-371. | 2.7 | 31 |
| 142 | 3D Printed Silicones with Shape Memory. Scientific Reports, 2017, 7, 4664. | 1.6 | 47 |
| 143 | Surface Patterning of Hydrogels for Programmable and Complex Shape Deformations by Ion Inkjet Printing. Advanced Functional Materials, 2017, 27, 1701962. | 7.8 | 122 |
| 144 | Toward the development of biomimetic injectable and macroporous biohydrogels for regenerative medicine. Advances in Colloid and Interface Science, 2017, 247, 589-609. | 7.0 | 72 |

| # | ARTICLE | IF | CITATIONS |
|-----|--|------|-----------|
| 145 | Printing Non-Euclidean Solids. Physical Review Letters, 2017, 119, 048001. | 2.9 | 37 |
| 146 | Bioinspired Polymer Systems with Stimuli-Responsive Mechanical Properties. Chemical Reviews, 2017, 117, 12851-12892. | 23.0 | 289 |
| 147 | Polymers for 3D Printing and Customized Additive Manufacturing. Chemical Reviews, 2017, 117, 10212-10290. | 23.0 | 2,383 |
| 148 | GDFE: Geometry-Driven Finite Element for Four-Dimensional Printing. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2017, 139, . | 1.3 | 10 |
| 149 | Review of 4D printing materials and their properties. International Journal of Precision Engineering and Manufacturing - Green Technology, 2017, 4, 349-357. | 2.7 | 125 |
| 150 | Engineering-derived approaches for iPSC preparation, expansion, differentiation and applications. Biofabrication, 2017, 9, 032001. | 3.7 | 26 |
| 151 | The Design for Additive Manufacturing Worksheet. Journal of Mechanical Design, Transactions of the ASME, 2017, 139, . | 1.7 | 90 |
| 152 | Liquid Tubule Formation and Stabilization Using Cellulose Nanocrystal Surfactants. Angewandte Chemie - International Edition, 2017, 56, 12594-12598. | 7.2 | 72 |
| 153 | Soft-, shape changing materials toward physicochemically powered actuators. Korean Journal of Chemical Engineering, 2017, 34, 2355-2365. | 1.2 | 5 |
| 154 | Mechanics from Calorimetry: Probing the Elasticity of Responsive Hydrogels. Physical Review Applied, 2017, 8, . | 1.5 | 7 |
| 155 | Geometry-Driven Finite Element for Four-Dimensional Printing. , 2017, , . | | 0 |
| 156 | 3D-Printed pHEMA Materials for Topographical and Biochemical Modulation of Dorsal Root Ganglion Cell Response. ACS Applied Materials & Samp; Interfaces, 2017, 9, 30318-30328. | 4.0 | 32 |
| 157 | Liquid Tubule Formation and Stabilization Using Cellulose Nanocrystal Surfactants. Angewandte Chemie, 2017, 129, 12768-12772. | 1.6 | 50 |
| 158 | 4D Origami by Smart Embroidery. Macromolecular Rapid Communications, 2017, 38, 1700213. | 2.0 | 11 |
| 159 | Progress in three-dimensional bioprinting. MRS Bulletin, 2017, 42, 557-562. | 1.7 | 36 |
| 160 | Two-Way 4D Printing: A Review on the Reversibility of 3D-Printed Shape Memory Materials. Engineering, 2017, 3, 663-674. | 3.2 | 225 |
| 161 | Main directions in the development of additive technologies for micron-resolution printing. Inorganic Materials, 2017, 53, 1349-1359. | 0.2 | 10 |
| 162 | Mechanical control of growth: ideas, facts and challenges. Development (Cambridge), 2017, 144, 4238-4248. | 1.2 | 92 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 163 | Siteâ€Specific Preâ€Swellingâ€Directed Morphing Structures of Patterned Hydrogels. Angewandte Chemie, 2017, 129, 16190-16194. | 1.6 | 12 |
| 164 | Humidity- and Sunlight-Driven Motion of a Chemically Bonded Polymer Bilayer with Programmable Surface Patterns. ACS Applied Materials & Surface Patterns. ACS ACS Applied Materials & Surface Patterns. ACS | 4.0 | 42 |
| 165 | 3D printed reversible shape changing soft actuators assisted by liquid crystal elastomers. Soft Matter, 2017, 13, 5558-5568. | 1.2 | 223 |
| 166 | 3D Printed Photoresponsive Devices Based on Shape Memory Composites. Advanced Materials, 2017, 29, 1701627. | 11.1 | 370 |
| 167 | 3D printed active origami with complicated folding patterns. International Journal of Precision Engineering and Manufacturing - Green Technology, 2017, 4, 281-289. | 2.7 | 48 |
| 168 | Investigating the shape memory properties of 4D printed polylactic acid (PLA) and the concept of 4D printing onto nylon fabrics for the creation of smart textiles. Virtual and Physical Prototyping, 2017, 12, 290-300. | 5.3 | 112 |
| 169 | From molecular design to 3D printed life-like materials with unprecedented properties. Current Opinion in Biomedical Engineering, 2017, 2, 43-48. | 1.8 | 13 |
| 170 | 4D printing of polymeric materials for tissue and organ regeneration. Materials Today, 2017, 20, 577-591. | 8.3 | 292 |
| 171 | "Freezingâ€; morphing, and folding of stretchy tough hydrogels. Journal of Materials Chemistry B, 2017, 5, 5726-5732. | 2.9 | 51 |
| 172 | Continuous fabrication of cellulose nanocrystal/poly(ethylene glycol) diacrylate hydrogel fiber from nanocomposite dispersion: Rheology, preparation and characterization. Polymer, 2017, 123, 55-64. | 1.8 | 44 |
| 173 | Programmable Deployment of Tensegrity Structures by Stimulus-Responsive Polymers. Scientific Reports, 2017, 7, 3511. | 1.6 | 72 |
| 174 | Mechanics Design for Buckling of Thin Ribbons on an Elastomeric Substrate Without Material Failure. Journal of Applied Mechanics, Transactions ASME, 2017, 84, . | 1.1 | 19 |
| 175 | Engineered Elastomer Substrates for Guided Assembly of Complex 3D Mesostructures by Spatially Nonuniform Compressive Buckling. Advanced Functional Materials, 2017, 27, 1604281. | 7.8 | 50 |
| 176 | Recent Advances in Analytical Chemistry by 3D Printing. Analytical Chemistry, 2017, 89, 57-70. | 3.2 | 260 |
| 177 | 3D printing of polymer matrix composites: A review and prospective. Composites Part B: Engineering, 2017, 110, 442-458. | 5.9 | 2,295 |
| 178 | Origami and kirigami inspired self-folding for programming three-dimensional shape shifting of polymer sheets with light. Extreme Mechanics Letters, 2017, 11, 111-120. | 2.0 | 101 |
| 179 | Large-strain poroelastic plate theory for polymer gels with applications to swelling-induced morphing of composite plates. Composites Part B: Engineering, 2017, 115, 330-340. | 5.9 | 20 |
| 180 | 4D Printing of Reversible Shape Morphing Hydrogel Structures. Macromolecular Materials and Engineering, 2017, 302, 1600212. | 1.7 | 190 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 181 | Cell Assembly in Self-foldable Multi-layered Soft Micro-rolls. Scientific Reports, 2017, 7, 17376. | 1.6 | 19 |
| 182 | Mechanisms of Action of Human Mesenchymal Stem Cells in Tissue Repair Regeneration and their Implications. Annals of the National Academy of Medical Sciences (India), 2017, 53, 104-120. | 0.2 | 2 |
| 183 | 3D–4D Printed Objects: New Bioactive Material Opportunities. Micromachines, 2017, 8, 102. | 1.4 | 35 |
| 184 | Recent Advances in Bioink Design for 3D Bioprinting of Tissues and Organs. Frontiers in Bioengineering and Biotechnology, 2017, 5, 23. | 2.0 | 345 |
| 185 | The Use of Finite Element Analyses to Design and Fabricate Three-Dimensional Scaffolds for Skeletal Tissue Engineering. Frontiers in Bioengineering and Biotechnology, 2017, 5, 30. | 2.0 | 36 |
| 186 | 3D Printing of Organs-On-Chips. Bioengineering, 2017, 4, 10. | 1.6 | 140 |
| 187 | Stimuli-Responsive Soft Untethered Grippers for Drug Delivery and Robotic Surgery. Frontiers in Mechanical Engineering, $2017, 3, \ldots$ | 0.8 | 97 |
| 188 | Effect of Nanofibrillated Cellulose Content on the Temperature and Near Infrared Responses of Polyvinyl Butyral Nanofibers-Containing Bilayer Hydrogel System. Polymers, 2017, 9, 270. | 2.0 | 9 |
| 189 | Naturally-derived biopolymer nanocomposites: Interfacial design, properties and emerging applications. Materials Science and Engineering Reports, 2018, 125, 1-41. | 14.8 | 182 |
| 190 | Mechanochemical Regulated Origami with Tough Hydrogels by Ion Transfer Printing. ACS Applied Materials & Samp; Interfaces, 2018, 10, 9077-9084. | 4.0 | 51 |
| 191 | 3D printing of photopolymers. Polymer Chemistry, 2018, 9, 1530-1540. | 1.9 | 260 |
| 192 | Soft Tendril-Inspired Grippers: Shape Morphing of Programmable Polymer–Paper Bilayer Composites. ACS Applied Materials & Interfaces, 2018, 10, 10419-10427. | 4.0 | 118 |
| 193 | 3D bioprinting for biomedical devices and tissue engineering: A review of recent trends and advances. Bioactive Materials, 2018, 3, 144-156. | 8.6 | 751 |
| 194 | 3D Jet Writing: Functional Microtissues Based on Tessellated Scaffold Architectures. Advanced Materials, 2018, 30, e1707196. | 11.1 | 58 |
| 195 | Nanoclay-Based Self-Supporting Responsive Nanocomposite Hydrogels for Printing Applications. ACS Applied Materials & Samp; Interfaces, 2018, 10, 10461-10470. | 4.0 | 79 |
| 196 | 3D printing and intraoperative neuronavigation tailoring for skull base reconstruction after extended endoscopic endonasal surgery: proof of concept. Journal of Neurosurgery, 2018, 130, 248-255. | 0.9 | 15 |
| 197 | 4D printed thermally activated self-healing and shape memory polycaprolactone-based polymers. European Polymer Journal, 2018, 101, 169-176. | 2.6 | 156 |
| 198 | Hierarchical Coâ€Assembly Enhanced Direct Ink Writing. Angewandte Chemie - International Edition, 2018, 57, 5105-5109. | 7.2 | 25 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 199 | Smart scaffolds in tissue regeneration. International Journal of Energy Production and Management, 2018, 5, 125-128. | 1.9 | 44 |
| 200 | HCI meets Material Science. , 2018, , . | | 67 |
| 201 | Thermorph., 2018,,. | | 98 |
| 202 | Sequentially Moldable and Bondable Four-Dimensional Hydrogels Compatible with Cell Encapsulation. Biomacromolecules, 2018, 19, 2742-2749. | 2.6 | 17 |
| 203 | Rational Fabrication of Antiâ€Freezing, Nonâ€Drying Tough Organohydrogels by Oneâ€Pot Solvent Displacement. Angewandte Chemie, 2018, 130, 6678-6681. | 1.6 | 96 |
| 204 | 3D Nanofabrication via Chemoâ€Mechanical Transformation of Nanocrystal/Bulk Heterostructures. Advanced Materials, 2018, 30, e1800233. | 11.1 | 15 |
| 205 | Rational Fabrication of Antiâ€Freezing, Nonâ€Drying Tough Organohydrogels by Oneâ€Pot Solvent Displacement. Angewandte Chemie - International Edition, 2018, 57, 6568-6571. | 7.2 | 341 |
| 206 | In Situ Formation of Slippery-Liquid-Infused Nanofibrous Surface for a Transparent Antifouling Endoscope Lens. ACS Biomaterials Science and Engineering, 2018, 4, 1871-1879. | 2.6 | 19 |
| 207 | Fatigue fracture of nearly elastic hydrogels. Soft Matter, 2018, 14, 3563-3571. | 1.2 | 105 |
| 208 | Hierarchical Coâ€Assembly Enhanced Direct Ink Writing. Angewandte Chemie, 2018, 130, 5199-5203. | 1.6 | 16 |
| 209 | Particleâ€Free Emulsions for 3D Printing Elastomers. Advanced Functional Materials, 2018, 28, 1707032. | 7.8 | 37 |
| 210 | Programmable Lightâ€Activated Gradient Materials Based on Graphene–Polymer Composites. Advanced Materials Interfaces, 2018, 5, 1701374. | 1.9 | 8 |
| 211 | Nanofibrils in nature and materials engineering. Nature Reviews Materials, 2018, 3, . | 23.3 | 455 |
| 212 | Highly stretchable hydrogels for UV curing based high-resolution multimaterial 3D printing. Journal of Materials Chemistry B, 2018, 6, 3246-3253. | 2.9 | 173 |
| 213 | Super tough magnetic hydrogels for remotely triggered shape morphing. Journal of Materials Chemistry B, 2018, 6, 2713-2722. | 2.9 | 68 |
| 214 | Polyelectrolyte Soft Actuators: 3D Printed Chitosan and Cast Gelatin. 3D Printing and Additive Manufacturing, 2018, 5, 138-150. | 1.4 | 53 |
| 215 | "Patterning with loops―to dynamically reconfigure polymer gels. Soft Matter, 2018, 14, 3361-3371. | 1.2 | 8 |
| 216 | 4D printing of shape memory polyurethane via stereolithography. European Polymer Journal, 2018, 101, 120-126. | 2.6 | 107 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 217 | Fibers on the surface of thermo-responsive gels induce 3D shape changes. Soft Matter, 2018, 14, 1822-1832. | 1.2 | 8 |
| 218 | 4D Printing: History and Recent Progress. Chinese Journal of Polymer Science (English Edition), 2018, 36, 563-575. | 2.0 | 157 |
| 219 | Nature-inspired smart solar concentrators by 4D printing. Renewable Energy, 2018, 122, 35-44. | 4.3 | 60 |
| 220 | Dually Heterogeneous Hydrogels via Dynamic and Supramolecular Cross-Links Tuning Discontinuous Spatial Ruptures. ACS Sustainable Chemistry and Engineering, 2018, 6, 4294-4301. | 3.2 | 6 |
| 221 | Surface Molding of Microscale Hydrogels with Microactuation Functionality. Angewandte Chemie, 2018, 130, 1250-1254. | 1.6 | 5 |
| 222 | Delignified and Densified Cellulose Bulk Materials with Excellent Tensile Properties for Sustainable Engineering. ACS Applied Materials & Samp; Interfaces, 2018, 10, 5030-5037. | 4.0 | 191 |
| 223 | Design and fabrication of nanofibrillated cellulose-containing bilayer hydrogel actuators with temperature and near infrared laser responses. Journal of Materials Chemistry B, 2018, 6, 1260-1271. | 2.9 | 63 |
| 224 | Morphable 3D mesostructures and microelectronic devices by multistable buckling mechanics. Nature Materials, 2018, 17, 268-276. | 13.3 | 297 |
| 225 | A mechanical reduced order model for elastomeric 3D printed architectures. Journal of Materials Research, 2018, 33, 309-316. | 1.2 | 10 |
| 226 | Fabrication of tough epoxy with shape memory effects by UV-assisted direct-ink write printing. Soft Matter, 2018, 14, 1879-1886. | 1.2 | 150 |
| 227 | The grand challenges of <i>Science Robotics</i> . Science Robotics, 2018, 3, . | 9.9 | 787 |
| 228 | A Printing entric Approach to the Electrostatic Modification of Polymer/Clay Composites for Use in 3D Directâ€Ink Writing. Advanced Materials Interfaces, 2018, 5, 1701579. | 1.9 | 8 |
| 229 | Engineering 3D Hydrogels for Personalized In Vitro Human Tissue Models. Advanced Healthcare Materials, 2018, 7, 1701165. | 3.9 | 96 |
| 230 | Silkâ€Based Bioinks for 3D Bioprinting. Advanced Healthcare Materials, 2018, 7, e1701204. | 3.9 | 146 |
| 231 | Ultrathin Shape Change Smart Materials. Accounts of Chemical Research, 2018, 51, 436-444. | 7.6 | 45 |
| 232 | 3D printed scaffolds with gradient porosity based on a cellulose nanocrystal hydrogel. Nanoscale, 2018, 10, 4421-4431. | 2.8 | 212 |
| 233 | Rotational 3D printing of damage-tolerant composites with programmable mechanics. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 1198-1203. | 3.3 | 205 |
| 234 | Multitemperature Responsive Selfâ€Folding Soft Biomimetic Structures. Macromolecular Rapid Communications, 2018, 39, 1700692. | 2.0 | 40 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 235 | Allâ€inâ€One Cellulose Nanocrystals for 3D Printing of Nanocomposite Hydrogels. Angewandte Chemie, 2018, 130, 2377-2380. | 1.6 | 7 |
| 236 | Engineered Tissue Folding by Mechanical Compaction of the Mesenchyme. Developmental Cell, 2018, 44, 165-178.e6. | 3.1 | 145 |
| 237 | Assembly and Selfâ€Assembly of Nanomembrane Materials—From 2D to 3D. Small, 2018, 14, e1703665. | 5.2 | 56 |
| 238 | Drops, Jets and High-Resolution 3D Printing: Fundamentals and Applications. Energy, Environment, and Sustainability, 2018, , 123-162. | 0.6 | 3 |
| 239 | Allâ€inâ€One Cellulose Nanocrystals for 3D Printing of Nanocomposite Hydrogels. Angewandte Chemie - International Edition, 2018, 57, 2353-2356. | 7.2 | 89 |
| 240 | Humidity-responsive actuation of programmable hydrogel microstructures based on 3D printing. Sensors and Actuators B: Chemical, 2018, 259, 736-744. | 4.0 | 99 |
| 241 | 4D printing of a self-morphing polymer driven by a swellable guest medium. Soft Matter, 2018, 14, 765-772. | 1.2 | 77 |
| 242 | Controlled molecular self-assembly of complex three-dimensional structures in soft materials. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 70-74. | 3.3 | 23 |
| 243 | Autonomous Motility of Polymer Films. Advanced Materials, 2018, 30, 1705616. | 11.1 | 25 |
| 244 | Active textiles with Janus fibres. Soft Matter, 2018, 14, 676-680. | 1.2 | 16 |
| 245 | Identification of Novel "Inks―for 3D Printing Using High-Throughput Screening: Bioresorbable Photocurable Polymers for Controlled Drug Delivery. ACS Applied Materials & Interfaces, 2018, 10, 6841-6848. | 4.0 | 44 |
| 246 | Celluloseâ€Based Biomimetics and Their Applications. Advanced Materials, 2018, 30, e1703655. | 11.1 | 143 |
| 247 | 3D Printing of Liquid Crystal Elastomeric Actuators with Spatially Programed Nematic Order. Advanced Materials, 2018, 30, 1706164. | 11.1 | 467 |
| 248 | Covalent Bonding of Thermoplastics to Rubbers for Printable, Reelâ€toâ€Reel Processing in Soft Robotics and Microfluidics. Advanced Materials, 2018, 30, 1705333. | 11.1 | 21 |
| 249 | Exploiting Advanced Hydrogel Technologies to Address Key Challenges in Regenerative Medicine. Advanced Healthcare Materials, 2018, 7, e1700939. | 3.9 | 105 |
| 250 | 3D printed structures for modeling the Young's modulus of bamboo parenchyma. Acta Biomaterialia, 2018, 68, 90-98. | 4.1 | 45 |
| 251 | Actuating and memorizing bilayer hydrogels for a self-deformed shape memory function. Chemical Communications, 2018, 54, 1229-1232. | 2.2 | 98 |
| 253 | Diffusiophoretic exclusion of colloidal particles for continuous water purification. Lab on A Chip, 2018, 18, 1713-1724. | 3.1 | 42 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 254 | Electrospinning: An enabling nanotechnology platform for drug delivery and regenerative medicine. Advanced Drug Delivery Reviews, 2018, 132, 188-213. | 6.6 | 285 |
| 255 | 3D printing of soft robotic systems. Nature Reviews Materials, 2018, 3, 84-100. | 23.3 | 620 |
| 256 | 3D Bioprinting of Artificial Tissues: Construction of Biomimetic Microstructures. Macromolecular Bioscience, 2018, 18, e1800034. | 2.1 | 24 |
| 257 | Biofabrication strategies for 3D in vitro models and regenerative medicine. Nature Reviews Materials, 2018, 3, 21-37. | 23.3 | 502 |
| 258 | Rapid uniaxial actuation of layered bacterial cellulose/poly(N-isopropylacrylamide) composite hydrogel with high mechanical strength. RSC Advances, 2018, 8, 12608-12613. | 1.7 | 9 |
| 259 | Towards Ultra Personalized 4D Printed Shoes. , 2018, , . | | 12 |
| 260 | Poro-elasto-capillary wicking of cellulose sponges. Science Advances, 2018, 4, eaao7051. | 4.7 | 48 |
| 261 | Additive Manufacturing of Catalytically Active Living Materials. ACS Applied Materials & Samp; Interfaces, 2018, 10, 13373-13380. | 4.0 | 89 |
| 262 | Combining 3D Printing with Electrospinning for Rapid Response and Enhanced Designability of Hydrogel Actuators. Advanced Functional Materials, 2018, 28, 1800514. | 7.8 | 108 |
| 263 | 3D freeform printing of silk fibroin. Acta Biomaterialia, 2018, 71, 379-387. | 4.1 | 83 |
| 264 | Plant-inspired pipettes. Journal of the Royal Society Interface, 2018, 15, 20170868. | 1.5 | 4 |
| 265 | Shape memory behavior and recovery force of 4D printed textile functional composites. Composites Science and Technology, 2018, 160, 224-230. | 3.8 | 115 |
| 266 | Reconfigurable Printed Liquids. Advanced Materials, 2018, 30, e1707603. | 11.1 | 132 |
| 267 | 4D Printing of Robust Hydrogels Consisted of Agarose Nanofibers and Polyacrylamide. ACS Macro Letters, 2018, 7, 442-446. | 2.3 | 113 |
| 268 | Shape memory polymers for composites. Composites Science and Technology, 2018, 160, 169-198. | 3.8 | 211 |
| 269 | Hydro-sensitive sandwich structures for self-tunable smart electromagnetic shielding. Chemical Engineering Journal, 2018, 344, 342-352. | 6.6 | 90 |
| 270 | Surface tension-assisted additive manufacturing. Nature Communications, 2018, 9, 1184. | 5.8 | 47 |
| 271 | 3D printing: prospects and challenges. , 2018, , 299-379. | | 8 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 272 | Advances in 3D Bioprinting for Neural Tissue Engineering. Advanced Biology, 2018, 2, 1700213. | 3.0 | 69 |
| 273 | Polymer-based smart materials by printing technologies: Improving application and integration. Additive Manufacturing, 2018, 21, 269-283. | 1.7 | 106 |
| 274 | Direct-write 3D printing of NdFeB bonded magnets. Materials and Manufacturing Processes, 2018, 33, 109-113. | 2.7 | 72 |
| 275 | Selfâ€Contained Polymer/Metal 3D Printed Electrochemical Platform for Tailored Water Splitting. Advanced Functional Materials, 2018, 28, 1700655. | 7.8 | 98 |
| 276 | Thermally induced reversible and reprogrammable actuation of tough hydrogels utilising ionoprinting and iron coordination chemistry. Sensors and Actuators B: Chemical, 2018, 254, 519-525. | 4.0 | 16 |
| 277 | Programming the shape-shifting of flat soft matter. Materials Today, 2018, 21, 144-163. | 8.3 | 188 |
| 278 | Light Robots: Bridging the Gap between Microrobotics and Photomechanics in Soft Materials. Advanced Materials, 2018, 30, e1703554. | 11.1 | 270 |
| 279 | Anisotrope Hydrogele – Synthese und Anwendungen. Angewandte Chemie, 2018, 130, 2558-2570. | 1.6 | 24 |
| 280 | 4D rods: 3D structures via programmable 1D composite rods. Materials and Design, 2018, 137, 256-265. | 3.3 | 110 |
| 281 | Synthesis of Anisotropic Hydrogels and Their Applications. Angewandte Chemie - International Edition, 2018, 57, 2532-2543. | 7.2 | 287 |
| 282 | Natureâ€Inspired Lightweight Cellular Coâ€Continuous Composites with Architected Periodic Gyroidal Structures. Advanced Engineering Materials, 2018, 20, 1700549. | 1.6 | 72 |
| 283 | Architecting Graphene Oxide Rolledâ€Up Micromotors: A Simple Paperâ€Based Manufacturing Technology. Small, 2018, 14, 1702746. | 5.2 | 29 |
| 284 | Intensive care medicine in 2050: nanotechnology. Emerging technologies and approaches and their impact on critical care. Intensive Care Medicine, 2018, 44, 1299-1301. | 3.9 | 5 |
| 285 | An instant responsive polymer driven by anisotropy of crystal phases. Materials Horizons, 2018, 5, 99-107. | 6.4 | 50 |
| 286 | Study on temperature and near-infrared driving characteristics of hydrogel actuator fabricated via molding and 3D printing. Journal of the Mechanical Behavior of Biomedical Materials, 2018, 78, 395-403. | 1.5 | 23 |
| 287 | Surface Molding of Microscale Hydrogels with Microactuation Functionality. Angewandte Chemie - International Edition, 2018, 57, 1236-1240. | 7.2 | 19 |
| 288 | A New 3D Printing Strategy by Harnessing Deformation, Instability, and Fracture of Viscoelastic Inks. Advanced Materials, 2018, 30, 1704028. | 11.1 | 207 |
| 289 | Mechanical properties of 3D printed polycaprolactone honeycomb structure. Journal of Applied Polymer Science, 2018, 135, 46018. | 1.3 | 21 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 290 | 3D Printing of Living Responsive Materials and Devices. Advanced Materials, 2018, 30, 1704821. | 11.1 | 277 |
| 291 | From flat sheets to curved geometries: Origami and kirigami approaches. Materials Today, 2018, 21, 241-264. | 8.3 | 267 |
| 292 | Biomaterials-based 3D cell printing for next-generation therapeutics and diagnostics. Biomaterials, 2018, 156, 88-106. | 5.7 | 190 |
| 293 | Biofabrication: A Guide to Technology and Terminology. Trends in Biotechnology, 2018, 36, 384-402. | 4.9 | 465 |
| 294 | A Cohesive Zone Model for the Stamping Process Encountered During Three-Dimensional Printing of Fiber-Reinforced Soft Composites. Journal of Manufacturing Science and Engineering, Transactions of the ASME, 2018, 140, . | 1.3 | 4 |
| 295 | The Evolution of 3D Printing in AEC: From Experimental to Consolidated Techniques. , 0, , . | | 4 |
| 296 | Rolledâ€up Nanotechnology: Materials Issue and Geometry Capability. Advanced Materials Technologies, 2019, 4, 1800486. | 3.0 | 42 |
| 297 | Materials and Structures toward Soft Electronics. Advanced Materials, 2018, 30, e1801368. | 11.1 | 445 |
| 298 | Regulatory interfaces surrounding the growing field of additive manufacturing of medical devices and biologic products. Journal of Clinical and Translational Science, 2018, 2, 301-304. | 0.3 | 10 |
| 299 | Additive manufacturing with stimuli-responsive materials. Journal of Materials Chemistry A, 2018, 6, 20621-20645. | 5.2 | 80 |
| 300 | Mechanics of biomimetic 4D printed structures. Soft Matter, 2018, 14, 8771-8779. | 1.2 | 22 |
| 301 | Shape-morphing architected sheets with non-periodic cut patterns. Soft Matter, 2018, 14, 9744-9749. | 1.2 | 72 |
| 302 | A Review on 4D Printing Material Composites and Their Applications. Materials Today: Proceedings, 2018, 5, 20474-20484. | 0.9 | 42 |
| 304 | Current Status of Development and Intellectual Properties of Biomimetic Medical Materials. Advances in Experimental Medicine and Biology, 2018, 1064, 377-399. | 0.8 | 0 |
| 305 | Differential growth and shape formation in plant organs. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 12359-12364. | 3.3 | 68 |
| 306 | Probing flow-induced nanostructure of complex fluids in arbitrary 2D flows using a fluidic four-roll mill (FFoRM). Scientific Reports, 2018, 8, 15559. | 1.6 | 24 |
| 307 | Bacterial Nanobionics via 3D Printing. Nano Letters, 2018, 18, 7448-7456. | 4.5 | 41 |
| 308 | Soft Robots Manufacturing: A Review. Frontiers in Robotics and Al, 2018, 5, 84. | 2.0 | 201 |

| # | Article | IF | Citations |
|-----|---|------|-----------|
| 309 | Designing self-propelled, chemically active sheets: Wrappers, flappers, and creepers. Science Advances, 2018, 4, eaav1745. | 4.7 | 26 |
| 310 | A path for lignin valorization via additive manufacturing of high-performance sustainable composites with enhanced 3D printability. Science Advances, 2018, 4, eaat4967. | 4.7 | 131 |
| 318 | Functional Control of Network Dynamics Using Designed Laplacian Spectra. Physical Review X, 2018, 8, | 2.8 | 7 |
| 319 | Field responsive mechanical metamaterials. Science Advances, 2018, 4, eaau6419. | 4.7 | 154 |
| 320 | Mechanically Guided Assembly of Monolithic Three-Dimensional Structures from Elastomer Composites. ACS Applied Materials & Samp; Interfaces, 2018, 10, 44716-44721. | 4.0 | 7 |
| 321 | Water/ice as sprayable sacrificial materials in low-temperature 3D printing for biomedical applications. Materials and Design, 2018, 160, 624-635. | 3.3 | 10 |
| 322 | Localized Selfâ€Growth of Reconfigurable Architectures Induced by a Femtosecond Laser on a Shapeâ€Memory Polymer. Advanced Materials, 2018, 30, e1803072. | 11.1 | 55 |
| 323 | Printable all-dielectric water-based absorber. Scientific Reports, 2018, 8, 14490. | 1.6 | 15 |
| 324 | Additive Manufacturing as a Method to Design and Optimize Bioinspired Structures. Advanced Materials, 2018, 30, e1800940. | 11.1 | 158 |
| 325 | 4D Printing of Complex Structures with a Fast Response Time to Magnetic Stimulus. ACS Applied Materials & Samp; Interfaces, 2018, 10, 36435-36442. | 4.0 | 127 |
| 326 | Digital coding of mechanical stress in a dynamic covalent shape memory polymer network. Nature Communications, 2018, 9, 4002. | 5.8 | 109 |
| 327 | Additive manufacturing: state of the art and potential for insect science. Current Opinion in Insect Science, 2018, 30, 79-85. | 2.2 | 7 |
| 328 | Quantitative evaluation of the three-dimensional deployment behavior of a shape memory polymer antenna. Smart Materials and Structures, 2018, 27, 105007. | 1.8 | 8 |
| 329 | Liquid crystal elastomers: an introduction and review of emerging technologies. Liquid Crystals Reviews, 2018, 6, 78-107. | 1.1 | 190 |
| 330 | Ceramic Robocasting: Recent Achievements, Potential, and Future Developments. Advanced Materials, 2018, 30, e1802404. | 11.1 | 218 |
| 331 | Nanofilamentous Virus-Based Dynamic Hydrogels with Tunable Internal Structures, Injectability, Self-Healing, and Sugar Responsiveness at Physiological pH. Langmuir, 2018, 34, 12914-12923. | 1.6 | 23 |
| 332 | Additive manufacturing $\hat{a} \in \text{``}$ A review of 4D printing and future applications. Additive Manufacturing, 2018, 24, 606-626. | 1.7 | 258 |
| 333 | Snap-Buckling Motivated Controllable Jumping of Thermo-Responsive Hydrogel Bilayers. ACS Applied Materials & Samp; Interfaces, 2018, 10, 41724-41731. | 4.0 | 90 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 334 | Weather-Manipulated Smart Broadband Electromagnetic Metamaterials. ACS Applied Materials & Interfaces, 2018, 10, 40815-40823. | 4.0 | 53 |
| 335 | Bioinspired Temperature-Responsive Multilayer Films and Their Performance under Thermal Fatigue. Biomimetics, 2018, 3, 20. | 1.5 | 1 |
| 336 | Novel ink for ambient condition printing of liquid crystal elastomers for 4D printing. Smart Materials and Structures, 2018, 27, 125011. | 1.8 | 149 |
| 337 | Kidney-on-a-chip: untapped opportunities. Kidney International, 2018, 94, 1073-1086. | 2.6 | 104 |
| 338 | 4DMesh., 2018,,. | | 59 |
| 339 | An Anisotropic Hydrogel Actuator Enabling Earthwormâ€Like Directed Peristaltic Crawling. Angewandte Chemie, 2018, 130, 15998-16002. | 1.6 | 50 |
| 340 | An Anisotropic Hydrogel Actuator Enabling Earthwormâ€Like Directed Peristaltic Crawling. Angewandte Chemie - International Edition, 2018, 57, 15772-15776. | 7.2 | 139 |
| 341 | Development of a Multi-Step Exposure Method for Projection-Based Printing System. , 2018, , . | | 0 |
| 342 | Recent Progress in Biomimetic Additive Manufacturing Technology: From Materials to Functional Structures. Advanced Materials, 2018, 30, e1706539. | 11.1 | 325 |
| 343 | A shearable and thickness stretchable finite strain beam model for soft structures. Meccanica, 2018, 53, 3759-3777. | 1.2 | 2 |
| 344 | Dualâ€Programmable Shapeâ€Morphing and Selfâ€Healing Organohydrogels Through Orthogonal Supramolecular Heteronetworks. Advanced Materials, 2018, 30, e1804435. | 11.1 | 91 |
| 345 | Printed Nanocomposite Energy Harvesters with Controlled Alignment of Barium Titanate Nanowires. ACS Applied Materials & Diterfaces, 2018, 10, 38359-38367. | 4.0 | 59 |
| 346 | Structure and Nanomechanics of Dry and Hydrated Intermediate Filament Films and Fibers Produced from Hagfish Slime Fibers. ACS Applied Materials & Samp; Interfaces, 2018, 10, 40460-40473. | 4.0 | 9 |
| 347 | A numerical study of the influence of rheology of cohesive particles on blade free planetary mixing. Korea Australia Rheology Journal, 2018, 30, 199-209. | 0.7 | 9 |
| 348 | Anisotropic contraction of fiber-reinforced hydrogels. Soft Matter, 2018, 14, 7731-7739. | 1.2 | 11 |
| 349 | Photo Processing for Biomedical Hydrogels Design and Functionality: A Review. Polymers, 2018, 10, 11. | 2.0 | 80 |
| 350 | 3D shape change of multi-responsive hydrogels based on a light-programmed gradient in volume phase transition. Chemical Communications, 2018, 54, 10909-10912. | 2.2 | 28 |
| 351 | Bioinspired Multiâ€Activities 4D Printing Objects: A New Approach Toward Complex Tissue Engineering. Biotechnology Journal, 2018, 13, e1800098. | 1.8 | 49 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 352 | Stiffness memory nanohybrid scaffolds generated by indirect 3D printing for biologically responsive soft implants. Acta Biomaterialia, 2018, 80, 188-202. | 4.1 | 22 |
| 353 | Advances and Future Perspectives in 4D Bioprinting. Biotechnology Journal, 2018, 13, e1800148. | 1.8 | 168 |
| 354 | Predictive modeling of misfit dislocation induced strain relaxation effect on self-rolling of strain-engineered nanomembranes. Applied Physics Letters, 2018, 113, . | 1.5 | 1 |
| 355 | Macroscopic helical chirality and self-motion of hierarchical self-assemblies induced by enantiomeric small molecules. Nature Communications, 2018, 9, 3808. | 5.8 | 34 |
| 356 | Shape transformable bifurcated stents. Scientific Reports, 2018, 8, 13911. | 1.6 | 26 |
| 357 | Bioinspired 3D structures with programmable morphologies and motions. Nature Communications, 2018, 9, 3705. | 5.8 | 151 |
| 358 | Helical Structures Mimicking Chiral Seedpod Opening and Tendril Coiling. Sensors, 2018, 18, 2973. | 2.1 | 39 |
| 359 | Multi-length scale bioprinting towards simulating microenvironmental cues. Bio-Design and Manufacturing, 2018, 1, 77-88. | 3.9 | 34 |
| 360 | Origami Biosystems: 3D Assembly Methods for Biomedical Applications. Advanced Biology, 2018, 2, 1800230. | 3.0 | 57 |
| 361 | Combining In Silico Design and Biomimetic Assembly: A New Approach for Developing Highâ€Performance Dynamic Responsive Bioâ€Nanomaterials. Advanced Materials, 2018, 30, e1802306. | 11.1 | 34 |
| 362 | Emerging investigator series: design of hydrogel nanocomposites for the detection and removal of pollutants: from nanosheets, network structures, and biocompatibility to machine-learning-assisted design. Environmental Science: Nano, 2018, 5, 2216-2240. | 2.2 | 30 |
| 363 | Patchable micro/nanodevices interacting with skin. Biosensors and Bioelectronics, 2018, 122, 189-204. | 5.3 | 47 |
| 364 | Harnessing 3D printed residual stress to design heat-shrinkable metamaterials. Results in Physics, 2018, 11, 85-95. | 2.0 | 12 |
| 365 | Different Geometric Information Integrated within a Single Polydopamine Pattern to Yield Dual Shape Transformations. Macromolecular Materials and Engineering, 2018, 303, 1800319. | 1.7 | 3 |
| 366 | Shape changing hydrogels and their applications as soft actuators. Journal of Polymer Science, Part B: Polymer Physics, 2018, 56, 1314-1324. | 2.4 | 69 |
| 367 | Reversible shape change structures by grayscale pattern 4D printing. Multifunctional Materials, 2018, 1, 015002. | 2.4 | 73 |
| 368 | Additive Manufacturing and Performance of Architectured Cementâ∈Based Materials. Advanced Materials, 2018, 30, e1802123. | 11.1 | 65 |
| 369 | Temperature-Controllable Hydrogels in Double-Walled Microtube Structure Prepared by Using a Triple Channel Microfluidic System. Langmuir, 2018, 34, 11553-11558. | 1.6 | 13 |

| # | Article | IF | CITATIONS |
|-----|---|-----|-----------|
| 370 | Bottom-up approaches for material and device designing using practical aspects of self-assembled molecular architectures. Molecular Systems Design and Engineering, 2018, 3, 804-818. | 1.7 | 9 |
| 371 | 3D Printing System of Magnetic Anisotropy for Artificial Cilia. Journal of Photopolymer Science and Technology = [Fotoporima Konwakai Shi], 2018, 31, 139-144. | 0.1 | 31 |
| 372 | Technological considerations for 4D printing: an overview. Progress in Additive Manufacturing, 2018, 3, 95-107. | 2.5 | 113 |
| 373 | Morphokinematics of the Hygroactuation of Feather Grass Awns. Advanced Biology, 2018, 2, 1800007. | 3.0 | 6 |
| 374 | Rolling of 3D Printed Dualâ€Layer Beam into a Cylinder by Ethanol Absorption. Macromolecular Materials and Engineering, 2018, 303, 1700675. | 1.7 | 7 |
| 375 | Electrochemical printing of calcium alginate/gelatin hydrogel. Electrochimica Acta, 2018, 281, 429-436. | 2.6 | 43 |
| 376 | Thermal stiffening of hydrophobic association hydrogels. Polymer, 2018, 145, 374-381. | 1.8 | 12 |
| 377 | 3D Printing of Hierarchical Porous Silica and αâ€Quartz. Advanced Materials Technologies, 2018, 3, 1800060. | 3.0 | 27 |
| 378 | An Autonomous Programmable Actuator and Shape Reconfigurable Structures Using Bistability and Shape Memory Polymers. 3D Printing and Additive Manufacturing, 2018, 5, 91-101. | 1.4 | 57 |
| 379 | Smart mechano-hydro-dielectric coupled hybrid sponges for multifunctional sensors. Sensors and Actuators B: Chemical, 2018, 270, 239-246. | 4.0 | 16 |
| 380 | Multiresponsive Kinematics and Robotics of Surface-Patterned Polymer Film. ACS Applied Materials & Samp; Interfaces, 2018, 10, 19123-19132. | 4.0 | 36 |
| 381 | Controlled mechanical assembly of complex 3D mesostructures and strain sensors by tensile buckling. Npj Flexible Electronics, 2018, 2, . | 5.1 | 31 |
| 382 | Dynamics of Cellulose Nanocrystal Alignment during 3D Printing. ACS Nano, 2018, 12, 6926-6937. | 7.3 | 203 |
| 383 | 4D Biofabrication: Materials, Methods, and Applications. Advanced Healthcare Materials, 2018, 7, e1800412. | 3.9 | 80 |
| 384 | Bioinspired Electrically Activated Soft Bistable Actuators. Advanced Functional Materials, 2018, 28, 1802999. | 7.8 | 53 |
| 385 | Microstructure and mechanical properties of hard Acrocomia mexicana fruit shell. Scientific Reports, 2018, 8, 9668. | 1.6 | 28 |
| 386 | Phase Transitions and Pattern Formation in Chemoâ∈Responsive Gels and Composites. Israel Journal of Chemistry, 2018, 58, 693-705. | 1.0 | 4 |
| 387 | Switchable Adhesion Actuator for Amphibious Climbing Soft Robot. Soft Robotics, 2018, 5, 592-600. | 4.6 | 112 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 388 | Solution Mask Liquid Lithography (SMaLL) for Oneâ€Step, Multimaterial 3D Printing. Advanced Materials, 2018, 30, e1800364. | 11.1 | 143 |
| 389 | Universal inverse design of surfaces with thin nematic elastomer sheets. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 7206-7211. | 3.3 | 213 |
| 390 | Controlled bending and folding of a bilayer structure consisting of a thin stiff film and a heat shrinkable polymer sheet. Smart Materials and Structures, 2018, 27, 055009. | 1.8 | 14 |
| 391 | Geometry and Elasticity of a Knitted Fabric. Physical Review X, 2018, 8, . | 2.8 | 27 |
| 392 | Design, Representations, and Processing for Additive Manufacturing. Synthesis Lectures on Visual Computing, 2018, 10, 1-146. | 0.7 | 11 |
| 393 | A Normalized Trace Geometry Modeling Method with Bulge-Free Analysis for Direct Ink Writing Process Planning. 3D Printing and Additive Manufacturing, 2018, 5, 301-310. | 1.4 | 9 |
| 394 | Origami/Kirigamiâ€Guided Morphing of Composite Sheets. Advanced Functional Materials, 2018, 28, 1802768. | 7.8 | 48 |
| 395 | Increasing the Dimensionality of Soft Microstructures through Injectionâ€Induced Selfâ€Folding. Advanced Materials, 2018, 30, e1802739. | 11.1 | 69 |
| 396 | Modeling of snapping composite shells with magnetically aligned bio-inspired reinforcements. Smart Materials and Structures, 2018, 27, 114003. | 1.8 | 14 |
| 397 | Toward Growing Robots: A Historical Evolution from Cellular to Plant-Inspired Robotics. Frontiers in Robotics and Al, 2018, 5, 16. | 2.0 | 51 |
| 398 | A tissue-engineered scale model of the heart ventricle. Nature Biomedical Engineering, 2018, 2, 930-941. | 11.6 | 162 |
| 399 | Advancements in the Research of 4D Printing-A Review. IOP Conference Series: Materials Science and Engineering, 2018, 376, 012123. | 0.3 | 21 |
| 400 | Engineering the Future of Silk Materials through Advanced Manufacturing. Advanced Materials, 2018, 30, e1706983. | 11.1 | 126 |
| 401 | Robotic Flexible Electronics with Self-Bendable Films. Soft Robotics, 2018, 5, 710-717. | 4.6 | 13 |
| 402 | Optically Driven Soft Micro Robotics. Advanced Optical Materials, 2018, 6, 1800207. | 3.6 | 111 |
| 403 | 3D printing of shape memory hydrogels with tunable mechanical properties. Soft Matter, 2018, 14, 7809-7817. | 1.2 | 59 |
| 404 | Photoactivated Polymeric Bilayer Actuators Fabricated via 3D Printing. ACS Applied Materials & Samp; Interfaces, 2018, 10, 27308-27315. | 4.0 | 58 |
| 405 | Programmed Deformations of 3Dâ€Printed Tough Physical Hydrogels with High Response Speed and Large Output Force. Advanced Functional Materials, 2018, 28, 1803366. | 7.8 | 172 |

| # | Article | IF | Citations |
|-----|---|-----|-----------|
| 406 | Shape memory behavior and recovery force of 4D printed laminated Miura-origami structures subjected to compressive loading. Composites Part B: Engineering, 2018, 153, 233-242. | 5.9 | 86 |
| 407 | Bioinspired multi-responsive soft actuators controlled by laser tailored graphene structures. Journal of Materials Chemistry B, 2018, 6, 5415-5423. | 2.9 | 76 |
| 408 | Extra‣arge Mechanical Anisotropy of a Hydrogel with Maximized Electrostatic Repulsion between Cofacially Aligned 2D Electrolytes. Angewandte Chemie - International Edition, 2018, 57, 12508-12513. | 7.2 | 30 |
| 409 | 3D printed medicines: A new branch of digital healthcare. International Journal of Pharmaceutics, 2018, 548, 586-596. | 2.6 | 184 |
| 410 | Advanced Material Strategies for Next-Generation Additive Manufacturing. Materials, 2018, 11, 166. | 1.3 | 76 |
| 411 | Microfluidics: A New Layer of Control for Extrusion-Based 3D Printing. Micromachines, 2018, 9, 86. | 1.4 | 49 |
| 412 | A General Aqueous Silanization Protocol to Introduce Vinyl, Mercapto or Azido Functionalities onto Cellulose Fibers and Nanocelluloses. Molecules, 2018, 23, 1427. | 1.7 | 46 |
| 413 | Stereolithographic 4D Bioprinting of Multiresponsive Architectures for Neural Engineering. Advanced Biology, 2018, 2, 1800101. | 3.0 | 114 |
| 414 | 3D printing of materials with spatially non-linearly varying properties. Materials and Design, 2018, 156, 470-479. | 3.3 | 42 |
| 415 | Rapid macroscale shape morphing of 3D-printed polyrotaxane monoliths amplified from pH-controlled nanoscale ring motions. Journal of Materials Chemistry C, 2018, 6, 11956-11960. | 2.7 | 36 |
| 416 | Shape morphing of anisotropy-encoded tough hydrogels enabled by asymmetrically-induced swelling and site-specific mechanical strengthening. Journal of Materials Chemistry B, 2018, 6, 4731-4737. | 2.9 | 21 |
| 417 | Addressing Unmet Clinical Needs with 3D Printing Technologies. Advanced Healthcare Materials, 2018, 7, e1800417. | 3.9 | 70 |
| 418 | 3D Printing in Pharmaceutical and Medical Applications – Recent Achievements and Challenges. Pharmaceutical Research, 2018, 35, 176. | 1.7 | 428 |
| 419 | Materials for 3D Printing Cardiovascular Devices. , 2018, , 33-59. | | 0 |
| 420 | 4D Printing of Actuating Cardiac Tissue. , 2018, , 153-162. | | 18 |
| 421 | Bionic intelligent hydrogel actuators with multimodal deformation and locomotion. Nano Energy, 2018, 51, 621-631. | 8.2 | 77 |
| 422 | The Design Process of Additively Manufactured Mesoscale Lattice Structures: A Review. Journal of Computing and Information Science in Engineering, 2018, 18, . | 1.7 | 94 |
| 423 | Assembly of Advanced Materials into 3D Functional Structures by Methods Inspired by Origami and Kirigami: A Review. Advanced Materials Interfaces, 2018, 5, 1800284. | 1.9 | 195 |

| # | Article | IF | Citations |
|-----|--|------|-----------|
| 424 | Hydrophilic/Hydrophobic Composite Shape-Shifting Structures. ACS Applied Materials & Diterfaces, 2018, 10, 19932-19939. | 4.0 | 101 |
| 425 | 4D Printed Actuators with Softâ€Robotic Functions. Macromolecular Rapid Communications, 2018, 39, 1700710. | 2.0 | 268 |
| 426 | Soft Robotic Manipulation and Locomotion with a 3D Printed Electroactive Hydrogel. ACS Applied Materials & Samp; Interfaces, 2018, 10, 17512-17518. | 4.0 | 258 |
| 427 | Novel Materials for 3D Printing by Photopolymerization. Advanced Materials, 2018, 30, e1706344. | 11.1 | 367 |
| 428 | Spontaneous bending of pre-stretched bilayers. Meccanica, 2018, 53, 511-518. | 1.2 | 9 |
| 429 | Softening and Shape Morphing of Stiff Tough Hydrogels by Localized Unlocking of the Trivalent Ionically Crossâ€Linked Centers. Macromolecular Rapid Communications, 2018, 39, e1800143. | 2.0 | 38 |
| 430 | 3D Hybrid Small Scale Devices. Small, 2018, 14, e1702497. | 5.2 | 8 |
| 431 | Functional Polymers and Nanocomposites for 3D Printing of Smart Structures and Devices. ACS Applied Materials & Devices, 2018, 10, 17489-17507. | 4.0 | 171 |
| 432 | Design, fabrication and control of origami robots. Nature Reviews Materials, 2018, 3, 101-112. | 23.3 | 372 |
| 433 | Surface-initiated atom transfer radical polymerization grafting from nanoporous cellulose gels to create hydrophobic nanocomposites. RSC Advances, 2018, 8, 27045-27053. | 1.7 | 12 |
| 434 | Origami and 4D printing of elastomer-derived ceramic structures. Science Advances, 2018, 4, eaat0641. | 4.7 | 159 |
| 435 | The Rise of Hierarchical Nanostructured Materials from Renewable Sources: Learning from Nature. ACS Nano, 2018, 12, 7425-7433. | 7.3 | 128 |
| 436 | Extra‣arge Mechanical Anisotropy of a Hydrogel with Maximized Electrostatic Repulsion between Cofacially Aligned 2D Electrolytes. Angewandte Chemie, 2018, 130, 12688-12693. | 1.6 | 8 |
| 437 | Nanoparticle–Polymer Synergies in Nanocomposite Hydrogels: From Design to Application. Macromolecular Rapid Communications, 2018, 39, e1800337. | 2.0 | 85 |
| 438 | A perspective on 3D bioprinting in tissue regeneration. Bio-Design and Manufacturing, 2018, 1, 157-160. | 3.9 | 61 |
| 439 | A readily programmable, fully reversible shape-switching material. Science Advances, 2018, 4, eaat4634. | 4.7 | 146 |
| 440 | Poly(<i>N</i> -isopropylacrylamide) Cross-Linked Gels as Intrinsic Amphiphilic Materials: Swelling Properties Used to Build Novel Interphases. Journal of Physical Chemistry B, 2018, 122, 9038-9048. | 1.2 | 26 |
| 441 | 3D printing of SiC ceramic: Direct ink writing with a solution of preceramic polymers. Journal of the European Ceramic Society, 2018, 38, 5294-5300. | 2.8 | 107 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 442 | 3Dâ€Printed Microfluidic Devices for Materials Science. Advanced Materials Technologies, 2018, 3, 1800068. | 3.0 | 33 |
| 443 | Demonstrating Thermorph. , 2018, , . | | 9 |
| 444 | Additive manufacturing of hierarchical injectable scaffolds for tissue engineering. Acta Biomaterialia, 2018, 76, 71-79. | 4.1 | 39 |
| 445 | A theoretical model of postbuckling in straight ribbons with engineered thickness distributions for three-dimensional assembly. International Journal of Solids and Structures, 2018, 147, 254-271. | 1.3 | 23 |
| 446 | A Bezelâ€Less Tetrahedral Image Sensor Formed by Solventâ€Assisted Plasticization and Transformation of an Acrylonitrile Butadiene Styrene Framework. Advanced Materials, 2018, 30, e1801256. | 11.1 | 9 |
| 447 | 3D printing with cellulose materials. Cellulose, 2018, 25, 4275-4301. | 2.4 | 204 |
| 448 | A UV-curable epoxy with "soft―segments for 3D-printable shape-memory materials. Journal of Materials Science, 2018, 53, 12650-12661. | 1.7 | 12 |
| 449 | 3Dâ€Printed Organic–Ceramic Complex Hybrid Structures with High Silica Content. Advanced Science, 2018, 5, 1800061. | 5.6 | 55 |
| 450 | Plant Biomechanics. , 2018, , . | | 16 |
| 451 | Multi-material Additive Manufacturing of Metamaterials with Giant, Tailorable Negative Poisson's Ratios. Scientific Reports, 2018, 8, 9139. | 1.6 | 100 |
| 452 | Soft mechanical metamaterials with unusual swelling behavior and tunable stress-strain curves. Science Advances, 2018, 4, eaar8535. | 4.7 | 159 |
| 453 | Biomechanics and Functional Morphology of Plantsâ€"Inspiration for Biomimetic Materials and Structures., 2018,, 399-433. | | 11 |
| 454 | Printing ferromagnetic domains for untethered fast-transforming soft materials. Nature, 2018, 558, 274-279. | 13.7 | 1,426 |
| 455 | Dehydration-triggered shape morphing based on asymmetric bubble hydrogel microfibers. Soft Matter, 2018, 14, 6623-6626. | 1.2 | 13 |
| 456 | Programmable morphing composites with embedded continuous fibers by 4D printing. Materials and Design, 2018, 155, 404-413. | 3.3 | 92 |
| 457 | Covalent-supramolecular hybrid polymers as muscle-inspired anisotropic actuators. Nature Communications, 2018, 9, 2395. | 5.8 | 102 |
| 458 | Multiscale bioprinting of vascularized models. Biomaterials, 2019, 198, 204-216. | 5.7 | 191 |
| 459 | Fabricating 3D Structures by Combining 2D Printing and Relaxation of Strain. Advanced Materials Technologies, 2019, 4, 1800299. | 3.0 | 36 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 460 | Beyond power amplification: latch-mediated spring actuation is an emerging framework for the study of diverse elastic systems. Journal of Experimental Biology, 2019, 222, . | 0.8 | 98 |
| 461 | Magnetic programming of 4D printed shape memory composite structures. Composites Part A: Applied Science and Manufacturing, 2019, 125, 105571. | 3.8 | 151 |
| 462 | 3D Bioprinting Technologies. , 2019, , 1-66. | | 1 |
| 463 | Advanced 4D-bioprinting technologies for brain tissue modeling and study. International Journal of Smart and Nano Materials, 2019, 10, 177-204. | 2.0 | 40 |
| 464 | Cell-laden four-dimensional bioprinting using near-infrared-triggered shape-morphing alginate/polydopamine bioinks. Biofabrication, 2019, 11, 045019. | 3.7 | 88 |
| 465 | Rapid Openâ€Air Digital Light 3D Printing of Thermoplastic Polymer. Advanced Materials, 2019, 31, e1903970. | 11.1 | 112 |
| 466 | Reconfigurable soft body trajectories using unidirectionally stretchable composite laminae. Nature Communications, 2019, 10, 3464. | 5.8 | 71 |
| 467 | 4D printing: a critical review of current developments, and future prospects. International Journal of Advanced Manufacturing Technology, 2019, 105, 701-717. | 1.5 | 47 |
| 468 | 4D Printing of a Digital Shape Memory Polymer with Tunable High Performance. ACS Applied Materials & Lamp; Interfaces, 2019, 11, 32408-32413. | 4.0 | 95 |
| 469 | Miniature Pneumatic Actuators for Soft Robots by Highâ€Resolution Multimaterial 3D Printing. Advanced Materials Technologies, 2019, 4, 1900427. | 3.0 | 91 |
| 470 | Smart Hydrogels with Antibacterial Properties Built from All Natural Building Blocks. Chemistry of Materials, 2019, 31, 7678-7685. | 3.2 | 97 |
| 471 | Stiff reconfigurable polygons for smart connecters and deployable structures. International Journal of Mechanical Sciences, 2019, 161-162, 105052. | 3.6 | 7 |
| 472 | Anisotropic Hybrid Hydrogels with Superior Mechanical Properties Reminiscent of Tendons or Ligaments. Advanced Functional Materials, 2019, 29, 1904342. | 7.8 | 74 |
| 473 | Development of 3D Biofabricated Cell Laden Hydrogel Vessels and a Lowâ€Cost Desktop Printed Perfusion Chamber for In Vitro Vessel Maturation. Macromolecular Bioscience, 2019, 19, e1900245. | 2.1 | 22 |
| 474 | Thermoresponsive Water Transportation in Dually Electrostatically Crosslinked Nanocomposite Hydrogels. Macromolecular Rapid Communications, 2019, 40, e1900317. | 2.0 | 4 |
| 475 | Advances in biomimetic stimuli responsive soft grippers. Nano Convergence, 2019, 6, 20. | 6.3 | 55 |
| 476 | Reprogrammable Three-Dimensional Configurations Using Ionomer Bilayers. ACS Applied Polymer Materials, 2019, 1, 2760-2767. | 2.0 | 5 |
| 477 | Modular fabrication of intelligent material-tissue interfaces for bioinspired and biomimetic devices. Progress in Materials Science, 2019, 106, 100589. | 16.0 | 72 |

| # | ARTICLE | IF | CITATIONS |
|-----|---|------|-----------|
| 478 | Review of alginate-based hydrogel bioprinting for application in tissue engineering. Biofabrication, 2019, 11, 042001. | 3.7 | 363 |
| 479 | 4D printing smart biosystems for nanomedicine. Nanomedicine, 2019, 14, 1643-1645. | 1.7 | 25 |
| 480 | Voxelated Molecular Patterning in Three-Dimensional Freeforms. ACS Applied Materials & Samp; Interfaces, 2019, 11, 28236-28245. | 4.0 | 67 |
| 481 | Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing of Poly(tetrafluoroethylene) (PTFE) with Tunable Mechanical Properties. ACS Applied Materials & Direct Ink Writing Order (PTFE) with Tunable Mechanical Properties. | 4.0 | 42 |
| 482 | Bioinspired Electroâ€Thermoâ€Hygro Reversible Shapeâ€Changing Materials by 4D Printing. Advanced Functional Materials, 2019, 29, 1903280. | 7.8 | 64 |
| 483 | Can 4D bioprinting revolutionize drug development?. Expert Opinion on Drug Discovery, 2019, 14, 953-956. | 2.5 | 22 |
| 484 | Programmable Multistable Hydrogel Morphs. Advanced Intelligent Systems, 2019, 1, 1900055. | 3.3 | 14 |
| 485 | Flexible Gripper Manufacturing and Simulation Based on 3D Printing. , 2019, , . | | 0 |
| 486 | Cholesteric-type cellulosic structures: from plants to applications. Liquid Crystals, 2019, 46, 1937-1949. | 0.9 | 5 |
| 487 | Transformable, Freestanding 3D Mesostructures Based on Transient Materials and Mechanical Interlocking. Advanced Functional Materials, 2019, 29, 1903181. | 7.8 | 22 |
| 488 | Shape Memory Effect in Micro-Sized Shape Memory Polymer Composite Chains. Applied Sciences (Switzerland), 2019, 9, 2919. | 1.3 | 6 |
| 489 | 3D printed Ni/Al2O3 based catalysts for CO2 methanation - a comparative and operando XRD-CT study. Journal of CO2 Utilization, 2019, 33, 478-487. | 3.3 | 62 |
| 490 | 3D and 4D Printing of Polymers for Tissue Engineering Applications. Frontiers in Bioengineering and Biotechnology, 2019, 7, 164. | 2.0 | 275 |
| 491 | Micro/Nanoscale 3D Assembly by Rolling, Folding, Curving, and Buckling Approaches. Advanced Materials, 2019, 31, e1901895. | 11.1 | 84 |
| 492 | 4D Printing of Multi-Hydrogels Using Direct Ink Writing in a Supporting Viscous Liquid. Micromachines, 2019, 10, 433. | 1.4 | 45 |
| 493 | Nanocellulose Composite Biomaterials in Industry and Medicine. Biologically-inspired Systems, 2019, , 693-784. | 0.4 | 5 |
| 494 | Nanocomposite hydrogel actuators hybridized with various dimensional nanomaterials for stimuli responsiveness enhancement. Nano Convergence, 2019, 6, 18. | 6.3 | 56 |
| 495 | Design and Computational Modeling of a 3D Printed Pneumatic Toolkit for Soft Robotics. Soft Robotics, 2019, 6, 657-663. | 4.6 | 35 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 496 | Smart polymers for cell therapy and precision medicine. Journal of Biomedical Science, 2019, 26, 73. | 2.6 | 60 |
| 497 | Tough, Selfâ∈Healing Hydrogels Capable of Ultrafast Shape Changing. Advanced Materials, 2019, 31, e1904956. | 11.1 | 118 |
| 498 | Programmed Diffusion Induces Anisotropic Superstructures in Hydrogels with High Mechanoâ€Optical Sensitivity. Advanced Materials Technologies, 2019, 4, 1900665. | 3.0 | 14 |
| 499 | Fiber forming mechanism and reaction kinetics of novel dynamic-crosslinking-spinning for Poly(ethylene glycol) diacrylate fiber fabrication. Polymer, 2019, 183, 121903. | 1.8 | 9 |
| 500 | Influence of Rice Husk and Wood Biomass Properties on the Manufacture of Filaments for Fused Deposition Modeling. Frontiers in Chemistry, 2019, 7, 735. | 1.8 | 47 |
| 501 | Morphlour., 2019,,. | | 44 |
| 502 | 3D Printed Actuators: Reversibility, Relaxation, and Ratcheting. Advanced Functional Materials, 2019, 29, 1905545. | 7.8 | 12 |
| 503 | 3D printing of conjugated polymers. Journal of Polymer Science, Part B: Polymer Physics, 2019, 57, 1592-1605. | 2.4 | 40 |
| 504 | 3D Printing of Amylopectinâ€Based Natural Fiber Composites. Advanced Materials Technologies, 2019, 4, 1900521. | 3.0 | 22 |
| 505 | Nanomagnetic encoding of shape-morphing micromachines. Nature, 2019, 575, 164-168. | 13.7 | 307 |
| 506 | Swelling thermodynamics and phase transitions of polymer gels. Nano Futures, 2019, 3, 042001. | 1.0 | 22 |
| 507 | 4D-Printing System for Elastic Magnetic Actuators. , 2019, , . | | 7 |
| 508 | Plasmonic Metamaterial Gels with Spatially Patterned Orientational Order via 3D Printing. ACS Omega, 2019, 4, 20558-20563. | 1.6 | 17 |
| 509 | 3D Printing of Compositional Gradients Using the Microfluidic Circuit Analogy. Advanced Materials Technologies, 2019, 4, 1900784. | 3.0 | 20 |
| 510 | The MoSeS dynamic omnigami paradigm for smart shape and composition programmable 2D materials. Nature Communications, 2019, 10, 5210. | 5.8 | 15 |
| 511 | Biasing Buckling Direction in Shapeâ€Programmable Hydrogel Sheets with Throughâ€Thickness Gradients. Advanced Functional Materials, 2019, 29, 1905273. | 7.8 | 39 |
| 512 | Bayesian calibration of AquaCrop model for winter wheat by assimilating UAV multi-spectral images. Computers and Electronics in Agriculture, 2019, 167, 105052. | 3.7 | 25 |
| 513 | Semi-implicit methods for the dynamics of elastic sheets. Journal of Computational Physics, 2019, 399, 108952. | 1.9 | 6 |

| # | Article | IF | Citations |
|-----|--|------|-----------|
| 514 | On-demand orbital maneuver of multiple soft robots via hierarchical magnetomotility. Nature Communications, 2019, 10, 4751. | 5.8 | 48 |
| 515 | Experimental study of the temporal profile of breath alcohol concentration in a Chinese population after a light meal. PLoS ONE, 2019, 14, e0221237. | 1.1 | 0 |
| 516 | Plants and architecture: the role of biology and biomimetics in materials development for buildings. Intelligent Buildings International, 2019, 11, 178-211. | 1.3 | 15 |
| 517 | 3D Nanoprinting of Perovskites. Advanced Materials, 2019, 31, e1904073. | 11.1 | 64 |
| 518 | Stimuli-responsive hydrogels for manipulation of cell microenvironment: From chemistry to biofabrication technology. Progress in Polymer Science, 2019, 98, 101147. | 11.8 | 120 |
| 519 | A 3D Printed Paper-Based Thermally Driven Soft Robotic Gripper Inspired by Cabbage. International Journal of Precision Engineering and Manufacturing, 2019, 20, 1915-1928. | 1.1 | 33 |
| 520 | Novel Method to Simultaneously Adjust the Size and pH Value of Individual Microdroplets in Silicone Oil. IEEE Access, 2019, 7, 114183-114190. | 2.6 | 1 |
| 521 | Multi-Hydrogel 4D Printing for Deformation Control. , 2019, , . | | 1 |
| 522 | 3D Printed Ferrofluid Based Soft Actuators. , 2019, , . | | 5 |
| 523 | Untethered Soft Robots with Bioinspired Bone-and-Flesh Constructs for Fast Deterministic Actuation. , 2019, , . | | 1 |
| 524 | Digital Light Processing 3D Printing of Triple Shape Memory Polymer for Sequential Shape Shifting. , 2019, 1, 410-417. | | 53 |
| 525 | Multi-stimuli-responsive programmable biomimetic actuator. Nature Communications, 2019, 10, 4087. | 5.8 | 243 |
| 526 | Getting the measure of living biomaterials. Nature, 2019, 572, 38-39. | 13.7 | 4 |
| 527 | Electrochemically reconfigurable architected materials. Nature, 2019, 573, 205-213. | 13.7 | 145 |
| 528 | 3D SiC containing uniformly dispersed, aligned SiC whiskers: Printability, microstructure and mechanical properties. Journal of Alloys and Compounds, 2019, 809, 151824. | 2.8 | 32 |
| 529 | Tiger mosquitoes tackled in a trial. Nature, 2019, 572, 39-40. | 13.7 | 3 |
| 530 | Curved Geometries from Planar Director Fields: Solving the Two-Dimensional Inverse Problem. Physical Review Letters, 2019, 123, 127801. | 2.9 | 33 |
| 531 | Fabrication of soluble salt-based support for suspended ceramic structure by layered extrusion forming method. Materials and Design, 2019, 183, 108173. | 3.3 | 11 |

| # | Article | IF | CITATIONS |
|-----|--|-------------|-----------|
| 532 | Photomechanical Azobenzene Crystals. Crystals, 2019, 9, 437. | 1.0 | 61 |
| 533 | Contactless Manipulation of Soft Robots. Materials, 2019, 12, 3065. | 1.3 | 34 |
| 534 | Designing and transforming yield-stress fluids. Current Opinion in Solid State and Materials Science, 2019, 23, 100758. | 5. 6 | 66 |
| 535 | Symmetry-Breaking Actuation Mechanism for Soft Robotics and Active Metamaterials. ACS Applied Materials & Samp; Interfaces, 2019, 11, 41649-41658. | 4.0 | 130 |
| 536 | Shape-shifting structured lattices via multimaterial 4D printing. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 20856-20862. | 3.3 | 257 |
| 537 | Kaolinite Nanomaterials: Preparation, Properties and Functional Applications. , 2019, , 285-334. | | 8 |
| 538 | A finite deformation theory of desolvation and swelling in partially photo-cross-linked polymer networks for 3D/4D printing applications. Soft Matter, 2019, 15, 1005-1016. | 1.2 | 19 |
| 540 | A Review on Hierarchical Origami and Kirigami Structure for Engineering Applications. International Journal of Precision Engineering and Manufacturing - Green Technology, 2019, 6, 147-161. | 2.7 | 53 |
| 541 | A variable-stiffness tendril-like soft robot based on reversible osmotic actuation. Nature Communications, 2019, 10, 344. | 5.8 | 130 |
| 542 | 4D Printing: The Shape-Morphing in Additive Manufacturing. Journal of Functional Biomaterials, 2019, 10, 9. | 1.8 | 46 |
| 543 | Ionoprinting controlled information storage of fluorescent hydrogel for hierarchical and multi-dimensional decryption. Science China Materials, 2019, 62, 831-839. | 3.5 | 51 |
| 544 | Dual-Gel 4D Printing of Bioinspired Tubes. ACS Applied Materials & Samp; Interfaces, 2019, 11, 8492-8498. | 4.0 | 100 |
| 545 | Light-induced shape morphing of thin films. Current Opinion in Colloid and Interface Science, 2019, 40, 70-86. | 3.4 | 38 |
| 546 | Strategic Design of Clayâ€Based Multifunctional Materials: From Natural Minerals to Nanostructured Membranes. Advanced Functional Materials, 2019, 29, 1807611. | 7.8 | 65 |
| 547 | Biological and Engineered Topological Droplet Rectifiers. Advanced Materials, 2019, 31, e1806501. | 11.1 | 113 |
| 548 | Bioinspiriertes Design und additive Fertigung von weichen Materialien, Maschinen, Robotern und haptischen Schnittstellen. Angewandte Chemie, 2019, 131, 11300-11324. | 1.6 | 5 |
| 549 | Bioâ€inspired Design and Additive Manufacturing of Soft Materials, Machines, Robots, and Haptic Interfaces. Angewandte Chemie - International Edition, 2019, 58, 11182-11204. | 7.2 | 120 |
| 550 | Bioinspired fiber-regulated composite with tunable permanent shape and shape memory properties via 3d magnetic printing. Composites Part B: Engineering, 2019, 164, 458-466. | 5.9 | 45 |

| # | Article | IF | Citations |
|-----|--|------|-----------|
| 551 | Recent Strategies in Extrusion-Based Three-Dimensional Cell Printing toward Organ Biofabrication. ACS Biomaterials Science and Engineering, 2019, 5, 1150-1169. | 2.6 | 86 |
| 552 | Dual-3D Femtosecond Laser Nanofabrication Enables Dynamic Actuation. ACS Nano, 2019, 13, 4041-4048. | 7.3 | 90 |
| 553 | Additive manufacturing of self-healing elastomers. NPG Asia Materials, 2019, 11, . | 3.8 | 111 |
| 554 | Improving salt tolerance and thermal stability of cellulose nanofibrils by grafting modification. Carbohydrate Polymers, 2019, 211, 257-265. | 5.1 | 43 |
| 555 | Dynamics of carbohydrate strands in water and interactions with clay minerals: influence of pH, surface chemistry, and electrolytes. Nanoscale, 2019, 11, 11183-11194. | 2.8 | 13 |
| 556 | Optimization of 3D bioprinting of human neuroblastoma cells using sodium alginate hydrogel. Bioprinting, 2019, 16, e00053. | 2.9 | 44 |
| 557 | pH-Controlled Self-Assembled Fibrillar Network Hydrogels: Evidence of Kinetic Control of the Mechanical Properties. Chemistry of Materials, 2019, 31, 4817-4830. | 3.2 | 35 |
| 558 | Mechanical Models, Structures, and Applications of Shape-Memory Polymers and Their Composites. Acta Mechanica Solida Sinica, 2019, 32, 535-565. | 1.0 | 73 |
| 559 | Tissue engineering scaffolds. , 2019, , 165-185. | | 6 |
| 560 | Additively manufacturing high-performance bismaleimide architectures with ultraviolet-assisted direct ink writing. Materials and Design, 2019, 180, 107947. | 3.3 | 60 |
| 561 | 4D Printing of Smart Stimuli-Responsive Polymers. Journal of the Electrochemical Society, 2019, 166, B3274-B3281. | 1.3 | 39 |
| 562 | Origami-inspired sacrificial joints for folding compliant mechanisms. Mechanism and Machine Theory, 2019, 140, 194-210. | 2.7 | 20 |
| 563 | Geodesy. , 2019, , . | | 38 |
| 564 | Light to Shape the Future: From Photolithography to 4D Printing. Advanced Optical Materials, 2019, 7, 1900598. | 3.6 | 152 |
| 565 | Additive Manufacturing of 3D Structures Composed of Wood Materials. Advanced Materials Technologies, 2019, 4, 1900158. | 3.0 | 32 |
| 566 | Design Approaches for Generating Organ Constructs. Cell Stem Cell, 2019, 24, 877-894. | 5.2 | 26 |
| 567 | Biomimetic Thermal-sensitive Multi-transform Actuator. Scientific Reports, 2019, 9, 7905. | 1.6 | 9 |
| 568 | Buffering by buckling as a route for elastic deformation. Nature Reviews Physics, 2019, 1, 425-436. | 11.9 | 40 |

| # | Article | IF | CITATIONS |
|-----|--|-----|-----------|
| 569 | Hierarchical chemomechanical encoding of multi-responsive hydrogel actuators <i>via</i> 3D printing. Journal of Materials Chemistry A, 2019, 7, 15395-15403. | 5.2 | 73 |
| 570 | Additive manufacturing of cementitious composites: Materials, methods, potentials, and challenges. Construction and Building Materials, 2019, 218, 582-609. | 3.2 | 107 |
| 571 | Recent advances on 3D printing graphene-based composites. Nano Materials Science, 2019, 1, 101-115. | 3.9 | 143 |
| 572 | Perovskite nanowire–block copolymer composites with digitally programmable polarization anisotropy. Science Advances, 2019, 5, eaav8141. | 4.7 | 103 |
| 573 | Review of mechanisms and deformation behaviors in 4D printing. International Journal of Advanced Manufacturing Technology, 2019, 105, 4633-4649. | 1.5 | 48 |
| 574 | Amorphous polyphosphate nanoparticles: application of the morphogenetically active inorganic polymer for personalized tissue regeneration. Journal Physics D: Applied Physics, 2019, 52, 363001. | 1.3 | 6 |
| 575 | 4D printing of polyurethane paint-based composites. International Journal of Smart and Nano Materials, 2019, 10, 237-248. | 2.0 | 49 |
| 576 | Directed Printing and Reconfiguration of Thermoresponsive Silicaâ€pNIPAM Nanocomposites. Macromolecular Rapid Communications, 2019, 40, e1900191. | 2.0 | 9 |
| 577 | Twoâ€Photon Verticalâ€Flow Lithography for Microtube Synthesis. Small, 2019, 15, e1901356. | 5.2 | 24 |
| 578 | Decentralized manufacturing for biomimetics through cooperation of digitization and nanomaterial design. Nanoscale, 2019, 11, 19179-19189. | 2.8 | 1 |
| 579 | Switchable Adhesives for Multifunctional Interfaces. Advanced Materials Technologies, 2019, 4, 1900193. | 3.0 | 101 |
| 580 | In Operando Monitoring of Dynamic Recovery in 3D-Printed Thermoset Nanocomposites by XPCS. Langmuir, 2019, 35, 8758-8768. | 1.6 | 38 |
| 581 | Scaffolding Strategies for Tissue Engineering and Regenerative Medicine Applications. Materials, 2019, 12, 1824. | 1.3 | 309 |
| 582 | Controllable Bending of Bi-hydrogel Strips with Differential Swelling. Acta Mechanica Solida Sinica, 2019, 32, 652-662. | 1.0 | 15 |
| 583 | Hierarchical cellular scaffolds fabricated via direct foam writing using gelled colloidal particleâ€stabilized foams as the ink. Journal of the American Ceramic Society, 2019, 102, 6498-6506. | 1.9 | 16 |
| 584 | A Review of Biological Fluid Power Systems and Their Potential Bionic Applications. Journal of Bionic Engineering, 2019, 16, 367-399. | 2.7 | 21 |
| 585 | Engineering the vasculature for islet transplantation. Acta Biomaterialia, 2019, 95, 131-151. | 4.1 | 65 |
| 586 | Hydrogel-Templated Transfer-Printing of Conductive Nanonetworks for Wearable Sensors on Topographic Flexible Substrates. Nano Letters, 2019, 19, 3684-3691. | 4.5 | 54 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 587 | Shape Morphing of Hydrogels in Alternating Magnetic Field. ACS Applied Materials & Samp; Interfaces, 2019, 11, 21194-21200. | 4.0 | 108 |
| 588 | Distortion-controlled isotropic swelling: numerical study of free boundary swelling patterns. Soft Matter, 2019, 15, 4890-4897. | 1.2 | 1 |
| 589 | Mechanical Properties of Ultraviolet-Assisted Paste Extrusion and Postextrusion Ultraviolet-Curing of Three-Dimensional Printed Biocomposites. 3D Printing and Additive Manufacturing, 2019, 6, 127-137. | 1.4 | 16 |
| 590 | 4D and 5D Printing. , 2019, , 143-163. | | 12 |
| 591 | 4D printing and stimuli-responsive materials in biomedical aspects. Acta Biomaterialia, 2019, 92, 19-36. | 4.1 | 191 |
| 592 | Bio-Mimic Motion of 3D-Printed Gel Structures Dispersed with Magnetic Particles. Journal of the Electrochemical Society, 2019, 166, B3235-B3239. | 1.3 | 60 |
| 593 | Long Liquid Crystal Elastomer Fibers with Large Reversible Actuation Strains for Smart Textiles and Artificial Muscles. ACS Applied Materials & Samp; Interfaces, 2019, 11, 19514-19521. | 4.0 | 168 |
| 594 | Bending, curling, and twisting in polymeric bilayers. Soft Matter, 2019, 15, 4541-4547. | 1.2 | 17 |
| 595 | Advanced Polymer Designs for Directâ€Inkâ€Write 3D Printing. Chemistry - A European Journal, 2019, 25, 10768-10781. | 1.7 | 171 |
| 596 | Thermal-controlled releasing and assembling of functional nanomembranes through polymer pyrolysis. Nanotechnology, 2019, 30, 354001. | 1.3 | 6 |
| 597 | Lightâ€Driven Shape Morphing, Assembly, and Motion of Nanocomposite Gel Surfers. Advanced Materials, 2019, 31, e1900932. | 11.1 | 57 |
| 598 | 4D Printing of Shapeâ€Memory Hydrogels for Softâ€Robotic Functions. Advanced Materials Technologies, 2019, 4, 1900071. | 3.0 | 129 |
| 599 | Mechanics of bistable cross-shaped structures through loading-path controlled 3D assembly. Journal of the Mechanics and Physics of Solids, 2019, 129, 261-277. | 2.3 | 31 |
| 600 | A critical review of current progress in 3D kidney biomanufacturing: advances, challenges, and recommendations. Renal Replacement Therapy, 2019, 5, . | 0.3 | 27 |
| 601 | Effects of architecture level on mechanical properties of hierarchical lattice materials. International Journal of Mechanical Sciences, 2019, 157-158, 282-292. | 3.6 | 49 |
| 602 | Bio-inspired sensing and actuating materials. Journal of Materials Chemistry C, 2019, 7, 6493-6511. | 2.7 | 112 |
| 603 | lonic Hydrogels with Biomimetic 4Dâ€Printed Mechanical Gradients: Models for Softâ€Bodied Aquatic Organisms. Advanced Functional Materials, 2019, 29, 1806723. | 7.8 | 37 |
| 604 | Integration of biological systems with electronic-mechanical assemblies. Acta Biomaterialia, 2019, 95, 91-111. | 4.1 | 23 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 605 | Amyloid-Based Injectable Hydrogel Derived from Hydrolyzed Hen Egg White Lysozyme. ACS Omega, 2019, 4, 8071-8080. | 1.6 | 43 |
| 606 | Molecularly-ordered hydrogels with controllable, anisotropic stimulus response. Soft Matter, 2019, 15, 4508-4517. | 1.2 | 13 |
| 607 | 3D Bioprinting: from Benches to Translational Applications. Small, 2019, 15, e1805510. | 5.2 | 235 |
| 608 | Structure-driven biomimetic self-morphing composites fabricated by multi-process 3-D printing. Composites Part A: Applied Science and Manufacturing, 2019, 123, 1-9. | 3.8 | 5 |
| 609 | 3D Printed Sensors for Biomedical Applications: A Review. Sensors, 2019, 19, 1706. | 2.1 | 150 |
| 610 | Chemistry from 3D printed objects. Nature Reviews Chemistry, 2019, 3, 305-314. | 13.8 | 93 |
| 611 | Patterning order and disorder with an angle: modeling single-layer dual-phase nematic elastomer ribbons. RSC Advances, 2019, 9, 8994-9000. | 1.7 | 3 |
| 612 | Extrusion bioprinting of soft materials: An emerging technique for biological model fabrication. Applied Physics Reviews, 2019, 6, . | 5.5 | 163 |
| 613 | 3D Printed Photoresponsive Materials for Photonics. Advanced Optical Materials, 2019, 7, 1900156. | 3.6 | 41 |
| 614 | 3D Printing/Bioprinting Based Tailoring of <i>in Vitro</i> Tissue Models: Recent Advances and Challenges. ACS Applied Bio Materials, 2019, 2, 1385-1405. | 2.3 | 52 |
| 615 | Modeling and Application of Planarâ€toâ€3D Structures via Optically Programmed Frontal Photopolymerization. Advanced Engineering Materials, 2019, 21, 1801279. | 1.6 | 9 |
| 616 | Sustainable Biomass Materials for Biomedical Applications. ACS Biomaterials Science and Engineering, 2019, 5, 2079-2092. | 2.6 | 36 |
| 617 | 3D Printing of Multifunctional Hydrogels. Advanced Functional Materials, 2019, 29, 1900971. | 7.8 | 225 |
| 618 | Stimuli-responsive materials in additive manufacturing. Progress in Polymer Science, 2019, 93, 36-67. | 11.8 | 148 |
| 619 | Polymers for additive manufacturing and 4D-printing: Materials, methodologies, and biomedical applications. Progress in Polymer Science, 2019, 94, 57-116. | 11.8 | 364 |
| 620 | Engineered Tissue Development in Biofabricated 3D Geometrical Confinement–A Review. ACS Biomaterials Science and Engineering, 2019, 5, 3688-3702. | 2.6 | 18 |
| 621 | 3D printed cellulose nanocrystal composites through digital light processing. Cellulose, 2019, 26, 3973-3985. | 2.4 | 65 |
| 622 | Elasticity and stability of shape-shifting structures. Current Opinion in Colloid and Interface Science, 2019, 40, 118-137. | 3.4 | 95 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 623 | Materials from trees assembled by 3D printing $\hat{a} \in \text{``Wood tissue}$ beyond nature limits. Applied Materials Today, 2019, 15, 280-285. | 2.3 | 35 |
| 624 | Direct Writing of Elastic Fibers with Optical, Electrical, and Microfluidic Functionality. Advanced Materials Technologies, 2019, 4, 1800659. | 3.0 | 20 |
| 625 | Ultrafast Fabrication of Gradient Nanoporous Allâ€Polysaccharide Films as Strong, Superfast, and Multiresponsive Actuators. Advanced Functional Materials, 2019, 29, 1807692. | 7.8 | 106 |
| 626 | Modified commercial UV curable elastomers for passive 4D printing. International Journal of Smart and Nano Materials, 2019, 10, 225-236. | 2.0 | 28 |
| 627 | Developments in 4D-printing: a review on current smart materials, technologies, and applications. International Journal of Smart and Nano Materials, 2019, 10, 205-224. | 2.0 | 232 |
| 628 | Autonomous origami: pre-programmed folding of inkjet printed structures. Smart Materials and Structures, 2019, 28, 055019. | 1.8 | 1 |
| 629 | Resolution and shape in bioprinting: Strategizing towards complex tissue and organ printing. Applied Physics Reviews, 2019, 6, . | 5.5 | 89 |
| 630 | A novel near-infrared light responsive 4D printed nanoarchitecture with dynamically and remotely controllable transformation. Nano Research, 2019, 12, 1381-1388. | 5.8 | 82 |
| 631 | The Third Era of Tissue Engineering: Reversing the Innovation Drivers. Tissue Engineering - Part A, 2019, 25, 821-826. | 1.6 | 22 |
| 632 | New frontiers for the materials genome initiative. Npj Computational Materials, 2019, 5, . | 3.5 | 312 |
| 633 | Emerging Trends in Informationâ€Driven Engineering of Complex Biological Systems. Advanced Materials, 2019, 31, 1806898. | 11.1 | 11 |
| 634 | Active Mixing of Disparate Inks for Multimaterial 3D Printing. Advanced Materials Technologies, 2019, 4, 1800717. | 3.0 | 30 |
| 635 | Robotics: Science preceding science fiction. MRS Bulletin, 2019, 44, 295-301. | 1.7 | 5 |
| 636 | Nanogrooved carbon microtubes for wet threeâ€dimensional printing of conductive composite structures. Polymer International, 2019, 68, 922-928. | 1.6 | 2 |
| 637 | Controllable Shape Changing and Tristability of Bilayer Composite. ACS Applied Materials & Samp; Interfaces, 2019, 11, 16881-16887. | 4.0 | 14 |
| 638 | Bioinspired Actuators Based on Stimuliâ€Responsive Polymers. Chemistry - an Asian Journal, 2019, 14, 2369-2387. | 1.7 | 60 |
| 639 | Architectured Polymeric Materials Produced by Additive Manufacturing. Springer Series in Materials Science, 2019, , 257-285. | 0.4 | 3 |
| 640 | Programmable three-dimensional advanced materials based on nanostructures as building blocks for flexible sensors. Nano Today, 2019, 26, 176-198. | 6.2 | 60 |

| # | ARTICLE | IF | CITATIONS |
|-----|---|------|-----------|
| 641 | Effects of material heterogeneity on self-rolling of strained membranes. Extreme Mechanics Letters, 2019, 29, 100451. | 2.0 | 0 |
| 642 | 3D printed dual macro-, microscale porous network as a tissue engineering scaffold with drug delivering function. Biofabrication, 2019, 11, 035014. | 3.7 | 47 |
| 643 | 2D Nanoclay for Biomedical Applications: Regenerative Medicine, Therapeutic Delivery, and Additive Manufacturing. Advanced Materials, 2019, 31, e1900332. | 11.1 | 237 |
| 644 | Thermoresponsive Stiffness Softening of Hierarchically Porous Nanohybrid Membranes Promotes Niches for Mesenchymal Stem Cell Differentiation. Advanced Healthcare Materials, 2019, 8, e1801556. | 3.9 | 12 |
| 645 | Electrodeposition-based rapid bioprinting of 3D-designed hydrogels with a pin art device. Biofabrication, 2019, 11, 035018. | 3.7 | 13 |
| 646 | A taxonomy of shape-changing behavior for 4D printed parts using shape-memory polymers. Progress in Additive Manufacturing, 2019, 4, 167-184. | 2.5 | 38 |
| 647 | Self-Healing Four-Dimensional Printing with an Ultraviolet Curable Double-Network Shape Memory Polymer System. ACS Applied Materials & Samp; Interfaces, 2019, 11, 10328-10336. | 4.0 | 126 |
| 648 | Recyclable 3D Printing of Polyimine-Based Covalent Adaptable Network Polymers. 3D Printing and Additive Manufacturing, 2019, 6, 31-39. | 1.4 | 34 |
| 649 | 3D printing of thermoreversible polyurethanes with targeted shape memory and precise <i>in situ</i> self-healing properties. Journal of Materials Chemistry A, 2019, 7, 6972-6984. | 5.2 | 70 |
| 650 | Direct ink writing with high-strength and swelling-resistant biocompatible physically crosslinked hydrogels. Biomaterials Science, 2019, 7, 1805-1814. | 2.6 | 90 |
| 651 | Mechanical Metamaterials and Their Engineering Applications. Advanced Engineering Materials, 2019, 21, 1800864. | 1.6 | 493 |
| 652 | Advancing Frontiers in Bone Bioprinting. Advanced Healthcare Materials, 2019, 8, e1801048. | 3.9 | 164 |
| 653 | The Pathway to Intelligence: Using Stimuliâ€Responsive Materials as Building Blocks for Constructing Smart and Functional Systems. Advanced Materials, 2019, 31, e1804540. | 11.1 | 169 |
| 654 | SiCw/SiCp reinforced 3D-SiC ceramics using direct ink writing of polycarbosilane-based solution: Microstructure, composition and mechanical properties. Journal of the European Ceramic Society, 2019, 39, 2648-2657. | 2.8 | 48 |
| 655 | Shape-programming of hyperelastic plates through differential growth: an analytical approach. Soft Matter, 2019, 15, 2391-2399. | 1.2 | 15 |
| 656 | Approaches to mimic the complexity of the skeletal mesenchymal stem/stromal cell niche in vitro. , 2019, 37, 88-112. | | 5 |
| 657 | Transformer Hydrogels: A Review. Advanced Materials Technologies, 2019, 4, 1900043. | 3.0 | 207 |
| 658 | Photopolymerization in 3D Printing. ACS Applied Polymer Materials, 2019, 1, 593-611. | 2.0 | 776 |

| # | Article | IF | CITATIONS |
|-----|---|-----|-----------|
| 659 | 4D Bioprinting: Technological Advances in Biofabrication. Macromolecular Bioscience, 2019, 19, e1800441. | 2.1 | 92 |
| 661 | Improved thermal conductivity of thermoplastic polyurethane via aligned boron nitride platelets assisted by 3D printing. Composites Part A: Applied Science and Manufacturing, 2019, 120, 140-146. | 3.8 | 128 |
| 662 | Breakthrough in the printing tactics for stimuli-responsive materials: 4D printing. Chemical Engineering Journal, 2019, 366, 264-304. | 6.6 | 175 |
| 663 | A smart bottom-up strategy for fabrication of complex hydrogel constructs with 3D controllable geometric shapes through dynamic interfacial adhesion. Journal of Materials Chemistry B, 2019, 7, 1996-2000. | 2.9 | 8 |
| 664 | Wood-based nanocellulose and bioactive glass modified gelatin–alginate bioinks for 3D bioprinting of bone cells. Biofabrication, 2019, 11, 035010. | 3.7 | 125 |
| 665 | Self-stresses control stiffness and stability in overconstrained disordered networks. Physical Review E, 2019, 99, 023001. | 0.8 | 2 |
| 666 | Temperatureâ€Mediated Microfluidic Extrusion of Structurally Anisotropic Hydrogels. Advanced Materials Technologies, 2019, 4, 1800627. | 3.0 | 18 |
| 667 | 3D Printing of Hydrogel Architectures with Complex and Controllable Shape Deformation. Advanced Materials Technologies, 2019, 4, 1800713. | 3.0 | 71 |
| 668 | Thermo-mechanical transformation of shape memory polymers from initially flat discs to bowls and saddles. Smart Materials and Structures, 2019, 28, 045011. | 1.8 | 21 |
| 669 | Buckling-induced Shape Morphing using Dielectric Elastomer Actuators Patterned with Spatially-varying Electrodes., 2019,,. | | 0 |
| 670 | Encoding kirigami bi-materials to morph on target in response to temperature. Scientific Reports, 2019, 9, 19499. | 1.6 | 19 |
| 671 | Review of Polymeric Materials in 4D Printing Biomedical Applications. Polymers, 2019, 11, 1864. | 2.0 | 94 |
| 672 | 2. State of the art of the fused deposition modeling using PLA: improving the performance. , 2019, , 59-112. | | 2 |
| 673 | UV-responsive cyclic peptide progelator bioinks. Faraday Discussions, 2019, 219, 44-57. | 1.6 | 4 |
| 674 | Colloidal nanoparticle inks for printing functional devices: emerging trends and future prospects. Journal of Materials Chemistry A, 2019, 7, 23301-23336. | 5.2 | 94 |
| 675 | Supramolecular Hydrogels with Properties Tunable by Calcium Ions: A Bio-Inspired Chemical System. ACS Applied Bio Materials, 2019, 2, 5819-5828. | 2.3 | 13 |
| 676 | Bioinspired dual-morphing stretchable origami. Science Robotics, 2019, 4, . | 9.9 | 127 |
| 677 | Visualizing Morphogenesis through Instability Formation in 4-D Printing. ACS Applied Materials & Samp; Interfaces, 2019, 11, 47468-47475. | 4.0 | 20 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 678 | Biological Material Interfaces as Inspiration for Mechanical and Optical Material Designs. Chemical Reviews, 2019, 119, 12279-12336. | 23.0 | 121 |
| 679 | Fast Digital Patterning of Surface Topography toward Three-Dimensional Shape-Changing Structures. ACS Applied Materials & Samp; Interfaces, 2019, 11, 48412-48418. | 4.0 | 12 |
| 680 | Design and Control of an Educational Redundant 3D Printed Robot. , 2019, , . | | 10 |
| 681 | 4D-printed hybrids with localized shape memory behaviour: Implementation in a functionally graded structure. Scientific Reports, 2019, 9, 18754. | 1.6 | 37 |
| 682 | Additive manufacturing of smart materials exhibiting 4-D properties: A state of art review. Journal of Thermoplastic Composite Materials, 2022, 35, 1358-1381. | 2.6 | 31 |
| 683 | Additive Manufacturing Methods for Producing Hydroxyapatite and Hydroxyapatite-Based Composite Scaffolds: A Review. Frontiers in Materials, 2019, 6, . | 1.2 | 113 |
| 684 | An insight into biomimetic 4D printing. RSC Advances, 2019, 9, 38209-38226. | 1.7 | 34 |
| 685 | 3D printing using plant-derived cellulose and its derivatives: A review. Carbohydrate Polymers, 2019, 203, 71-86. | 5.1 | 232 |
| 686 | Preliminary design and comparative study of thermal control in a nanosatellite through smart variable emissivity surfaces. Proceedings of the Institution of Mechanical Engineers, Part G: Journal of Aerospace Engineering, 2019, 233, 3336-3350. | 0.7 | 3 |
| 687 | Mechanical performance of additively manufactured meta-biomaterials. Acta Biomaterialia, 2019, 85, 41-59. | 4.1 | 230 |
| 688 | Multistable Thermal Actuators Via Multimaterial 4D Printing. Advanced Materials Technologies, 2019, 4, 1800495. | 3.0 | 54 |
| 689 | Sharp Fano Resonance and Spectral Collapse in Stimuliâ€Responsive Photonic Structures. Advanced Optical Materials, 2019, 7, 1801206. | 3.6 | 4 |
| 690 | A Stimuliâ€Responsive Nanocomposite for 3D Anisotropic Cellâ€Guidance and Magnetic Soft Robotics. Advanced Functional Materials, 2019, 29, 1804647. | 7.8 | 126 |
| 691 | Twistable Origami and Kirigami: from Structure-Guided Smartness to Mechanical Energy Storage. ACS Applied Materials & Dechange interfaces, 2019, 11, 3450-3458. | 4.0 | 45 |
| 692 | Design and Fabrication of Heterogeneous, Deformable Substrates for the Mechanically Guided 3D Assembly. ACS Applied Materials & Samp; Interfaces, 2019, 11, 3482-3492. | 4.0 | 23 |
| 693 | 4D printing with robust thermoplastic polyurethane hydrogel-elastomer trilayers. Materials and Design, 2019, 163, 107544. | 3.3 | 93 |
| 694 | Challenges and Status on Design and Computation for Emerging Additive Manufacturing Technologies. Journal of Computing and Information Science in Engineering, 2019, 19, . | 1.7 | 50 |
| 695 | Molecularlyâ€Engineered, 4Dâ€Printed Liquid Crystal Elastomer Actuators. Advanced Functional Materials, 2019, 29, 1806412. | 7.8 | 234 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 696 | A general strategy of 3D printing thermosets for diverse applications. Materials Horizons, 2019, 6, 394-404. | 6.4 | 89 |
| 697 | Additive Manufacturing: Applications and Directions in Photonics and Optoelectronics. Advanced Optical Materials, 2019, 7, 1800419. | 3.6 | 132 |
| 698 | Progress in the Field of Water―and/or Temperatureâ€Triggered Polymer Actuators. Macromolecular Materials and Engineering, 2019, 304, 1800548. | 1.7 | 71 |
| 699 | Bio-inspired pneumatic shape-morphing elastomers. Nature Materials, 2019, 18, 24-28. | 13.3 | 226 |
| 700 | Tensile properties of multi-material interfaces in 3D printed parts. Materials and Design, 2019, 162, 1-9. | 3.3 | 63 |
| 701 | Soft grasping mechanisms composed of shape memory polymer based self-bending units. Composites Part B: Engineering, 2019, 164, 198-204. | 5.9 | 55 |
| 702 | 3D Printing of Anisotropic Hydrogels with Bioinspired Motion. Advanced Science, 2019, 6, 1800703. | 5.6 | 85 |
| 703 | Three-dimensional (3D) printed scaffold and material selection for bone repair. Acta Biomaterialia, 2019, 84, 16-33. | 4.1 | 547 |
| 704 | Oneâ€Step Preparation of Tough and Selfâ€Healing Polyion Complex Hydrogels with Tunable Swelling Behaviors. Macromolecular Rapid Communications, 2019, 40, e1800691. | 2.0 | 4 |
| 705 | CelloMOF: Nanocellulose Enabled 3D Printing of Metal–Organic Frameworks. Advanced Functional Materials, 2019, 29, 1805372. | 7.8 | 148 |
| 706 | Surface Modification of 3D Printed Polycaprolactone Constructs via a Solvent Treatment: Impact on Physical and Osteogenic Properties. ACS Biomaterials Science and Engineering, 2019, 5, 318-328. | 2.6 | 38 |
| 707 | Design and applications of man-made biomimetic fibrillar hydrogels. Nature Reviews Materials, 2019, 4, 99-115. | 23.3 | 253 |
| 708 | Printing and mechanical characterization of cellulose nanofibril materials. Cellulose, 2019, 26, 2639-2651. | 2.4 | 17 |
| 709 | From two-dimensional to three-dimensional structures: A superior thermal-driven actuator with switchable deformation behavior. Chemical Engineering Journal, 2019, 360, 680-685. | 6.6 | 12 |
| 710 | Bifurcation-based embodied logic and autonomous actuation. Nature Communications, 2019, 10, 128. | 5.8 | 106 |
| 712 | 3Dâ€Printed Silicone Soft Architectures with Programmed Magneto apillary Reconfiguration. Advanced Materials Technologies, 2019, 4, 1800528. | 3.0 | 62 |
| 713 | Recent Progress in Biomimetic Anisotropic Hydrogel Actuators. Advanced Science, 2019, 6, 1801584. | 5.6 | 403 |
| 714 | Reconfigurable shape-morphing dielectric elastomers using spatially varying electric fields. Nature Communications, 2019, 10, 183. | 5.8 | 125 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 715 | Three-dimensional piezoelectric polymer microsystems for vibrational energy harvesting, robotic interfaces and biomedical implants. Nature Electronics, 2019, 2, 26-35. | 13.1 | 322 |
| 716 | Additive manufacturing of soft robots. , 2019, , 335-359. | | 18 |
| 717 | Deformation Behavior of Fiber-Reinforced Hydrogel Structures. International Journal of Structural Stability and Dynamics, 2019, 19, 1950032. | 1.5 | 20 |
| 718 | Explicit structural topology optimization under finite deformation via Moving Morphable Void (MMV) approach. Computer Methods in Applied Mechanics and Engineering, 2019, 344, 798-818. | 3.4 | 37 |
| 719 | A Highly Stretchable Tough Polymer Actuator Driven by Acetone Vapors. Macromolecular Materials and Engineering, 2019, 304, 1800501. | 1.7 | 7 |
| 720 | Biodegradable Thermomagnetically Responsive Soft Untethered Grippers. ACS Applied Materials & Samp; Interfaces, 2019, 11, 151-159. | 4.0 | 70 |
| 721 | 3Dâ€Printed Hydrogel Composites for Predictive Temporal (4D) Cellular Organizations and Patterned Biogenic Mineralization. Advanced Healthcare Materials, 2019, 8, e1800788. | 3.9 | 21 |
| 722 | Siteâ€Specific Oxidationâ€Induced Stiffening and Shape Morphing of Soft Tough Hydrogels. Macromolecular Materials and Engineering, 2019, 304, 1800589. | 1.7 | 8 |
| 723 | Printing Birefringent Figures by Surface Tension-Directed Self-Assembly of a Cellulose Nanocrystal/Polymer Ink Components. ACS Applied Materials & Samp; Interfaces, 2019, 11, 1538-1545. | 4.0 | 18 |
| 724 | Fatigue of hydrogels. European Journal of Mechanics, A/Solids, 2019, 74, 337-370. | 2.1 | 206 |
| 725 | Architected Origami Materials: How Folding Creates Sophisticated Mechanical Properties. Advanced Materials, 2019, 31, e1805282. | 11.1 | 171 |
| 726 | Self-Folded Three-Dimensional Graphene with a Tunable Shape and Conductivity. Nano Letters, 2019, 19, 461-470. | 4.5 | 17 |
| 727 | pH and Thermo Dualâ€Responsive Fluorescent Hydrogel Actuator. Macromolecular Rapid Communications, 2019, 40, e1800648. | 2.0 | 73 |
| 728 | Finite element modeling to predict the steady-state structural behavior of 4D textiles. Textile Reseach Journal, 2019, 89, 3484-3498. | 1.1 | 13 |
| 729 | Advances in 4D Printing: Materials and Applications. Advanced Functional Materials, 2019, 29, 1805290. | 7.8 | 633 |
| 730 | 3D bioprinting of hydrogelâ€based biomimetic microenvironments. Journal of Biomedical Materials Research - Part B Applied Biomaterials, 2019, 107, 1695-1705. | 1.6 | 27 |
| 731 | Photolithographically Patterned Hydrogels with Programmed Deformations. Chemistry - an Asian Journal, 2019, 14, 94-104. | 1.7 | 25 |
| 732 | Low Solids Emulsion Gels Based on Nanocellulose for 3D-Printing. Biomacromolecules, 2019, 20, 635-644. | 2.6 | 68 |

| # | ARTICLE | IF | CITATIONS |
|-----|---|------|-----------|
| 733 | 4D printing applications in medical field: A brief review. Clinical Epidemiology and Global Health, 2019, 7, 317-321. | 0.9 | 130 |
| 734 | Smart materials in additive manufacturing: state of the art and trends. Virtual and Physical Prototyping, 2019, 14, 1-18. | 5.3 | 106 |
| 735 | Investigations for Barium Titanate and Graphene Reinforced PVDF Matrix for 4D Applications. , 2020, , 366-375. | | 6 |
| 736 | Multiscale modelling and homogenisation of fibre-reinforced hydrogels for tissue engineering. European Journal of Applied Mathematics, 2020, 31, 143-171. | 1.4 | 25 |
| 737 | Four-dimensional direct laser writing of reconfigurable compound micromachines. Materials Today, 2020, 32, 19-25. | 8.3 | 131 |
| 738 | Hydrogel Adhesion: A Supramolecular Synergy of Chemistry, Topology, and Mechanics. Advanced Functional Materials, 2020, 30, 1901693. | 7.8 | 507 |
| 739 | Controlled Microstructural Architectures Based on Smart Fabrication Strategies. Advanced Functional Materials, 2020, 30, 1901760. | 7.8 | 36 |
| 740 | 4D Printing: Future Insight in Additive Manufacturing. Metals and Materials International, 2020, 26, 564-585. | 1.8 | 77 |
| 741 | Organ-level vascularization: The Mars mission of bioengineering. Journal of Thoracic and Cardiovascular Surgery, 2020, 159, 2003-2007. | 0.4 | 15 |
| 742 | Biomaterials for Personalized Cell Therapy. Advanced Materials, 2020, 32, e1902005. | 11.1 | 76 |
| 743 | Spatiotemporal consistency-based adaptive hand-held video stabilization. Science China Information Sciences, 2020, 63, 1. | 2.7 | 1 |
| 744 | Inorganic Stimuliâ€Responsive Nanomembranes for Smallâ€Scale Actuators and Robots. Advanced Intelligent Systems, 2020, 2, 1900092. | 3.3 | 7 |
| 745 | Nature-Inspired Chemical Engineering. , 2020, , 19-31. | | 8 |
| 746 | 3D and 4D printing of pH-responsive and functional polymers and their composites. , 2020, , 85-117. | | 30 |
| 747 | Additive manufacturing (AM) of medical devices and scaffolds for tissue engineering based on 3D and 4D printing., 2020,, 119-160. | | 16 |
| 748 | Hydrogels and hydrogel composites for 3D and 4D printing applications. , 2020, , 427-465. | | 12 |
| 749 | Fundamentals and applications of 3D and 4D printing of polymers: Challenges in polymer processing and prospects of future research., 2020,, 527-560. | | 25 |
| 750 | 3D printing for membrane separation, desalination and water treatment. Applied Materials Today, 2020, 18, 100486. | 2.3 | 122 |

| # | ARTICLE | IF | CITATIONS |
|-----|---|------|-----------|
| 751 | A novel leaf inspired hydrogel film based on fiber reinforcement as rapid steam sensor. Chemical Engineering Journal, 2020, 382, 122948. | 6.6 | 33 |
| 752 | Hydrogel-based 3D bioprinting: A comprehensive review on cell-laden hydrogels, bioink formulations, and future perspectives. Applied Materials Today, 2020, 18, 100479. | 2.3 | 266 |
| 753 | 3D Bioprinting: The Emergence of Programmable Biodesign. Advanced Healthcare Materials, 2020, 9, e1900554. | 3.9 | 25 |
| 754 | Stimuli-responsive anisotropic actuation of melem-formaldehyde polymer. Materials Horizons, 2020, 7, 149-156. | 6.4 | 13 |
| 755 | Materials Forming, Machining and Post Processing. Materials Forming, Machining and Tribology, 2020, | 0.7 | 4 |
| 756 | 4D Printing. Materials Forming, Machining and Tribology, 2020, , 93-107. | 0.7 | 0 |
| 757 | Printing Flexible and Hybrid Electronics for Human Skin and Eyeâ€Interfaced Health Monitoring Systems. Advanced Materials, 2020, 32, e1902051. | 11.1 | 83 |
| 758 | Polymernetzwerke: Von Kunststoffen und Gelen zu por \tilde{A}^\P sen Ger $\tilde{A}^1\!\!/\!4$ sten. Angewandte Chemie, 2020, 132, 5054-5085. | 1.6 | 16 |
| 759 | Polymer Networks: From Plastics and Gels to Porous Frameworks. Angewandte Chemie - International Edition, 2020, 59, 5022-5049. | 7.2 | 194 |
| 760 | Spatially modulated stiffness on hydrogels for soft and stretchable integrated electronics. Materials Horizons, 2020, 7, 203-213. | 6.4 | 70 |
| 761 | Kidney-on-a-chip. , 2020, , 233-253. | | 7 |
| 762 | Mechanical Assembly of Thermoâ€Responsive Polymerâ€Based Untethered Shapeâ€Morphing Structures. Macromolecular Materials and Engineering, 2020, 305, 1900568. | 1.7 | 7 |
| 763 | Botanicalâ€Inspired 4D Printing of Hydrogel at the Microscale. Advanced Functional Materials, 2020, 30, 1907377. | 7.8 | 122 |
| 764 | Four-dimensional bioprinting: Current developments and applications in bone tissue engineering. Acta Biomaterialia, 2020, 101, 26-42. | 4.1 | 216 |
| 765 | Biofabrication for 3D tissue test systems. , 2020, , 243-267. | | 2 |
| 766 | Dimension Reduction for Thin Films with Transversally Varying Prestrain: Oscillatory and Nonoscillatory Cases. Communications on Pure and Applied Mathematics, 2020, 73, 1880-1932. | 1.2 | 10 |
| 767 | High thermal conductive epoxy based composites fabricated by multi-material direct ink writing. Composites Part A: Applied Science and Manufacturing, 2020, 129, 105684. | 3.8 | 42 |
| 768 | Programming the time into 3D printing: current advances and future directions in 4D printing. Multifunctional Materials, 2020, 3, 012001. | 2.4 | 31 |

| # | Article | IF | Citations |
|-----|---|------|-----------|
| 769 | Topographic Mechanics and Applications of Liquid Crystalline Solids. Annual Review of Condensed Matter Physics, 2020, 11, 125-145. | 5.2 | 58 |
| 770 | Recent Advances in Enabling Technologies in 3D Printing for Precision Medicine. Advanced Materials, 2020, 32, e1902516. | 11.1 | 126 |
| 771 | Recent Advances in 4D Bioprinting. Biotechnology Journal, 2020, 15, e1900086. | 1.8 | 105 |
| 772 | 3D and 4D printing of biomaterials and biocomposites, bioinspired composites, and related transformers. , 2020, , 467-504. | | 4 |
| 773 | Folding deformation modeling and simulation of 4D printed bilayer structures considering the thickness ratio. Mathematics and Mechanics of Solids, 2020, 25, 348-361. | 1.5 | 10 |
| 774 | Pros and Cons: Supramolecular or Macromolecular: What Is Best for Functional Hydrogels with Advanced Properties?. Advanced Materials, 2020, 32, e1906012. | 11.1 | 78 |
| 775 | Viewpoint: Homeostasis as Inspirationâ€"Toward Interactive Materials. Advanced Materials, 2020, 32, e1905554. | 11.1 | 35 |
| 776 | 4D printing using anisotropic thermal deformation of 3D-printed thermoplastic parts. Materials and Design, 2020, 188, 108485. | 3.3 | 57 |
| 777 | Microfabrication Using Shapeâ€Transforming Soft Materials. Advanced Functional Materials, 2020, 30, 1908028. | 7.8 | 43 |
| 778 | Morphogenesis Deconstructed. The Frontiers Collection, 2020, , . | 0.1 | 2 |
| 779 | Multi-cell energy-absorbing structures with hollow columns inspired by the beetle elytra. Journal of Materials Science, 2020, 55, 4279-4291. | 1.7 | 23 |
| 780 | Recent progress in 4D printing of stimuli-responsive polymeric materials. Science China Technological Sciences, 2020, 63, 532-544. | 2.0 | 61 |
| 781 | Predicting the orientation of magnetic microgel rods for soft anisotropic biomimetic hydrogels. Polymer Chemistry, 2020, 11, 496-507. | 1.9 | 29 |
| 782 | Liquid Crystal Networks on Thermoplastics: Reprogrammable Photoâ€Responsive Actuators. Angewandte Chemie - International Edition, 2020, 59, 4532-4536. | 7.2 | 84 |
| 783 | Plasma-digital nexus: plasma nanotechnology for the digital manufacturing age. Reviews of Modern Plasma Physics, 2020, 4, 1. | 2.2 | 16 |
| 784 | Reactive spinning to achieve nanocomposite gel fibers: from monomer to fiber dynamically with enhanced anisotropy. Materials Horizons, 2020, 7, 811-819. | 6.4 | 29 |
| 785 | Simultaneous control of Gaussian curvature and buckling direction by swelling of asymmetric trilayer hydrogel hybrids. Soft Matter, 2020, 16, 688-694. | 1.2 | 13 |
| 786 | Combination and processing keratin with lignin as biocomposite materials for additive manufacturing technology. Acta Biomaterialia, 2020, 104, 95-103. | 4.1 | 39 |

| # | Article | IF | CITATIONS |
|-----|---|-------------|-----------|
| 787 | Substrate curvature as a cue to guide spatiotemporal cell and tissue organization. Biomaterials, 2020, 232, 119739. | 5.7 | 191 |
| 788 | Liquid crystalline 3D printing for superstrong graphene microlattices with high density. Carbon, 2020, 159, 166-174. | 5. 4 | 21 |
| 789 | Recent advances in tough and self-healing nanocomposite hydrogels for shape morphing and soft actuators. European Polymer Journal, 2020, 124, 109448. | 2.6 | 32 |
| 790 | Nanofabrication approaches for functional three-dimensional architectures. Nano Today, 2020, 30, 100825. | 6.2 | 37 |
| 791 | Reprogrammable 3D Shaping from Phase Change Microstructures in Elastic Composites. ACS Applied Materials & Samp; Interfaces, 2020, 12, 4014-4021. | 4.0 | 6 |
| 792 | Stimuli induced cellulose nanomaterials alignment and its emerging applications: A review. Carbohydrate Polymers, 2020, 230, 115609. | 5.1 | 46 |
| 793 | 3D Printing in Medicine for Preoperative Surgical Planning: A Review. Annals of Biomedical Engineering, 2020, 48, 536-555. | 1.3 | 105 |
| 794 | Mechanical characteristics of tunable uniaxial aligned carbon nanotubes induced by robotic extrusion technique for hydrogel nanocomposite. Composites Part A: Applied Science and Manufacturing, 2020, 129, 105707. | 3.8 | 13 |
| 795 | Structural Orientation and Anisotropy in Biological Materials: Functional Designs and Mechanics. Advanced Functional Materials, 2020, 30, 1908121. | 7.8 | 59 |
| 796 | Magnetic Shape Memory Polymers with Integrated Multifunctional Shape Manipulation. Advanced Materials, 2020, 32, e1906657. | 11.1 | 367 |
| 798 | Light-weight/defect-tolerant topologically self-interlocking polymeric structure by fused deposition modeling. Composites Part B: Engineering, 2020, 183, 107700. | 5.9 | 11 |
| 799 | 3D printed nanomaterial-based electronic, biomedical, and bioelectronic devices. Nanotechnology, 2020, 31, 172001. | 1.3 | 52 |
| 800 | Complexâ€Shaped Cellulose Composites Made by Wet Densification of 3D Printed Scaffolds. Advanced Functional Materials, 2020, 30, 1904127. | 7.8 | 54 |
| 801 | Flexural, pull-out, and fractured surface characterization for multi-material 3D printed functionally graded prototype. Journal of Composite Materials, 2020, 54, 2087-2099. | 1.2 | 22 |
| 802 | Analytical study on growth-induced bending deformations of multi-layered hyperelastic plates. International Journal of Non-Linear Mechanics, 2020, 119, 103370. | 1.4 | 18 |
| 803 | Opportunities and challenges of translational 3D bioprinting. Nature Biomedical Engineering, 2020, 4, 370-380. | 11.6 | 309 |
| 804 | A discrete, geometrically exact method for simulating nonlinear, elastic and inelastic beams. Computer Methods in Applied Mechanics and Engineering, 2020, 361, 112741. | 3.4 | 24 |
| 805 | 4D printed anisotropic structures with tailored mechanical behaviors and shape memory effects. Composites Science and Technology, 2020, 186, 107935. | 3.8 | 49 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 807 | 3D Printing of Textiles: Potential Roadmap to Printing with Fibers. Advanced Materials, 2020, 32, e1902086. | 11.1 | 100 |
| 808 | Responsive and Foldable Soft Materials. Trends in Chemistry, 2020, 2, 107-122. | 4.4 | 46 |
| 809 | Formalizing shape-change: Three-dimensional printed shapes and hygroscopic material transformations. International Journal of Architectural Computing, 2020, 18, 67-83. | 0.9 | 10 |
| 810 | Growth and patterns of residually stressed core–shell soft sphere. International Journal of Non-Linear Mechanics, 2020, 127, 103594. | 1.4 | 7 |
| 811 | Smart Structures—Additive Manufacturing of Stimuli-Responsive Hydrogels for Adaptive Packings. Industrial & Damp; Engineering Chemistry Research, 2020, 59, 19458-19464. | 1.8 | 5 |
| 812 | Nanocellulose: a promising green treasure from food wastes to available food materials. Critical Reviews in Food Science and Nutrition, 2022, 62, 989-1002. | 5.4 | 51 |
| 813 | Shape Programming by Modulating Actuation over Hierarchical Length Scales. Advanced Materials, 2020, 32, e2004515. | 11.1 | 7 |
| 814 | Tailoring the mechanical properties of 3D-printed continuous flax/PLA biocomposites by controlling the slicing parameters. Composites Part B: Engineering, 2020, 203, 108474. | 5.9 | 55 |
| 815 | Whisker orientation controls wear of 3D-printed epoxy nanocomposites. Additive Manufacturing, 2020, 36, 101515. | 1.7 | 7 |
| 816 | Distributed Electric Field Induces Orientations of Nanosheets to Prepare Hydrogels with Elaborate Ordered Structures and Programmed Deformations. Advanced Materials, 2020, 32, e2005567. | 11.1 | 89 |
| 817 | Recent advances in additive manufacturing of active mechanical metamaterials. Current Opinion in Solid State and Materials Science, 2020, 24, 100869. | 5.6 | 65 |
| 818 | Development of Bioimplants with 2D, 3D, and 4D Additive Manufacturing Materials. Engineering, 2020, 6, 1232-1243. | 3.2 | 41 |
| 819 | Polyzwitterions as a Versatile Building Block of Tough Hydrogels: From Polyelectrolyte Complex Gels to Double-Network Gels. ACS Applied Materials & English (2008), 12, 50068-50076. | 4.0 | 26 |
| 820 | Progress in the mechanical modulation of cell functions in tissue engineering. Biomaterials Science, 2020, 8, 7033-7081. | 2.6 | 36 |
| 821 | 3D and 4D Printing of Multistable Structures. Applied Sciences (Switzerland), 2020, 10, 7254. | 1.3 | 14 |
| 822 | High strength and low swelling composite hydrogels from gelatin and delignified wood. Scientific Reports, 2020, 10, 17842. | 1.6 | 14 |
| 823 | Processing advances in liquid crystal elastomers provide a path to biomedical applications. Journal of Applied Physics, 2020, 128, 140901. | 1.1 | 59 |
| 824 | Laws of 4D Printing. Engineering, 2020, 6, 1035-1055. | 3.2 | 40 |

| # | Article | IF | CITATIONS |
|-----|--|-----|-----------|
| 825 | Light-steered locomotion of muscle-like hydrogel by self-coordinated shape change and friction modulation. Nature Communications, 2020, 11, 5166. | 5.8 | 148 |
| 826 | 3D bioprinting and craniofacial regeneration. Journal of Oral Biology and Craniofacial Research, 2020, 10, 650-659. | 0.8 | 22 |
| 827 | Lanthanide-Ion-Coordinated Supramolecular Hydrogel Inks for 3D Printed Full-Color Luminescence and Opacity-Tuning Soft Actuators. Chemistry of Materials, 2020, 32, 8868-8876. | 3.2 | 65 |
| 828 | Shape-adaptable biodevices for wearable and implantable applications. Lab on A Chip, 2020, 20, 4321-4341. | 3.1 | 27 |
| 829 | A review of 3D printing processes and materials for soft robotics. Rapid Prototyping Journal, 2020, 26, 1345-1361. | 1.6 | 116 |
| 830 | A Novel Paper-Based Capacitance Mast Cell Sensor for Evaluating Peanut Allergen Protein Ara h 2. Food Analytical Methods, 2020, 13, 1993-2001. | 1.3 | 8 |
| 831 | Boolean AND/OR mechanical logic using multi-plane mechanical metamaterials. Extreme Mechanics Letters, 2020, 40, 100865. | 2.0 | 24 |
| 832 | Improving Bioprinted Volumetric Tumor Microenvironments In Vitro. Trends in Cancer, 2020, 6, 745-756. | 3.8 | 38 |
| 833 | Tapered elastic \tilde{A}_{i}^{\dagger} as a route for axisymmetric morphing structures. Soft Matter, 2020, 16, 7739-7750. | 1.2 | 32 |
| 834 | Controlled helical deformation of programmable bilayer structures: design and fabrication. Smart Materials and Structures, 2020, 29, 085042. | 1.8 | 17 |
| 835 | Biofabrication strategies for engineering heterogeneous artificial tissues. Additive Manufacturing, 2020, 36, 101459. | 1.7 | 15 |
| 836 | 3D printing of multi-scalable structures via high penetration near-infrared photopolymerization. Nature Communications, 2020, 11, 3462. | 5.8 | 124 |
| 837 | Light-driven complex 3D shape morphing of glassy polymers by resolving spatio-temporal stress confliction. Scientific Reports, 2020, 10, 10840. | 1.6 | 5 |
| 838 | 4D printing of self-folding and cell-encapsulating 3D microstructures as scaffolds for tissue-engineering applications. Biofabrication, 2020, 12, 045018. | 3.7 | 58 |
| 839 | Active Surface with Dynamic Microstructures and Hierarchical Gradient Enabled by in situ Pneumatic Control. Micromachines, 2020, 11, 992. | 1.4 | 2 |
| 840 | Trends in biomaterials for three-dimensional cancer modeling. , 2020, , 3-41. | | 3 |
| 841 | Hexagon-Twist Frequency Reconfigurable Antennas via Multi-Material Printed Thermo-Responsive Origami Structures. Frontiers in Materials, 2020, 7, . | 1.2 | 11 |
| 842 | Design and analysis of 2D/3D negative hydration expansion Metamaterial driven by hydrogel. Materials and Design, 2020, 196, 109084. | 3.3 | 22 |

| # | Article | IF | CITATIONS |
|-----|---|------|-----------|
| 843 | Emerging flexible sensors based on nanomaterials: recent status and applications. Journal of Materials Chemistry A, 2020, 8, 25499-25527. | 5.2 | 106 |
| 844 | Large Curvature Folding Strategies of Butterfly Proboscis. Journal of Bionic Engineering, 2020, 17, 1239-1250. | 2.7 | 2 |
| 845 | Composite Inks for Extrusion Printing of Biological and Biomedical Constructs. ACS Biomaterials Science and Engineering, 2021, 7, 4009-4026. | 2.6 | 30 |
| 846 | Design and applications of light responsive liquid crystal polymer thin films. Applied Physics Reviews, 2020, 7, . | 5.5 | 44 |
| 847 | Defective nematogenesis: Gauss curvature in programmable shape-responsive sheets with topological defects. Soft Matter, 2020, 16, 10935-10945. | 1.2 | 15 |
| 848 | Recent Progress on Polymer Materials for Additive Manufacturing. Advanced Functional Materials, 2020, 30, 2003062. | 7.8 | 364 |
| 849 | A Photoresponsive Hydrogel with Enhanced Photoefficiency and the Decoupled Process of Light Activation and Shape Changing for Precise Geometric Control. ACS Applied Materials & Samp; Interfaces, 2020, 12, 38647-38654. | 4.0 | 17 |
| 850 | Programmable 4D-Printed Responsive Structures. Key Engineering Materials, 0, 856, 317-322. | 0.4 | 4 |
| 851 | Programming stiff inflatable shells from planar patterned fabrics. Soft Matter, 2020, 16, 7898-7903. | 1.2 | 27 |
| 852 | Cellulose and its derivatives for lithium ion battery separators: A review on the processing methods and properties. Carbohydrate Polymer Technologies and Applications, 2020, 1, 100001. | 1.6 | 45 |
| 853 | Oxygen inhibition induced hydrophilic-hydrophobic surface for self-assembled droplet microarrays. Applied Physics A: Materials Science and Processing, 2020, 126, 1. | 1.1 | 0 |
| 854 | Direct ink writing advances in multi-material structures for a sustainable future. Journal of Materials Chemistry A, 2020, 8, 15646-15657. | 5.2 | 167 |
| 855 | Inkâ€Based Additive Nanomanufacturing of Functional Materials for Humanâ€Integrated Smart Wearables. Advanced Intelligent Systems, 2020, 2, 2000117. | 3.3 | 17 |
| 856 | 3D printing: An emerging opportunity for soil science. Geoderma, 2020, 378, 114588. | 2.3 | 15 |
| 857 | Ingenious humidity-powered micro-worm with asymmetric biped from single hydrogel. Sensors and Actuators B: Chemical, 2020, 322, 128620. | 4.0 | 15 |
| 858 | Reconfiguring Gaussian Curvature of Hydrogel Sheets with Photoswitchable Host–Guest Interactions. ACS Macro Letters, 2020, 9, 1172-1177. | 2.3 | 24 |
| 859 | 3Dâ€Printed Woodâ€Fiber Reinforced Architected Cellular Composites. Advanced Engineering Materials, 2020, 22, 2000565. | 1.6 | 22 |
| 860 | Wood and the Activity of Dead Tissue. Advanced Materials, 2021, 33, e2001412. | 11.1 | 29 |

| # | Article | IF | Citations |
|-----|--|------|-----------|
| 861 | A blend of stretching and bending in nematic polymer networks. Soft Matter, 2020, 16, 8877-8892. | 1.2 | 10 |
| 862 | 3D Printing of Ordered Mesoporous Silica Complex Structures. Nano Letters, 2020, 20, 6598-6605. | 4.5 | 30 |
| 863 | Programmable Porous Polymers via Direct Bubble Writing with Surfactant-Free Inks. ACS Applied Materials & Samp; Interfaces, 2020, 12, 42048-42055. | 4.0 | 22 |
| 864 | Wet esterification of never-dried cellulose: a simple process to surface-acetylated cellulose nanofibers. Green Chemistry, 2020, 22, 5605-5609. | 4.6 | 41 |
| 865 | Deciphering, Designing, and Realizing Selfâ€Folding Biomimetic Microstructures Using a Massâ€Spring Model and Inkjetâ€Printed, Selfâ€Folding Hydrogels. Advanced Functional Materials, 2020, 30, 2003959. | 7.8 | 4 |
| 866 | Mechanics Design in Celluloseâ€Enabled Highâ€Performance Functional Materials. Advanced Materials, 2021, 33, e2002504. | 11.1 | 77 |
| 867 | Extrusion 3D Printing of Polymeric Materials with Advanced Properties. Advanced Science, 2020, 7, 2001379. | 5.6 | 171 |
| 868 | Versatile Rolling Origami to Fabricate Functional and Smart Materials. Cell Reports Physical Science, 2020, 1, 100244. | 2.8 | 11 |
| 869 | Computational analysis of hygromorphic self-shaping wood gridshell structures. Royal Society Open Science, 2020, 7, 192210. | 1.1 | 12 |
| 870 | Anisotropic hygro-expansion in hydrogel fibers owing to uniting 3D electrowriting and supramolecular polymer assembly. European Polymer Journal, 2020, 141, 110099. | 2.6 | 13 |
| 871 | Nanoscale Ion Regulation in Woodâ€Based Structures and Their Device Applications. Advanced Materials, 2021, 33, e2002890. | 11.1 | 75 |
| 872 | An accurate finite element approach for programming 4D-printed self-morphing structures produced by fused deposition modeling. Mechanics of Materials, 2020, 151, 103628. | 1.7 | 41 |
| 873 | Recent advances and challenges in materials for 3D bioprinting. Progress in Natural Science: Materials International, 2020, 30, 618-634. | 1.8 | 77 |
| 874 | Tannin-Based Hybrid Materials and Their Applications: A Review. Molecules, 2020, 25, 4910. | 1.7 | 59 |
| 875 | Design and closed loop control of a 3D printed soft actuator. , 2020, , . | | 9 |
| 876 | Four-Dimensional Printed Liquid Crystalline Elastomer Actuators with Fast Photoinduced Mechanical Response toward Light-Driven Robotic Functions. ACS Applied Materials & Samp; Interfaces, 2020, 12, 44195-44204. | 4.0 | 77 |
| 877 | Electroosmosis-Driven Hydrogel Actuators Using Hydrophobic/Hydrophilic Layer-By-Layer Assembly-Induced Crack Electrodes. ACS Nano, 2020, 14, 11906-11918. | 7.3 | 31 |
| 878 | Engineering hydrogels by soaking: from mechanical strengthening to environmental adaptation. Chemical Communications, 2020, 56, 13731-13747. | 2.2 | 30 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 879 | Three-dimensional printing of functionally graded liquid crystal elastomer. Science Advances, 2020, 6, | 4.7 | 129 |
| 880 | Shape memory effect and rapid reversible actuation of nanocomposite hydrogels with electrochemically controlled local metal ion coordination and crosslinking. Journal of Materials Chemistry B, 2020, 8, 9679-9685. | 2.9 | 14 |
| 881 | Extending Cellulose-Based Polymers Application in Additive Manufacturing Technology: A Review of Recent Approaches. Polymers, 2020, 12, 1876. | 2.0 | 44 |
| 882 | Intelligent Polymerâ€Based Bioinspired Actuators: From Monofunction to Multifunction. Advanced Intelligent Systems, 2020, 2, 2000138. | 3.3 | 33 |
| 883 | 3D-printed programmable tensegrity for soft robotics. Science Robotics, 2020, 5, . | 9.9 | 104 |
| 884 | 4D Printing: A Review on Recent Progresses. Micromachines, 2020, 11, 796. | 1.4 | 115 |
| 885 | Printability and Shape Fidelity of Bioinks in 3D Bioprinting. Chemical Reviews, 2020, 120, 11028-11055. | 23.0 | 552 |
| 886 | Direct Ink Writing of Fully Bio-Based Liquid Crystalline Lignin/Hydroxypropyl Cellulose Aqueous Inks: Optimization of Formulations and Printing Parameters. ACS Applied Bio Materials, 2020, 3, 6897-6907. | 2.3 | 16 |
| 887 | Simultaneous Regeneration of Bone and Nerves Through Materials and Architectural Design: Are We There Yet?. Advanced Functional Materials, 2020, 30, 2003542. | 7.8 | 17 |
| 888 | Integrated dynamic wet spinning of core-sheath hydrogel fibers for optical-to-brain/tissue communications. National Science Review, 2021, 8, nwaa209. | 4.6 | 36 |
| 889 | 4D Printing Auxetic Metamaterials with Tunable, Programmable, and Reconfigurable Mechanical Properties. Advanced Functional Materials, 2020, 30, 2004226. | 7.8 | 152 |
| 890 | Effect of 3D Printing Parameters on Selfâ€Driven Deformation Characteristics of Intelligent Hydrogel Actuators. ChemistrySelect, 2020, 5, 10367-10373. | 0.7 | 1 |
| 891 | Femtosecond laser programmed artificial musculoskeletal systems. Nature Communications, 2020, 11, 4536. | 5.8 | 117 |
| 892 | Tailoring Gelation Mechanisms for Advanced Hydrogel Applications. Advanced Functional Materials, 2020, 30, 2002759. | 7.8 | 148 |
| 893 | Foundations for Soft, Smart Matter by Active Mechanical Metamaterials. Advanced Science, 2020, 7, 2001384. | 5.6 | 52 |
| 894 | Printed hydrogel nanocomposites: fine-tuning nanostructure for anisotropic mechanical and conductive properties. Advanced Composites and Hybrid Materials, 2020, 3, 315-324. | 9.9 | 44 |
| 895 | Additive manufacturing of silica aerogels. Nature, 2020, 584, 387-392. | 13.7 | 323 |
| 896 | Inflationary routes to Gaussian curved topography. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200047. | 1.0 | 10 |

| # | Article | IF | Citations |
|-----|--|-------------|-----------|
| 897 | Printing and Programming of In-Situ Actuators. , 2020, , . | | 1 |
| 898 | 4D Printing: Materials, Technologies, and Future Applications in the Biomedical Field. Sustainability, 2020, 12, 10628. | 1.6 | 50 |
| 899 | Programmable Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformations of Biomimetic Composite Hydrogels Embedded with Printed Fibers. ACS Applied Materials & Deformation & | 4.0 | 11 |
| 900 | Laser reprogramming magnetic anisotropy in soft composites for reconfigurable 3D shaping. Nature Communications, 2020, 11 , 6325. | 5.8 | 113 |
| 901 | Microfiber-Shaped Programmable Materials with Stimuli-Responsive Hydrogel. Soft Robotics, 2022, 9, 89-97. | 4.6 | 11 |
| 902 | Toward Biomimetic Scaffolds for Tissue Engineering: 3D Printing Techniques in Regenerative Medicine. Frontiers in Bioengineering and Biotechnology, 2020, 8, 586406. | 2.0 | 66 |
| 903 | Controlled Arrangement of Nanocellulose in Polymeric Matrix: From Reinforcement to Functionality. ACS Nano, 2020, 14, 16169-16179. | 7. 3 | 87 |
| 904 | Actuating Supramolecular Shape Memorized Hydrogel Toward Programmable Shape Deformation. Small, 2020, 16, e2005461. | 5.2 | 68 |
| 905 | Water-responsive materials for sustainable energy applications. Journal of Materials Chemistry A, 2020, 8, 15227-15244. | 5.2 | 57 |
| 906 | Investigation on the Functionality of Thermoresponsive Origami Structures. Advanced Engineering Materials, 2020, 22, 2000296. | 1.6 | 36 |
| 907 | Printability Optimization of Gelatin-Alginate Bioinks by Cellulose Nanofiber Modification for Potential Meniscus Bioprinting. Journal of Nanomaterials, 2020, 2020, 1-13. | 1.5 | 19 |
| 908 | Reconfigurable and Latchable Shapeâ€Morphing Dielectric Elastomers Based on Local Stiffness Modulation. Advanced Functional Materials, 2020, 30, 2001597. | 7.8 | 42 |
| 909 | Main-Chain Liquid Crystalline Hydrogels that Support 3D Stem Cell Culture. Biomacromolecules, 2020, 21, 2365-2375. | 2.6 | 3 |
| 910 | Changes in Filament Microstructures During Direct Ink Writing with a Yield Stress Fluid Support. ACS Applied Polymer Materials, 2020, 2, 2528-2540. | 2.0 | 12 |
| 911 | Four-dimensional metal-organic frameworks. Nature Communications, 2020, 11, 2690. | 5.8 | 109 |
| 912 | Nano/microstructures of shape memory polymers: from materials to applications. Nanoscale Horizons, 2020, 5, 1155-1173. | 4.1 | 63 |
| 913 | 3D printing and growth induced bending based on PET-RAFT polymerization. Polymer Chemistry, 2020, 11, 4084-4093. | 1.9 | 32 |
| 914 | Microstructural evolution and failure in short fiber soft composites: Experiments and modeling. Journal of the Mechanics and Physics of Solids, 2020, 141, 103973. | 2.3 | 16 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 915 | Formulation of Sugar/Hydrogel Inks for Rapid Thermal Response 4D Architectures with Sugar-derived Macropores. Scientific Reports, 2020, 10, 7527. | 1.6 | 29 |
| 916 | Plant Movements as Concept Generators for the Development of Biomimetic Compliant Mechanisms. Integrative and Comparative Biology, 2020, 60, 886-895. | 0.9 | 29 |
| 917 | 4D Printing Strain Selfâ€Sensing and Temperature Selfâ€Sensing Integrated Sensor–Actuator with Bioinspired Gradient Gaps. Advanced Science, 2020, 7, 2000584. | 5.6 | 72 |
| 918 | Fabrication of biocompatible and bioabsorbable polycaprolactone/ magnesium hydroxide 3D printed scaffolds: Degradation and in vitro osteoblasts interactions. Composites Part B: Engineering, 2020, 197, 108158. | 5.9 | 64 |
| 919 | Field-Assisted Alignment of Cellulose Nanofibrils in a Continuous Flow-Focusing System. ACS Applied Materials & Samp; Interfaces, 2020, 12, 28568-28575. | 4.0 | 20 |
| 920 | Evolutionary Algorithmâ€Guided Voxelâ€Encoding Printing of Functional Hardâ€Magnetic Soft Active Materials. Advanced Intelligent Systems, 2020, 2, 2000060. | 3.3 | 93 |
| 921 | 4D Biofabrication of fibrous artificial nerve graft for neuron regeneration. Biofabrication, 2020, 12, 035027. | 3.7 | 38 |
| 922 | Real-time characterization of hydrogel viscoelastic properties and sol-gel phase transitions using cantilever sensors. Journal of Rheology, 2020, 64, 837-850. | 1.3 | 11 |
| 923 | 4D Printing of Hydrogels: A Review. Advanced Functional Materials, 2020, 30, 1910606. | 7.8 | 224 |
| 924 | Programmable Reversible Shape Transformation of Hydrogels Based on Transient Structural Anisotropy. Advanced Materials, 2020, 32, e2001693. | 11.1 | 77 |
| 925 | Polymeric Systems for Bioprinting. Chemical Reviews, 2020, 120, 10744-10792. | 23.0 | 161 |
| 926 | Recent progress of morphable 3D mesostructures in advanced materials. Journal of Semiconductors, 2020, 41, 041604. | 2.0 | 9 |
| 927 | Stimuli-responsive composite biopolymer actuators with selective spatial deformation behavior. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 14602-14608. | 3.3 | 63 |
| 928 | Plant Nanomaterials and Inspiration from Nature: Water Interactions and Hierarchically Structured Hydrogels. Advanced Materials, 2021, 33, e2001085. | 11.1 | 117 |
| 929 | 3D printing of Fe3O4 functionalized graphene-polymer (FGP) composite microarchitectures. Carbon, 2020, 167, 278-284. | 5.4 | 58 |
| 930 | Actuators assembled from hydrogel blocks of various shapes via condensation reactions. Materials Chemistry and Physics, 2020, 253, 123332. | 2.0 | 9 |
| 931 | Mechanical anisotropy in polymer composites produced by material extrusion additive manufacturing. Additive Manufacturing, 2020, 34, 101385. | 1.7 | 38 |
| 932 | Hydrogel-Colloid Composite Bioinks for Targeted Tissue-Printing. Biomacromolecules, 2020, 21, 2949-2965. | 2.6 | 17 |

| # | ARTICLE | IF | CITATIONS |
|-----|--|-----|-----------|
| 933 | Complex transformations of hard-magnetic soft beams by designing residual magnetic flux density. Soft Matter, 2020, 16, 6379-6388. | 1.2 | 26 |
| 934 | Reactive 3D Printing of Shape-Programmable Liquid Crystal Elastomer Actuators. ACS Applied Materials & Samp; Interfaces, 2020, 12, 28692-28699. | 4.0 | 61 |
| 935 | Electron Irradiation Driven Nanohands for Sequential Origami. Nano Letters, 2020, 20, 4975-4984. | 4.5 | 9 |
| 936 | Spatiotemporally Controlled Photoresponsive Hydrogels: Design and Predictive Modeling from Processing through Application. Advanced Functional Materials, 2020, 30, 2000639. | 7.8 | 51 |
| 937 | Untethered, ultra-light soft actuator based on positively charged 3D fluffy silica micro-nanofibers by electrospinning. Journal of Materials Science, 2020, 55, 12789-12800. | 1.7 | 3 |
| 938 | On 4D printing as a revolutionary fabrication technique for smart structures. Smart Materials and Structures, 2020, 29, 083001. | 1.8 | 41 |
| 939 | Preliminary 3D printing of large inclined-shaped alumina ceramic parts by direct ink writing. Journal of Advanced Ceramics, 2020, 9, 312-319. | 8.9 | 61 |
| 940 | Comparative study of robotic artificial actuators and biological muscle. Advances in Mechanical Engineering, 2020, 12, 168781402093340. | 0.8 | 41 |
| 941 | Large deformation near a crack tip in a fiber-reinforced neo-Hookean sheet. Journal of the Mechanics and Physics of Solids, 2020, 143, 104049. | 2.3 | 10 |
| 942 | Modular 4D Printing via Interfacial Welding of Digital Light-Controllable Dynamic Covalent Polymer Networks. Matter, 2020, 2, 1187-1197. | 5.0 | 94 |
| 943 | Shape-Programmed Fabrication and Actuation of Magnetically Active Micropost Arrays. ACS Applied Materials & Samp; Interfaces, 2020, 12, 17113-17120. | 4.0 | 44 |
| 944 | Tailoring the Dynamic Actuation of 3Dâ€Printed Mechanical Metamaterials through Inherent and Extrinsic Instabilities. Advanced Engineering Materials, 2020, 22, 1901586. | 1.6 | 13 |
| 945 | Hydrogelâ€Based Artificial Muscles: Overview and Recent Progress. Advanced Intelligent Systems, 2020, 2, 1900135. | 3.3 | 103 |
| 946 | Printing on liquid elastomers. Soft Matter, 2020, 16, 3137-3142. | 1.2 | 7 |
| 947 | Hierarchical patterning via dynamic sacrificial printing of stimuli-responsive hydrogels. Biofabrication, 2020, 12, 035007. | 3.7 | 25 |
| 948 | Additive Manufacturing of Epoxy Resins: Materials, Methods, and Latest Trends. Industrial & Engineering Chemistry Research, 2020, 59, 6375-6390. | 1.8 | 49 |
| 949 | <scp>Highâ€Strength</scp> and Tough Crystalline <scp>Polysaccharideâ€Based</scp> Materials ^{â€} . Chinese Journal of Chemistry, 2020, 38, 761-771. | 2.6 | 12 |
| 950 | 4D printed shape memory polymers and their structures for biomedical applications. Science China Technological Sciences, 2020, 63, 545-560. | 2.0 | 85 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 951 | Anisotropic nanocomposite hydrogels with enhanced actuating performance through aligned polymer networks. Science China Materials, 2020, 63, 832-841. | 3.5 | 34 |
| 952 | Cellulose nanocrystal based multifunctional nanohybrids. Progress in Materials Science, 2020, 112, 100668. | 16.0 | 113 |
| 953 | Nonuniform growth and surface friction determine bacterial biofilm morphology on soft substrates. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 7622-7632. | 3.3 | 82 |
| 954 | A Material Combination Concept to Realize 4D Printed Products with Newly Emerging Property/Functionality. Advanced Science, 2020, 7, 1903208. | 5.6 | 41 |
| 955 | Additive manufacturing for bone tissue engineering scaffolds. Materials Today Communications, 2020, 24, 101024. | 0.9 | 76 |
| 956 | Rapid Volatilization Induced Mechanically Robust Shape-Morphing Structures toward 4D Printing. ACS Applied Materials & Diterfaces, 2020, 12, 17979-17987. | 4.0 | 50 |
| 957 | Hydrogel Actuator with a Builtâ€in Stimulator Using Liquid Metal for Local Control. Advanced Intelligent Systems, 2020, 2, 2000008. | 3.3 | 17 |
| 958 | Multi-responsive hydrogel structures from patterned droplet networks. Nature Chemistry, 2020, 12, 363-371. | 6.6 | 148 |
| 959 | Materials and technical innovations in 3D printing in biomedical applications. Journal of Materials Chemistry B, 2020, 8, 2930-2950. | 2.9 | 124 |
| 960 | Programmable patterns in a DNA-based reaction–diffusion system. Soft Matter, 2020, 16, 3555-3563. | 1.2 | 17 |
| 961 | Healable, memorizable, and transformable lattice structures made of stiff polymers. NPG Asia Materials, 2020, 12 , . | 3.8 | 18 |
| 962 | 3D printing of conducting polymers. Nature Communications, 2020, 11, 1604. | 5.8 | 568 |
| 963 | Fabrication of Bioinspired Hydrogels: Challenges and Opportunities. Macromolecules, 2020, 53, 2769-2782. | 2.2 | 185 |
| 964 | Origami-inspired self-deployment 4D printed honeycomb sandwich structure with large shape transformation. Smart Materials and Structures, 2020, 29, 065015. | 1.8 | 41 |
| 965 | Lightâ€Coded Digital Crystallinity Patterns Toward Bioinspired 4D Transformation of Shapeâ€Memory Polymers. Advanced Functional Materials, 2020, 30, 2000522. | 7.8 | 55 |
| 966 | Blueprinting Photothermal Shapeâ€Morphing of Liquid Crystal Elastomers. Advanced Materials, 2020, 32, e2000609. | 11.1 | 110 |
| 967 | Elastic buckling of a free-standing annulus subjected to partial shrinkage. International Journal of Mechanical Sciences, 2020, 177, 105610. | 3.6 | 0 |
| 968 | Miniaturization of worm-type soft robot actuated by magnetic field. Japanese Journal of Applied Physics, 2020, 59, SIIL04. | 0.8 | 19 |

| # | Article | IF | CITATIONS |
|-----|--|------|-----------|
| 969 | Nanomaterial Patterning in 3D Printing. Advanced Materials, 2020, 32, e1907142. | 11.1 | 144 |
| 970 | Materials as Machines. Advanced Materials, 2020, 32, e1906564. | 11.1 | 213 |
| 971 | The chemistry behind 4D printing. Applied Materials Today, 2020, 19, 100611. | 2.3 | 42 |
| 972 | A review of 3D and 4D printing of natural fibre biocomposites. Materials and Design, 2020, 194, 108911. | 3.3 | 146 |
| 973 | Direct Ink Writing Based 4D Printing of Materials and Their Applications. Advanced Science, 2020, 7, 2001000. | 5.6 | 168 |
| 974 | Anisotropic, porous hydrogels templated by lyotropic chromonic liquid crystals. Journal of Materials Chemistry B, 2020, 8, 6988-6998. | 2.9 | 10 |
| 975 | Additive manufacturing technologies for polymer composites: State-of-the-art and future trends. , 2020, , $3-15$. | | 1 |
| 976 | Smart polymers and nanocomposites for 3D and 4D printing. Materials Today, 2020, 40, 215-245. | 8.3 | 144 |
| 977 | Bioengineering of Human Corneal Endothelial Cells from Single- to Four-Dimensional Cultures. Current Ophthalmology Reports, 2020, 8, 172-184. | 0.5 | 2 |
| 978 | Multifunctional soft machines based on stimuli-responsive hydrogels: from freestanding hydrogels to smart integrated systems. Materials Today Advances, 2020, 8, 100088. | 2.5 | 67 |
| 979 | Chemically controlled shape-morphing of elastic sheets. Materials Horizons, 2020, 7, 2314-2327. | 6.4 | 13 |
| 980 | Shape Memory Silicone Using Phase-Changing Inclusions. , 2020, , . | | 3 |
| 981 | Material aspects during additive manufacturing of nano-cellulose composites., 2020,, 409-428. | | 2 |
| 982 | Indentation experiments and simulations of nonuniformly photocrosslinked polymers in 3D printed structures. Additive Manufacturing, 2020, 35, 101420. | 1.7 | 8 |
| 983 | Recent advances in multi-material additive manufacturing: methods and applications. Current Opinion in Chemical Engineering, 2020, 28, 158-166. | 3.8 | 130 |
| 984 | Tissue mimetic hyaluronan bioink containing collagen fibers with controlled orientation modulating cell migration and alignment. Materials Today Bio, 2020, 7, 100058. | 2.6 | 54 |
| 985 | Materials, design, and fabrication of shape programmable polymers. Multifunctional Materials, 2020, 3, 032002. | 2.4 | 17 |
| 986 | Photothermal actuated origamis based on graphene oxide–cellulose programmable bilayers. Nanoscale Horizons, 2020, 5, 730-738. | 4.1 | 32 |

| # | ARTICLE | IF | CITATIONS |
|------|--|------|-----------|
| 987 | 3D and 4D printing for optics and metaphotonics. Nanophotonics, 2020, 9, 1139-1160. | 2.9 | 48 |
| 988 | 3D Assembly of Graphene Nanomaterials for Advanced Electronics. Advanced Intelligent Systems, 2020, 2, 1900151. | 3.3 | 10 |
| 989 | A constitutive model of microfiber reinforced anisotropic hydrogels: With applications to wood-based hydrogels. Journal of the Mechanics and Physics of Solids, 2020, 138, 103893. | 2.3 | 24 |
| 990 | Spontaneous Alignment of Graphene Oxide in Hydrogel during 3D Printing for Multistimuliâ€Responsive Actuation. Advanced Science, 2020, 7, 1903048. | 5.6 | 51 |
| 991 | Dynamic Bioinks to Advance Bioprinting. Advanced Healthcare Materials, 2020, 9, e1901798. | 3.9 | 141 |
| 992 | Multiphase matrix of silica, culture medium and air for 3D mammalian cell culture. Cytotechnology, 2020, 72, 271-282. | 0.7 | 6 |
| 993 | Biofabrication Strategies and Engineered In Vitro Systems for Vascular Mechanobiology. Advanced Healthcare Materials, 2020, 9, e1901255. | 3.9 | 35 |
| 994 | A phase evolution based constitutive model for shape memory polymer and its application in 4D printing. Smart Materials and Structures, 2020, 29, 055016. | 1.8 | 30 |
| 995 | 4D Printing of High-Performance Thermal-Responsive Liquid Metal Elastomers Driven by Embedded Microliquid Chambers. ACS Applied Materials & Samp; Interfaces, 2020, 12, 12068-12074. | 4.0 | 44 |
| 996 | Functional Biomaterials for Bone Regeneration: A Lesson in Complex Biology. Advanced Functional Materials, 2020, 30, 1909874. | 7.8 | 122 |
| 997 | Investigation into hydroxypropyl-methylcellulose-reinforced polylactide composites for fused deposition modelling. Industrial Crops and Products, 2020, 146, 112174. | 2.5 | 21 |
| 998 | 3D printing of hydrogels: Rational design strategies and emerging biomedical applications. Materials Science and Engineering Reports, 2020, 140, 100543. | 14.8 | 494 |
| 999 | 4D Printing of a Light-Driven Soft Actuator with Programmed Printing Density. ACS Applied Materials & Samp; Interfaces, 2020, 12, 12176-12185. | 4.0 | 110 |
| 1000 | Carbon nanotubes promote cell migration in hydrogels. Scientific Reports, 2020, 10, 2543. | 1.6 | 40 |
| 1001 | Bistable structures with controllable wrinkled surface. Extreme Mechanics Letters, 2020, 36, 100653. | 2.0 | 13 |
| 1002 | Light-regulated growth from dynamic swollen substrates for making rough surfaces. Nature Communications, 2020, 11 , 963 . | 5.8 | 36 |
| 1003 | Bioprinting 101: Design, Fabrication, and Evaluation of Cell-Laden 3D Bioprinted Scaffolds. Tissue Engineering - Part A, 2020, 26, 318-338. | 1.6 | 104 |
| 1004 | Ionic Strength and Thermal Dualâ€Responsive Bilayer Hollow Spherical Hydrogel Actuator. Macromolecular Rapid Communications, 2020, 41, e1900543. | 2.0 | 29 |

| # | Article | IF | Citations |
|------|---|------|-----------|
| 1005 | Spatial Manipulation and Integration of Supramolecular Filaments on Hydrogel Substrates towards Advanced Soft Devices. Angewandte Chemie, 2020, 132, 8679-8685. | 1.6 | 1 |
| 1006 | Design of a continuous fiber trajectory for 4D printing of thermally stimulated composite structures. Science China Technological Sciences, 2020, 63, 571-577. | 2.0 | 12 |
| 1007 | Reviewâ€"Recent Progresses in 4D Printing of Gel Materials. Journal of the Electrochemical Society, 2020, 167, 037563. | 1.3 | 45 |
| 1008 | Spatial Manipulation and Integration of Supramolecular Filaments on Hydrogel Substrates towards Advanced Soft Devices. Angewandte Chemie - International Edition, 2020, 59, 8601-8607. | 7.2 | 7 |
| 1009 | An analytical model for shape morphing through combined bending and twisting in piezo composites. Mechanics of Materials, 2020, 144, 103350. | 1.7 | 10 |
| 1010 | Pneumatic Coiling Actuator Inspired by the Awns of Erodium cicutarium. Frontiers in Robotics and Al, 2020, 7, 17. | 2.0 | 13 |
| 1011 | Computational design of shape-programmable gel plates. Mechanics of Materials, 2020, 144, 103313. | 1.7 | 5 |
| 1012 | Programming temporal morphing of self-actuated shells. Nature Communications, 2020, 11, 237. | 5.8 | 65 |
| 1013 | Directâ€Ink Written Shapeâ€Morphing Film with Rapid and Programmable Multimotion. Advanced Materials Technologies, 2020, 5, 1900974. | 3.0 | 22 |
| 1014 | Biomimetic Nonuniform, Dual-Stimuli Self-Morphing Enabled by Gradient Four-Dimensional Printing. ACS Applied Materials & Diterfaces, 2020, 12, 6351-6361. | 4.0 | 54 |
| 1015 | Biopolymeric photonic structures: design, fabrication, and emerging applications. Chemical Society Reviews, 2020, 49, 983-1031. | 18.7 | 138 |
| 1016 | Stack-Based Hydrogels with Mechanical Enhancement, High Stability, Self-Healing Property, and Thermoplasticity from Poly(<scp>l</scp> -glutamic acid) and Ureido-Pyrimidinone. ACS Biomaterials Science and Engineering, 2020, 6, 1715-1726. | 2.6 | 14 |
| 1017 | Additive manufacturing of multidirectional preforms and composites: from three-dimensional to four-dimensional. Materials Today Advances, 2020, 5, 100045. | 2.5 | 22 |
| 1018 | Shape-morphing living composites. Science Advances, 2020, 6, eaax8582. | 4.7 | 53 |
| 1019 | Non-equilibrium signal integration in hydrogels. Nature Communications, 2020, 11, 386. | 5.8 | 38 |
| 1020 | Liquid Crystal Networks on Thermoplastics: Reprogrammable Photoâ€Responsive Actuators. Angewandte Chemie, 2020, 132, 4562-4566. | 1.6 | 11 |
| 1021 | Hydrogel machines. Materials Today, 2020, 36, 102-124. | 8.3 | 625 |
| 1022 | Mechanics-guided design of shape-morphing composite sheets with hard and soft materials. Extreme Mechanics Letters, 2020, 35, 100643. | 2.0 | 8 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1023 | Uniaxial stretching mechanics of cellular flexible metamaterials. Extreme Mechanics Letters, 2020, 35, 100637. | 2.0 | 15 |
| 1024 | Four-dimensional micro-building blocks. Science Advances, 2020, 6, eaav8219. | 4.7 | 81 |
| 1025 | Keeping It Together: Interleaved Kirigami Extension Assembly. Physical Review X, 2020, 10, . | 2.8 | 6 |
| 1027 | Freeform Microfluidic Networks Encapsulated in Laserâ€Printed 3D Macroscale Glass Objects. Advanced Materials Technologies, 2020, 5, 1900989. | 3.0 | 29 |
| 1028 | Highly tunable bioadhesion and optics of 3D printable PNIPAm/cellulose nanofibrils hydrogels. Carbohydrate Polymers, 2020, 234, 115898. | 5.1 | 45 |
| 1029 | Stimuli-responsive cellulose nanomaterials for smart applications. Carbohydrate Polymers, 2020, 235, 115933. | 5.1 | 57 |
| 1030 | Ultrafast 3D printing with submicrometer features using electrostatic jet deflection. Nature Communications, 2020, 11, 753. | 5.8 | 114 |
| 1031 | Projection micro stereolithography based 3D printing and its applications. International Journal of Extreme Manufacturing, 2020, 2, 022004. | 6.3 | 213 |
| 1032 | Bioprintable tough hydrogels for tissue engineering applications. Advances in Colloid and Interface Science, 2020, 281, 102163. | 7.0 | 73 |
| 1033 | Soft actuator with large volumetric change using vapor–liquid phase transition. Japanese Journal of Applied Physics, 2020, 59, SIIL08. | 0.8 | 9 |
| 1034 | Recent Progress on Celluloseâ€Based Ionic Compounds for Biomaterials. Advanced Materials, 2021, 33, e2000717. | 11.1 | 70 |
| 1035 | 4D Printed Hydrogels: Fabrication, Materials, and Applications. Advanced Materials Technologies, 2020, 5, 2000034. | 3.0 | 75 |
| 1036 | Quantitative Immersability of Riemann Metrics and the Infinite Hierarchy of Prestrained Shell Models. Archive for Rational Mechanics and Analysis, 2020, 236, 1677-1707. | 1.1 | 8 |
| 1037 | Trends in 3D Printing Processes for Biomedical Field: Opportunities and Challenges. Journal of Polymers and the Environment, 2020, 28, 1345-1367. | 2.4 | 110 |
| 1038 | Porous nanocellulose gels and foams: Breakthrough status in the development of scaffolds for tissue engineering. Materials Today, 2020, 37, 126-141. | 8.3 | 134 |
| 1039 | Self-Helical Fiber for Glucose-Responsive Artificial Muscle. ACS Applied Materials & Co. 2020, 12, 20228-20233. | 4.0 | 37 |
| 1040 | Multicolor 4D printing of shape-memory polymers for light-induced selective heating and remote actuation. Scientific Reports, 2020, 10, 6258. | 1.6 | 73 |
| 1041 | Controlling the morphology of metal–organic frameworks and porous carbon materials: metal oxides as primary architecture-directing agents. Chemical Society Reviews, 2020, 49, 3348-3422. | 18.7 | 190 |

| # | ARTICLE | IF | Citations |
|------|--|------|-----------|
| 1042 | Using chaotic advection for facile high-throughput fabrication of ordered multilayer micro- and nanostructures: continuous chaotic printing. Biofabrication, 2020, 12, 035023. | 3.7 | 43 |
| 1043 | Design of 3D Printed Programmable Horseshoe Lattice Structures Based on a Phase-Evolution Model. ACS Applied Materials & Samp; Interfaces, 2020, 12, 22146-22156. | 4.0 | 27 |
| 1044 | Energy Consumption Modeling of 4D Printing Thermal-responsive Polymers with Integrated Compositional Design for Material. Additive Manufacturing, 2020, 34, 101223. | 1.7 | 15 |
| 1045 | 4D Printing of Resorbable Complex Shape-Memory Poly(propylene fumarate) Star Scaffolds. ACS Applied Materials & Star Scaffolds. ACS Applied Materials & Star Scaffolds. ACS | 4.0 | 70 |
| 1046 | A Review of 3D Printing Technologies for Soft Polymer Materials. Advanced Functional Materials, 2020, 30, 2000187. | 7.8 | 379 |
| 1047 | 4D printing and beyond: where to from here?., 2020, , 139-157. | | 3 |
| 1048 | 100th Anniversary of Macromolecular Science Viewpoint: Macromolecular Materials for Additive Manufacturing. ACS Macro Letters, 2020, 9, 627-638. | 2.3 | 69 |
| 1049 | Photopolymerizable Biomaterials and Light-Based 3D Printing Strategies for Biomedical Applications. Chemical Reviews, 2020, 120, 10695-10743. | 23.0 | 283 |
| 1050 | Kirigamiâ€Designâ€Enabled Hydrogel Multimorphs with Application as a Multistate Switch. Advanced Materials, 2020, 32, e2000781. | 11.1 | 93 |
| 1051 | Computational and Experimental Design Exploration of 3Dâ€Printed Soft Pneumatic Actuators. Advanced Intelligent Systems, 2020, 2, 2000013. | 3.3 | 8 |
| 1052 | Study on intelligent deformation characteristics of temperatureâ€driven hydrogel actuators prepared via molding and <scp>3D</scp> printing. Polymers for Advanced Technologies, 2020, 31, 1980-1993. | 1.6 | 5 |
| 1053 | Novel bioinks from UV-responsive norbornene-functionalized carboxymethyl cellulose macromers. Bioprinting, 2020, 18, e00083. | 2.9 | 22 |
| 1054 | Shape memory epoxy composites with high mechanical performance manufactured by multi-material direct ink writing. Composites Part A: Applied Science and Manufacturing, 2020, 135, 105903. | 3.8 | 47 |
| 1055 | Engineering crack tortuosity in printed polymer–polymer composites through ordered pores. Materials Horizons, 2020, 7, 1854-1860. | 6.4 | 7 |
| 1056 | Materials engineering, processing, and device application of hydrogel nanocomposites. Nanoscale, 2020, 12, 10456-10473. | 2.8 | 52 |
| 1057 | Poly(N-isopropylacrylamide)-based smart hydrogels: Design, properties and applications. Progress in Materials Science, 2021, 115, 100702. | 16.0 | 402 |
| 1058 | Future of additive manufacturing: Overview of 4D and 3D printed smart and advanced materials and their applications. Chemical Engineering Journal, 2021, 403, 126162. | 6.6 | 163 |
| 1059 | An analysis of the methods and materials for 4-dimensional printing. Materials Today: Proceedings, 2021, 38, 2167-2173. | 0.9 | 6 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1060 | 3D bioprinting of mechanically tuned bioinks derived from cardiac decellularized extracellular matrix. Acta Biomaterialia, 2021, 119, 75-88. | 4.1 | 110 |
| 1061 | Hydration-induced reversible deformation of biological materials. Nature Reviews Materials, 2021, 6, 264-283. | 23.3 | 58 |
| 1062 | Mechanics of nozzle clogging during direct ink writing of fiber-reinforced composites. Additive Manufacturing, 2021, 37, 101701. | 1.7 | 24 |
| 1063 | Evaluation in 4D printing – A review. Materials Today: Proceedings, 2021, 45, 1433-1437. | 0.9 | 21 |
| 1064 | Mechanical Sciences., 2021,,. | | 1 |
| 1065 | Photoâ€curing <scp>3D</scp> printing robust elastomers with ultralow viscosity resin. Journal of Applied Polymer Science, 2021, 138, 49965. | 1.3 | 8 |
| 1066 | Building SiC-based composites from polycarbosilane-derived 3D-SiC scaffolds via polymer impregnation and pyrolysis (PIP). Journal of the European Ceramic Society, 2021, 41, 1121-1131. | 2.8 | 23 |
| 1067 | A review on spacers and membranes: Conventional or hybrid additive manufacturing?. Water Research, 2021, 188, 116497. | 5.3 | 46 |
| 1068 | Trends in 3D bioprinting for esophageal tissue repair and reconstruction. Biomaterials, 2021, 267, 120465. | 5.7 | 22 |
| 1069 | Laser-based additively manufactured polymers: a review on processes and mechanical models. Journal of Materials Science, 2021, 56, 961-998. | 1.7 | 65 |
| 1070 | Rheological behavior and particle alignment of cellulose nanocrystal and its composite hydrogels during 3D printing. Carbohydrate Polymers, 2021, 253, 117217. | 5.1 | 81 |
| 1071 | A skeleton muscle model using GelMA-based cell-aligned bioink processed with an electric-field assisted 3D/4D bioprinting. Theranostics, 2021, 11, 48-63. | 4.6 | 69 |
| 1072 | 3D and 4D Printing of Functional and Smart Composite Materials., 2021,, 402-419. | | 14 |
| 1073 | A 3D Printed Morphing Nozzle to Control Fiber Orientation during Composite Additive Manufacturing. Advanced Materials Technologies, 2021, 6, . | 3.0 | 21 |
| 1074 | Multimaterial direct 4D printing of high stiffness structures with large bending curvature. Extreme Mechanics Letters, 2021, 42, 101122. | 2.0 | 41 |
| 1075 | Nearâ€Infrared Lightâ€Driven Shapeâ€Morphing of Programmable Anisotropic Hydrogels Enabled by MXene Nanosheets. Angewandte Chemie - International Edition, 2021, 60, 3390-3396. | 7.2 | 213 |
| 1076 | Smart Polymers for Microscale Machines. Advanced Functional Materials, 2021, 31, 2007125. | 7.8 | 48 |
| 1077 | Tissue-specific engineering: 3D bioprinting in regenerative medicine. Journal of Controlled Release, 2021, 329, 237-256. | 4.8 | 45 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1078 | Recent progress in the design and fabrication of multifunctional structures based on metamaterials. Current Opinion in Solid State and Materials Science, 2021, 25, 100883. | 5.6 | 65 |
| 1079 | 3D Interfacing between Soft Electronic Tools and Complex Biological Tissues. Advanced Materials, 2021, 33, e2004425. | 11.1 | 48 |
| 1080 | 4Dâ€Printing of Photoswitchable Actuators. Angewandte Chemie, 2021, 133, 5596-5603. | 1.6 | 18 |
| 1081 | Hydrogel-Based Sensor Networks: Compositions, Properties, and Applicationsâ€"A Review. ACS Applied Bio Materials, 2021, 4, 140-162. | 2.3 | 139 |
| 1082 | 4Dâ€Printing of Photoswitchable Actuators. Angewandte Chemie - International Edition, 2021, 60, 5536-5543. | 7.2 | 104 |
| 1083 | Formation of helices with controllable chirality in gel-fiber composites. Polymer, 2021, 212, 123191. | 1.8 | 1 |
| 1084 | Smart Composites and Their Applications. , 2021, , 380-389. | | 0 |
| 1085 | Recent progress in field-assisted additive manufacturing: materials, methodologies, and applications. Materials Horizons, 2021, 8, 885-911. | 6.4 | 35 |
| 1086 | (AB) <i>_n</i> Segmented Copolyetherimides for 4D Printing. Macromolecular Materials and Engineering, 2021, 306, 2000473. | 1.7 | 1 |
| 1087 | Nearâ€Infrared Lightâ€Driven Shapeâ€Morphing of Programmable Anisotropic Hydrogels Enabled by MXene Nanosheets. Angewandte Chemie, 2021, 133, 3432-3438. | 1.6 | 20 |
| 1088 | From prevention to diagnosis and treatment: Biomedical applications of metal nanoparticle-hydrogel composites. Acta Biomaterialia, 2021, 122, 1-25. | 4.1 | 57 |
| 1089 | 3D Printing of Biocompatible Shape-Memory Double Network Hydrogels. ACS Applied Materials & amp; Interfaces, 2021, 13, 12726-12734. | 4.0 | 31 |
| 1090 | Digital light processing 3D printing with thiol–acrylate vitrimers. Polymer Chemistry, 2021, 12, 639-644. | 1.9 | 53 |
| 1091 | Shape-shifting panel from 3D printed undulated ribbon lattice. Extreme Mechanics Letters, 2021, 42, 101089. | 2.0 | 5 |
| 1092 | 4D Printing of Glass Fiber-Regulated Shape Shifting Structures with High Stiffness. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12797-12804. | 4.0 | 28 |
| 1093 | Programming Stepwise Motility into a Sheet of Paper Using Inkjet Printing. Advanced Intelligent Systems, 2021, 3, 2000153. | 3.3 | 4 |
| 1094 | 4D Printing Elastic Composites for Strain-Tailored Multistable Shape Morphing. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12719-12725. | 4.0 | 25 |
| 1095 | Fused Filament Fabrication 4D Printing of a Highly Extensible, Self-Healing, Shape Memory Elastomer Based on Thermoplastic Polymer Blends. ACS Applied Materials & 1, 12777-12788. | 4.0 | 64 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1096 | 3D Printing of Strong and Tough Double Network Granular Hydrogels. Advanced Functional Materials, 2021, 31, 2005929. | 7.8 | 85 |
| 1097 | Future of additive manufacturing in healthcare. Current Opinion in Biomedical Engineering, 2021, 17, 100255. | 1.8 | 60 |
| 1098 | Recent progress in conductive polymers for advanced fiber-shaped electrochemical energy storage devices. Materials Chemistry Frontiers, 2021, 5, 1140-1163. | 3.2 | 51 |
| 1099 | Printing Multiâ€Material Organic Haptic Actuators. Advanced Materials, 2021, 33, e2002541. | 11.1 | 35 |
| 1100 | Shape Changing Robots: Bioinspiration, Simulation, and Physical Realization. Advanced Materials, 2021, 33, e2002882. | 11.1 | 66 |
| 1101 | A Review of Shape Memory Polymers and Composites: Mechanisms, Materials, and Applications. Advanced Materials, 2021, 33, e2000713. | 11.1 | 558 |
| 1102 | Integrated microsystems for bridging multiscale elements. Advances in Chemical Engineering, 2021, 57, 157-196. | 0.5 | 2 |
| 1103 | Self-healable tactile sensors. , 2021, , 263-289. | | 0 |
| 1104 | Three-Dimensional Printing of Nanocellulose-Based Hydrogels. Gels Horizons: From Science To Smart Materials, 2021, , 1-20. | 0.3 | 0 |
| 1105 | Hydrogel as Bio-lnk for Organ Regeneration. Gels Horizons: From Science To Smart Materials, 2021, , 165-179. | 0.3 | 2 |
| 1106 | Introduction to 4D printing., 2021,, 303-342. | | 6 |
| 1107 | Nanofunctionalized 3D printing. , 2021, , 457-504. | | 0 |
| 1108 | Gaussian-preserved, non-volatile shape morphing in three-dimensional microstructures for dual-functional electronic devices. Nature Communications, 2021, 12, 509. | 5.8 | 19 |
| 1109 | Future Perspectives for Gel-Inks for 3D Printing in Tissue Engineering. Gels Horizons: From Science To Smart Materials, 2021, , 383-395. | 0.3 | 1 |
| 1110 | 3D printing biomimetic materials and structures for biomedical applications. Bio-Design and Manufacturing, 2021, 4, 405-428. | 3.9 | 66 |
| 1111 | Multifunctional materials based on smart hydrogels for biomedical and 4D applications. , 2021, , 407-467. | | 2 |
| 1112 | 4D Printed Cardiac Construct with Aligned Myofibers and Adjustable Curvature for Myocardial Regeneration. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12746-12758. | 4.0 | 82 |
| 1113 | Recent progress in the shape deformation of polymeric hydrogels from memory to actuation. Chemical Science, 2021, 12, 6472-6487. | 3.7 | 46 |

| # | Article | IF | CITATIONS |
|------|---|-----|-----------|
| 1114 | Smart Cellulose Composites: Advanced Applications and Properties Prediction Using Machine Learning., 2021,, 527-538. | | 2 |
| 1115 | Agile reversible shape-morphing of particle rafts. Soft Matter, 2021, 17, 7554-7564. | 1.2 | 4 |
| 1116 | Programmable shape-shifting 3D structures via frontal photopolymerization. Materials and Design, 2021, 198, 109381. | 3.3 | 8 |
| 1117 | Materials for additive manufacturing and 4D printing. , 2021, , 209-232. | | 6 |
| 1118 | 3D Printing of Supramolecular Polymer Hydrogels with Hierarchical Structure. Small, 2021, 17, e2005743. | 5.2 | 54 |
| 1119 | 3D printing of highly stretchable hydrogel with diverse UV curable polymers. Science Advances, 2021, 7, . | 4.7 | 233 |
| 1120 | Review of Materials and Processes Used in 4D Printing. Lecture Notes in Mechanical Engineering, 2021, , 677-684. | 0.3 | 0 |
| 1121 | Additive manufacturing with shape changing/memory materials: A review on 4D printing technology. Materials Today: Proceedings, 2021, 44, 1744-1749. | 0.9 | 12 |
| 1122 | Direct Ink Writing of Hierarchically Porous Cellulose/Alginate Monolithic Hydrogel as a Highly Effective Adsorbent for Environmental Applications. ACS Applied Polymer Materials, 2021, 3, 699-709. | 2.0 | 58 |
| 1123 | Multi-responsive PNIPAM–PEGDA hydrogel composite. Soft Matter, 2021, 17, 10421-10427. | 1.2 | 17 |
| 1124 | 4D Printing of Magnetoactive Soft Materials for On-Demand Magnetic Actuation Transformation. ACS Applied Materials & Samp; Interfaces, 2021, 13, 4174-4184. | 4.0 | 108 |
| 1125 | A programmable powerful and ultra-fast water-driven soft actuator inspired by the mutable collagenous tissue of the sea cucumber. Journal of Materials Chemistry A, 2021, 9, 15937-15947. | 5.2 | 8 |
| 1126 | Additive Manufacturing of Polymer Matrix Composite Materials with Aligned or Organized Filler Material: A Review. Advanced Engineering Materials, 2021, 23, 2001002. | 1.6 | 38 |
| 1127 | 4D printing in biomedical applications: emerging trends and technologies. Journal of Materials Chemistry B, 2021, 9, 7608-7632. | 2.9 | 65 |
| 1128 | An anisotropic nanocomposite hydrogel guides aligned orientation and enhances tenogenesis of human tendon stem/progenitor cells. Biomaterials Science, 2021, 9, 1237-1245. | 2.6 | 25 |
| 1129 | Hydrogels: Biomaterials for Sustained and Localized Drug Delivery. Springer Series in Biomaterials Science and Engineering, 2021, , 211-252. | 0.7 | 0 |
| 1130 | Shape recovery analysis of the additive manufactured 3D smart surfaces through reverse engineering. Progress in Additive Manufacturing, 2021, 6, 281-295. | 2.5 | 12 |
| 1131 | 3D bioprinting in cardiac tissue engineering. Theranostics, 2021, 11, 7948-7969. | 4.6 | 56 |

| # | Article | IF | CITATIONS |
|------|---|-----|-----------|
| 1132 | Stable quantum dots/polymer matrix and their versatile 3D printing frameworks. Journal of Materials Chemistry C, 2021, 9, 7194-7199. | 2.7 | 8 |
| 1133 | Multi-Material Production of 4D Shape Memory Polymer Composites. , 2021, , 879-894. | | 4 |
| 1134 | H-bond/ionic coordination switching for fabrication of highly oriented cellulose hydrogels. Journal of Materials Chemistry A, 2021, 9, 5533-5541. | 5.2 | 19 |
| 1135 | Structural multi-colour invisible inks with submicron 4D printing of shape memory polymers. Nature Communications, 2021, 12, 112. | 5.8 | 102 |
| 1136 | Magnetic Nanocomposite Hydrogels for Tissue Engineering: Design Concepts and Remote Actuation Strategies to Control Cell Fate. ACS Nano, 2021, 15, 175-209. | 7.3 | 119 |
| 1137 | Reversible Deactivation Radical Polymerization: From Polymer Network Synthesis to 3D Printing. Advanced Science, 2021, 8, 2003701. | 5.6 | 85 |
| 1138 | Bioprinting., 2021,, 45-96. | | 0 |
| 1139 | Tailoring the multistability of origami-inspired, buckled magnetic structures <i>via</i> compression and creasing. Materials Horizons, 2021, 8, 3324-3333. | 6.4 | 4 |
| 1140 | Multimaterial Printing for Cephalopod-Inspired Light-Responsive Artificial Chromatophores. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12735-12745. | 4.0 | 19 |
| 1141 | Materials for four-dimensional printing. , 2021, , 679-739. | | 1 |
| 1142 | Buckling-regulated bandgaps of soft metamaterials with chiral hierarchical microstructure. Extreme Mechanics Letters, 2021, 43, 101166. | 2.0 | 10 |
| 1143 | On the Kirchhoff-Love Hypothesis (Revised and Vindicated). Journal of Elasticity, 2021, 143, 359-384. | 0.9 | 13 |
| 1144 | 3D Patterning within Hydrogels for the Recreation of Functional Biological Environments. Advanced Functional Materials, 2021, 31, 2009574. | 7.8 | 35 |
| 1145 | A high-efficiency way to improve the shape memory property of 4D-printed polyurethane/polylactide composite by forming in situ microfibers during extrusion-based additive manufacturing. Additive Manufacturing, 2021, 38, 101718. | 1.7 | 12 |
| 1146 | Remotely Controlled, Reversible, On-Demand Assembly and Reconfiguration of 3D Mesostructures via Liquid Crystal Elastomer Platforms. ACS Applied Materials & District Platforms. ACS Applied Materials & District Platforms. | 4.0 | 22 |
| 1147 | Microfluidic and Organ-on-a-Chip Approaches to Investigate Cellular and Microenvironmental Contributions to Cardiovascular Function and Pathology. Frontiers in Bioengineering and Biotechnology, 2021, 9, 624435. | 2.0 | 25 |
| 1148 | Polarization improvement of CsPbClBr ₂ quantum dot film by laser direct writing technology. Optics Letters, 2021, 46, 777. | 1.7 | 3 |
| 1149 | Rapid Highâ€Resolution 3D Printing and Surface Functionalization via Type I Photoinitiated RAFT Polymerization. Angewandte Chemie, 2021, 133, 8921-8932. | 1.6 | 7 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1150 | Bioink Formulations for Bone Tissue Regeneration. Frontiers in Bioengineering and Biotechnology, 2021, 9, 630488. | 2.0 | 25 |
| 1151 | Actuation of Threeâ€Dimensionalâ€Printed Nanocolloidal Hydrogel with Structural Anisotropy. Advanced Functional Materials, 2021, 31, 2010743. | 7.8 | 59 |
| 1152 | Rapid Highâ€Resolution 3D Printing and Surface Functionalization via Type I Photoinitiated RAFT Polymerization. Angewandte Chemie - International Edition, 2021, 60, 8839-8850. | 7.2 | 92 |
| 1153 | Development of Thermoinks for 4D Direct Printing of Temperatureâ€Induced Selfâ€Rolling Hydrogel Actuators. Advanced Functional Materials, 2021, 31, 2009664. | 7.8 | 43 |
| 1154 | Additive Manufacturing of Polymer Materials: Progress, Promise and Challenges. Polymers, 2021, 13, 753. | 2.0 | 156 |
| 1155 | Euclidean Frustrated Ribbons. Physical Review X, 2021, 11, . | 2.8 | 5 |
| 1156 | Additive manufacturing and applications of nanomaterial-based sensors. Materials Today, 2021, 48, 135-154. | 8.3 | 46 |
| 1157 | The use of cellulose in bio-derived formulations for 3D/4D printing: A review. Composites Part C: Open Access, 2021, 4, 100113. | 1.5 | 47 |
| 1158 | Effect of nanosilica on shape memory and mechanical characterization of polylactic acid wood composite. Polymer Composites, 2021, 42, 2502-2510. | 2.3 | 7 |
| 1159 | Autonomous Shapeshifting Hydrogels via Temporal Programming of Photoswitchable Dynamic Network. Chemistry of Materials, 2021, 33, 2046-2053. | 3.2 | 29 |
| 1160 | Complex 3D bioprinting methods. APL Bioengineering, 2021, 5, 011508. | 3.3 | 47 |
| 1161 | A solid-shell finite element method for the anisotropic swelling of hydrogels with reinforced fibers. European Journal of Mechanics, A/Solids, 2021, 86, 104197. | 2.1 | 6 |
| 1162 | Large Bending Deformation of a Cantilevered Soft Beam under External Load: The Applicability of Inextensibility Assumption of the Centerline. Current Mechanics and Advanced Materials, 2021, 1, 24-38. | 0.1 | 4 |
| 1163 | Reconstructable Gradient Structures and Reprogrammable 3D Deformations of Hydrogels with Coumarin Units as the Photolabile Crosslinks. Advanced Materials, 2021, 33, e2008057. | 11.1 | 82 |
| 1164 | Direct 2D-to-3D transformation of pen drawings. Science Advances, 2021, 7, . | 4.7 | 25 |
| 1165 | Reconfigurable Threeâ€Dimensional Mesotructures of Spatially Programmed Liquid Crystal Elastomers and Their Ferromagnetic Composites. Advanced Functional Materials, 2021, 31, 2100338. | 7.8 | 36 |
| 1166 | Multi-recyclable Shape Memory Supramolecular Polyurea with Long Cycle Life and Superior Stability., 2021, 3, 331-336. | | 24 |
| 1167 | Dimension reduction for thin films prestrained by shallow curvature. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, . | 1.0 | 0 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1168 | Ring Opening Copolymerization of Four-Dimensional Printed Shape Memory Polyester Photopolymers Using Digital Light Processing. Macromolecules, 2021, 54, 2681-2690. | 2.2 | 15 |
| 1169 | Bioinspired Soft Robots Based on the Moistureâ€Responsive Graphene Oxide. Advanced Science, 2021, 8, 2002464. | 5.6 | 70 |
| 1170 | Surface molding of multi-stimuli-responsive microgel actuators. MRS Bulletin, 2021, 46, 337-344. | 1.7 | 6 |
| 1171 | Fluid mechanical modeling of the upper urinary tract. WIREs Mechanisms of Disease, 2021, 13, e1523. | 1.5 | 18 |
| 1172 | Mechanics of cellulose nanopaper using a scalable coarse-grained modeling scheme. Cellulose, 2021, 28, 3359-3372. | 2.4 | 13 |
| 1173 | 4D Printing of Shape Memory Materials for Textiles: Mechanism, Mathematical Modeling, and Challenges. Advanced Functional Materials, 2021, 31, 2100257. | 7.8 | 84 |
| 1174 | Actuation of cylindrical nematic elastomer balloons. Journal of Applied Physics, 2021, 129, . | 1.1 | 17 |
| 1175 | Printing Reconfigurable Bundles of Dielectric Elastomer Fibers. Advanced Functional Materials, 2021, 31, 2010643. | 7.8 | 63 |
| 1176 | Shapeâ€Memory Balloon Structures by Pneumatic Multiâ€material 4D Printing. Advanced Functional Materials, 2021, 31, 2010872. | 7.8 | 30 |
| 1177 | 3D printing hydrogels for actuators: A review. Chinese Chemical Letters, 2021, 32, 2923-2932. | 4.8 | 59 |
| 1178 | A Wettingâ€Enabledâ€Transfer (WET) Strategy for Precise Surface Patterning of Organohydrogels. Advanced Materials, 2021, 33, e2008557. | 11.1 | 36 |
| 1179 | Reverse shape compensation via a gradient-based moving particle optimization method. Computer Methods in Applied Mechanics and Engineering, 2021, 377, 113658. | 3.4 | 3 |
| 1180 | Shape Matching: Evolving Fiber Constraints on a Pneumatic Bilayer., 2021, , . | | 2 |
| 1181 | Cactus-inspired design principles for soft robotics based on 3D printed hydrogel-elastomer systems. Materials and Design, 2021, 202, 109515. | 3.3 | 35 |
| 1182 | Multiâ€Dimensional Printing for Bone Tissue Engineering. Advanced Healthcare Materials, 2021, 10, e2001986. | 3.9 | 41 |
| 1183 | Cool, Dry, Nano-scale DIC Patterning of Delicate, Heterogeneous, Non-planar Specimens by Micro-mist Nebulization. Experimental Mechanics, 2021, 61, 917-937. | 1.1 | 10 |
| 1184 | Three-Dimensional Printing of Self-Assembled Dipeptides. ACS Applied Materials & Dipeptides. Dipeptides. ACS Applied Materials & Dipeptides. Dipeptides. ACS Applied Materials & Dipeptides. Dipeptide | 4.0 | 16 |
| 1185 | Hydroxyethyl Cellulose As a Rheological Additive for Tuning the Extrusion Printability and Scaffold Properties. 3D Printing and Additive Manufacturing, 2021, 8, 87-98. | 1.4 | 6 |

| # | Article | IF | CITATIONS |
|------|---|-------------|-----------|
| 1186 | Modeling and live imaging of mechanical instabilities in the zebrafish aorta during hematopoiesis. Scientific Reports, 2021, 11, 9316. | 1.6 | 3 |
| 1187 | 3D printability of highly ductile poly(ethylene glycolâ€coâ€cyclohexaneâ€1,4â€dimethanol terephthalate) â€EMAA blends. Polymer Engineering and Science, 2021, 61, 1695-1705. | 1.5 | 2 |
| 1188 | Additive manufacturing of structural materials. Materials Science and Engineering Reports, 2021, 145, 100596. | 14.8 | 254 |
| 1189 | Assessment of the Dimensional and Geometric Precision of Micro-Details Produced by Material Jetting. Materials, 2021, 14, 1989. | 1.3 | 6 |
| 1190 | Soft Materials by Design: Unconventional Polymer Networks Give Extreme Properties. Chemical Reviews, 2021, 121, 4309-4372. | 23.0 | 472 |
| 1191 | The new material science of robots. Current Opinion in Solid State and Materials Science, 2021, 25, 100894. | 5. 6 | 3 |
| 1192 | 3D Printing Hydrogel-Based Soft and Biohybrid Actuators: A Mini-Review on Fabrication Techniques, Applications, and Challenges. Frontiers in Robotics and Al, 2021, 8, 673533. | 2.0 | 27 |
| 1193 | Photopolymerization of Pollen Based Biosourced Composites and Applications in 3D and 4D Printing. Macromolecular Materials and Engineering, 2021, 306, 2000774. | 1.7 | 7 |
| 1194 | Moisture sensitivity and compressive performance of 3D-printed cellulose-biopolyester foam lattices. Additive Manufacturing, 2021, 40, 101918. | 1.7 | 3 |
| 1195 | Synergistic photoactuation of bilayered spiropyran hydrogels for predictable origami-like shape change. Matter, 2021, 4, 1377-1390. | 5.0 | 57 |
| 1196 | Large deformation analysis of spontaneous twist and contraction in nematic elastomer fibers with helical director. Journal of Applied Physics, 2021, 129, . | 1.1 | 7 |
| 1197 | High resolution additive manufacturing with acrylate based vitrimers using organic phosphates as transesterification catalyst. Polymer, 2021, 221, 123631. | 1.8 | 37 |
| 1198 | Semi-solid extrusion 3D printing in drug delivery and biomedicine: Personalised solutions for healthcare challenges. Journal of Controlled Release, 2021, 332, 367-389. | 4.8 | 157 |
| 1199 | Programmable and reprocessable multifunctional elastomeric sheets for soft origami robots. Science Robotics, 2021, 6, . | 9.9 | 42 |
| 1200 | Current progress of 4D-printing technology. Progress in Additive Manufacturing, 2021, 6, 495-516. | 2.5 | 32 |
| 1201 | Mechanoactivation of Color and Autonomous Shape Change in 3D-Printed Ionic Polymer Networks. ACS Applied Materials & Samp; Interfaces, 2021, 13, 19263-19270. | 4.0 | 15 |
| 1202 | Color-Changeable Four-Dimensional Printing Enabled with Ultraviolet-Curable and Thermochromic Shape Memory Polymers. ACS Applied Materials & Samp; Interfaces, 2021, 13, 18120-18127. | 4.0 | 39 |
| 1203 | Tethered and Untethered 3D Microactuators Fabricated by Two-Photon Polymerization: A Review. Micromachines, 2021, 12, 465. | 1.4 | 33 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1204 | Intelligent Hydrogel Actuators With Controllable Deformations and Movements. Frontiers in Materials, $2021,8,.$ | 1.2 | 5 |
| 1205 | Patientâ€Specific Organoid and Organâ€onâ€oâ€Chip: 3D Cellâ€Culture Meets 3D Printing and Numerical Simulation. Advanced Biology, 2021, 5, e2000024. | 1.4 | 31 |
| 1206 | Capillaryâ€Forceâ€Driven Selfâ€Assembly of 4Dâ€Printed Microstructures. Advanced Materials, 2021, 33, e2100332. | 11.1 | 32 |
| 1207 | An ontology-based framework to formalize and represent 4D printing knowledge in design. Computers in Industry, 2021, 126, 103374. | 5.7 | 32 |
| 1208 | Multistimuliâ€Responsive Artificial Skin with Dual Output of Photoelectric Signals. Macromolecular Materials and Engineering, 2021, 306, 2100017. | 1.7 | 4 |
| 1209 | 4D printing: Recent advances and proposals in the food sector. Trends in Food Science and Technology, 2021, 110, 349-363. | 7.8 | 104 |
| 1210 | Robotic surfaces with reversible, spatiotemporal control for shape morphing and object manipulation. Science Robotics, 2021, 6, . | 9.9 | 70 |
| 1211 | Four-Dimensional Printing of Alternate-Actuated Composite Structures for Reversible Deformation under Continuous Reciprocation Loading. Frontiers in Materials, 2021, 8, . | 1.2 | 2 |
| 1212 | Fabrication of Microfluidic Devices for Emulsion Formation by Microstereolithography. Molecules, 2021, 26, 2817. | 1.7 | 9 |
| 1213 | Bioâ€Inspired Motion Mechanisms: Computational Design and Material Programming of Selfâ€Adjusting 4Dâ€Printed Wearable Systems. Advanced Science, 2021, 8, 2100411. | 5.6 | 27 |
| 1214 | Topics in the mathematical design of materials. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2021, 379, 20200108. | 1.6 | 1 |
| 1215 | Unmaking: Enabling and Celebrating the Creative Material of Failure, Destruction, Decay, and Deformation. , 2021, , . | | 34 |
| 1216 | Design and Preparation of Magnetism-Driven Intelligent Hydrogel Actuators. International Polymer Processing, 2021, 36, 165-171. | 0.3 | 1 |
| 1217 | Recent Progress in 3D Printing of Smart Structures: Classification, Challenges, and Trends. Advanced Intelligent Systems, 2021, 3, 2000271. | 3.3 | 16 |
| 1218 | Morphing pasta and beyond. Science Advances, 2021, 7, . | 4.7 | 43 |
| 1219 | Living Polymer Networks Based on a RAFT Cross-Linker: Toward 3D and 4D Printing Applications. ACS Applied Polymer Materials, 2021, 3, 2921-2930. | 2.0 | 26 |
| 1220 | 3D printing of shape-morphing and antibacterial anisotropic nanocellulose hydrogels. Carbohydrate Polymers, 2021, 259, 117716. | 5.1 | 59 |
| 1221 | Sustainable Cellulose-Nanofiber-Based Hydrogels. ACS Nano, 2021, 15, 7889-7898. | 7.3 | 84 |

| # | ARTICLE | IF | CITATIONS |
|------|--|--------------|-----------|
| 1222 | 4D Printing of Continuous Shape Representation. Advanced Materials Technologies, 2021, 6, 2100133. | 3.0 | 5 |
| 1223 | Development of Bioinspired Functional Chitosan/Cellulose Nanofiber 3D Hydrogel Constructs by 3D Printing for Application in the Engineering of Mechanically Demanding Tissues. Polymers, 2021, 13, 1663. | 2.0 | 35 |
| 1224 | Tough hydrogels for soft artificial muscles. Materials and Design, 2021, 203, 109609. | 3.3 | 35 |
| 1225 | Recent Progress on Plant-Inspired Soft Robotics with Hydrogel Building Blocks: Fabrication, Actuation and Application. Micromachines, 2021, 12, 608. | 1.4 | 16 |
| 1226 | Everting of tubular net structures based on Shape Memory Alloys. Engineering Research Express, 2021, 3, 025028. | 0.8 | 0 |
| 1227 | Plant-Morphing Strategies and Plant-Inspired Soft Actuators Fabricated by Biomimetic Four-Dimensional Printing: A Review. Frontiers in Materials, 2021, 8, . | 1.2 | 10 |
| 1228 | Intelligent Shape-Morphing Micromachines. Research, 2021, 2021, 9806463. | 2.8 | 6 |
| 1229 | Multi-functionalization Strategies Using Nanomaterials: A Review and Case Study in Sensing Applications. International Journal of Precision Engineering and Manufacturing - Green Technology, 2022, 9, 323-347. | 2.7 | 23 |
| 1230 | Mechanically Robust and UVâ€Curable Shapeâ€Memory Polymers for Digital Light Processing Based 4D Printing. Advanced Materials, 2021, 33, e2101298. | 11.1 | 129 |
| 1231 | 3D Printing of Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrically Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Gel Actuators. ACS Applied Materials & Electrical Responsive PVC Actuators. ACS Applied Materials & Electrical Responsive PVC Actuators. ACS Applied PVC Actuators. ACTUATOR ACTUATOR ACTUATOR ACTUATOR ACTUATOR ACTUATOR ACTUATOR ACTUA | 4.0 | 27 |
| 1232 | ExoForm: Shape Memory and Self-Fusing Semi-Rigid Wearables. , 2021, , . | | 2 |
| 1233 | Engineering (Bio)Materials through Shrinkage and Expansion. Advanced Healthcare Materials, 2021, 10, e2100380. | 3.9 | 15 |
| 1234 | Self-Actuated Paper and Wood Models: Low-Cost Handcrafted Biomimetic Compliant Systems for Research and Teaching. Biomimetics, 2021, 6, 42. | 1.5 | 9 |
| 1235 | Bone tissue engineering via application of a collagen/hydroxyapatite 4D-printed biomimetic scaffold for spinal fusion. Applied Physics Reviews, 2021, 8, . | 5 . 5 | 40 |
| 1236 | Moving frames and compatibility conditions for three-dimensional director fields. New Journal of Physics, 2021, 23, 063016. | 1.2 | 9 |
| 1237 | 3D printing in biomedical engineering: Processes, materials, and applications. Applied Physics Reviews, 2021, 8, . | 5.5 | 46 |
| 1238 | Fluidic Infiltrative Assembly of 3D Hydrogel with Heterogeneous Composition and Function. Advanced Functional Materials, 2021, 31, 2103288. | 7.8 | 9 |
| 1239 | Review of 4D printing materials and reinforced composites: Behaviors, applications and challenges. Journal of Science: Advanced Materials and Devices, 2021, 6, 167-185. | 1.5 | 43 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1240 | Photodeformable Liquid Crystalline Polymers Containing Functional Additives: Toward Photomanipulatable Intelligent Soft Systems. Small Structures, 2021, 2, 2100038. | 6.9 | 58 |
| 1241 | New modeling approach for 4D printing by using kinetic components. Journal of Computational Design and Engineering, 2021, 8, 1013-1022. | 1.5 | 2 |
| 1242 | 3D Printingâ€Enabled Nanoparticle Alignment: A Review of Mechanisms and Applications. Small, 2021, 17, e2100817. | 5.2 | 61 |
| 1243 | Assembly of Defect-Free Microgel Nanomembranes for CO ₂ Separation. ACS Applied Materials & Separation. | 4.0 | 18 |
| 1244 | Direct Ink Writing of Pure PDMS for Soft 3D Microstructures and Tactile Sensors. , 2021, , . | | 4 |
| 1245 | Artificial Visual Electronics for Closed‣oop Sensation/Action Systems. Advanced Intelligent Systems, 2021, 3, 2100071. | 3.3 | 3 |
| 1246 | Quantifying the Shape Memory Performance of a Three-Dimensional-Printed Biobased Polyester/Cellulose Composite Material. 3D Printing and Additive Manufacturing, 2021, 8, 193-200. | 1.4 | 9 |
| 1247 | Hydrogel-based DIY Underwater Morphing Artifacts. , 2021, , . | | 6 |
| 1248 | A Brief Review on Additive Manufacturing of Polymeric Composites and Nanocomposites. Micromachines, 2021, 12, 704. | 1.4 | 19 |
| 1249 | Random Liquid Crystalline Copolymers Consisting of Prolate and Oblate Liquid Crystal Monomers. Macromolecules, 2021, 54, 5376-5387. | 2.2 | 11 |
| 1250 | Regulating Asynchronous Deformations of Biopolyester Elastomers via Photoprogramming and Strain-Induced Crystallization. Macromolecules, 2021, 54, 5694-5704. | 2.2 | 17 |
| 1251 | Fabrication and applications of stimuliâ€responsive micro/nanopillar arrays. Journal of Polymer Science, 2021, 59, 1491-1517. | 2.0 | 17 |
| 1252 | Approaches of combining a 3D-printed elastic structure and a hydrogel to create models for plant-inspired actuators. MRS Advances, 2021, 6, 625-630. | 0.5 | 6 |
| 1253 | State of the Art and Prospects for Halide Perovskite Nanocrystals. ACS Nano, 2021, 15, 10775-10981. | 7.3 | 705 |
| 1254 | Development of Nanosilicate–Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Development of Nanosilicate–Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Development of Nanosilicate–Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Development of Nanosilicate–Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Development of Nanosilicate–Hydrogel Composites for Sustained Delivery of Charged Biopharmaceutics. ACS Applied Materials & Delivery of Charged Biopharmaceutics. | 4.0 | 12 |
| 1255 | Chemical and Mechanical Tunability of 3D-Printed Dynamic Covalent Networks Based on Boronate Esters. ACS Macro Letters, 2021, 10, 857-863. | 2.3 | 44 |
| 1256 | Magnetic Dynamic Polymers for Modular Assembling and Reconfigurable Morphing Architectures. Advanced Materials, 2021, 33, e2102113. | 11.1 | 88 |
| 1257 | 4D printing of reconfigurable metamaterials and devices. Communications Materials, 2021, 2, . | 2.9 | 60 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1258 | Additive manufacturing landscape and materials perspective in 4D printing. International Journal of Advanced Manufacturing Technology, 2021, 115, 2973-2988. | 1.5 | 30 |
| 1259 | An open-source technology platform to increase reproducibility and enable high-throughput production of tailorable gelatin methacryloyl (GelMA) - based hydrogels. Materials and Design, 2021, 204, 109619. | 3.3 | 10 |
| 1260 | Dehydration-triggered shape transformation of 4D printed edible gel structure affected by material property and heating mechanism. Food Hydrocolloids, 2021, 115, 106608. | 5.6 | 46 |
| 1261 | Shape memory and mechanical characterization of polylactic acid wood composite fabricated by fused filament fabrication 4D printing technology. Materialwissenschaft Und Werkstofftechnik, 2021, 52, 635-643. | 0.5 | 6 |
| 1262 | Programmable 4D Printing of Bioinspired Solventâ€Driven Morphing Composites. Advanced Materials Technologies, 2021, 6, 2001289. | 3.0 | 6 |
| 1263 | 4D-printed self-recovered triboelectric nanogenerator for energy harvesting and self-powered sensor. Nano Energy, 2021, 84, 105873. | 8.2 | 48 |
| 1264 | Natural Origin Biomaterials for 4D Bioprinting Tissueâ€Like Constructs. Advanced Materials Technologies, 2021, 6, 2100168. | 3.0 | 27 |
| 1265 | Pneumatically Controlled Reconfigurable Bistable Bionic Flower for Robotic Gripper. Soft Robotics, 2022, 9, 657-668. | 4.6 | 30 |
| 1266 | 4D printing: Fundamentals, materials, applications and challenges. Polymer, 2021, 228, 123926. | 1.8 | 118 |
| 1267 | Deciphering and engineering tissue folding: A mechanical perspective. Acta Biomaterialia, 2021, 134, 32-42. | 4.1 | 5 |
| 1268 | Programming sequential motion steps in 4D-printed hygromorphs by architected mesostructure and differential hygro-responsiveness. Bioinspiration and Biomimetics, 2021, 16, 055002. | 1.5 | 30 |
| 1269 | Digital light processing of liquid crystal elastomers for self-sensing artificial muscles. Science Advances, 2021, 7, . | 4.7 | 99 |
| 1270 | Printed hydrogels with orderly distributed nanowire. Journal of Physics: Conference Series, 2021, 1965, 012079. | 0.3 | 0 |
| 1271 | 4D polycarbonates via stereolithography as scaffolds for soft tissue repair. Nature Communications, 2021, 12, 3771. | 5.8 | 59 |
| 1272 | Mechanoâ€Optical Sensors Fabricated with Multilayered Liquid Crystal Elastomers Exhibiting Tunable Deformation Recovery. Advanced Functional Materials, 2021, 31, 2104702. | 7.8 | 25 |
| 1273 | Materials with Electroprogrammable Stiffness. Advanced Materials, 2021, 33, e2007952. | 11.1 | 42 |
| 1274 | 4D printing of highly printable and shape morphing hydrogels composed of alginate and methylcellulose. Materials and Design, 2021, 205, 109699. | 3.3 | 77 |
| 1276 | Recent developments in next-generation occlusion devices. Acta Biomaterialia, 2021, 128, 100-119. | 4.1 | 21 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1277 | 3D and 4D lithography of untethered microrobots. Progress in Materials Science, 2021, 120, 100808. | 16.0 | 50 |
| 1278 | Crack tip fields in a neo-Hookean sheet reinforced by nonlinear fibers. Journal of the Mechanics and Physics of Solids, 2021, 152, 104406. | 2.3 | 8 |
| 1279 | 4D Printing of Electroactive Materials. Advanced Intelligent Systems, 2021, 3, 2100019. | 3.3 | 20 |
| 1280 | Asymmetric bilayer CNTs-elastomer/hydrogel composite as soft actuators with sensing performance. Chemical Engineering Journal, 2021, 415, 128988. | 6.6 | 61 |
| 1281 | Best of Both Worlds: Synergistically Derived Material Properties via Additive Manufacturing of Nanocomposites. Advanced Functional Materials, 2021, 31, 2103334. | 7.8 | 8 |
| 1282 | 3D printed colloidal biomaterials based on photo-reactive gelatin nanoparticles. Biomaterials, 2021, 274, 120871. | 5.7 | 40 |
| 1283 | Structure and Unique Functions of Anisotropic Hydrogels Comprising Uniaxially Aligned Lamellar Bilayers. Bulletin of the Chemical Society of Japan, 2021, 94, 2221-2234. | 2.0 | 18 |
| 1284 | Rheological properties of cellulose nanofiber hydrogel for high-fidelity 3D printing. Carbohydrate Polymers, 2021, 263, 117976. | 5.1 | 40 |
| 1285 | Furcated droplet motility on crystalline surfaces. Nature Nanotechnology, 2021, 16, 1106-1112. | 15.6 | 36 |
| 1286 | Engineering Natural Pollen Grains as Multifunctional 3D Printing Materials. Advanced Functional Materials, 2021, 31, 2106276. | 7.8 | 15 |
| 1287 | 3D weaving with curved ribbons. ACM Transactions on Graphics, 2021, 40, 1-15. | 4.9 | 17 |
| 1288 | Anisotropy engineering of metal organic framework derivatives for effective electromagnetic wave absorption. Carbon, 2021, 181, 48-57. | 5.4 | 37 |
| 1289 | <scp>Oneâ€stop</scp> fabrication of triboelectric nanogenerator based on <scp>3D</scp> printing. EcoMat, 2021, 3, e12130. | 6.8 | 23 |
| 1290 | 4D printing materials for vat photopolymerization. Additive Manufacturing, 2021, 44, 102024. | 1.7 | 45 |
| 1291 | Computational inverse design of surface-based inflatables. ACM Transactions on Graphics, 2021, 40, 1-14. | 4.9 | 0 |
| 1292 | Chain-mail fabric stiffens under confining pressure. Nature, 2021, 596, 196-197. | 13.7 | 0 |
| 1293 | Nanocelluloseâ€Based Functional Materials: From Chiral Photonics to Soft Actuator and Energy Storage. Advanced Functional Materials, 2021, 31, 2104991. | 7.8 | 128 |
| 1294 | Regenerative Medicine Technologies to Treat Dental, Oral, and Craniofacial Defects. Frontiers in Bioengineering and Biotechnology, 2021, 9, 704048. | 2.0 | 32 |

| # | ARTICLE | IF | CITATIONS |
|------|---|------|-----------|
| 1295 | 3D bioprinting: novel approaches for engineering complex human tissue equivalents and drug testing. Essays in Biochemistry, 2021, 65, 417-427. | 2.1 | 12 |
| 1296 | Complexity from simplicity: Confinement directs morphogenesis and motility in nematic polymers. Extreme Mechanics Letters, 2021, 47, 101362. | 2.0 | 3 |
| 1297 | Anisotropic Iridescence and Polarization Patterns in a Direct Ink Written Chiral Photonic Polymer. Advanced Materials, 2021, 33, e2103309. | 11.1 | 43 |
| 1298 | Functional applications of 4D printing: a review. Rapid Prototyping Journal, 2021, 27, 1501-1522. | 1.6 | 20 |
| 1299 | Ink formulation, scalable applications and challenging perspectives of screen printing for emerging printed microelectronics. Journal of Energy Chemistry, 2021, 63, 498-513. | 7.1 | 71 |
| 1300 | Review of Fiber-Based Three-Dimensional Printing for Applications Ranging from Nanoscale Nanoparticle Alignment to Macroscale Patterning. ACS Applied Nano Materials, 2021, 4, 7538-7562. | 2.4 | 21 |
| 1301 | Fractional Excitations in Non-Euclidean Elastic Plates. Physical Review Letters, 2021, 127, 098001. | 2.9 | 5 |
| 1302 | Enhancing shape memory properties of multi-layered and multi-material polymer composites in 4D printing. Smart Materials and Structures, 2021, 30, 105006. | 1.8 | 21 |
| 1303 | An investigation into the effect of thermal variables on the 3D printed shape memory polymer structures with different geometries. Journal of Intelligent Material Systems and Structures, 2022, 33, 715-726. | 1.4 | 6 |
| 1304 | A review of three-dimensional printing for pharmaceutical applications: Quality control, risk assessment and future perspectives. Journal of Drug Delivery Science and Technology, 2021, 64, 102571. | 1.4 | 10 |
| 1305 | 4D Printing of Self-Folding Hydrogel Tubes for Potential Tissue Engineering Applications. Nano LIFE, 2021, 11 , . | 0.6 | 8 |
| 1306 | 3D electron-beam writing at sub-15 nm resolution using spider silk as a resist. Nature Communications, 2021, 12, 5133. | 5.8 | 22 |
| 1307 | Computational inverse design of surface-based inflatables. ACM Transactions on Graphics, 2021, 40, 1-14. | 4.9 | 34 |
| 1308 | Nanotechnologies and Nanomaterials in 3D (Bio)printing toward Bone Regeneration. Advanced NanoBiomed Research, 2021, 1, 2100035. | 1.7 | 11 |
| 1309 | 3D weaving with curved ribbons. ACM Transactions on Graphics, 2021, 40, 1-15. | 4.9 | 1 |
| 1310 | Controlled production of soft magnetic hydrogel beads by biosynthesis of bacterial cellulose. Journal of Industrial and Engineering Chemistry, 2021, 100, 260-269. | 2.9 | 2 |
| 1311 | Deconstruction and Reassembly of Renewable Polymers and Biocolloids into Next Generation Structured Materials. Chemical Reviews, 2021, 121, 14088-14188. | 23.0 | 113 |
| 1312 | Large deformation near a crack tip in a fiber-reinforced neo-Hookean sheet with discrete and continuous distributions of fiber orientations. Theoretical and Applied Fracture Mechanics, 2021, 114, 103020. | 2.1 | 3 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1313 | 4D-printed bi-material composite laminate for manufacturing reversible shape-change structures. Composites Part B: Engineering, 2021, 219, 108918. | 5.9 | 43 |
| 1314 | 4D Printing for Automotive Industry Applications. Journal of the Institution of Engineers (India): Series D, 2021, 102, 521-529. | 0.6 | 22 |
| 1315 | Biomimetic 4Dâ€Printed Breathing Hydrogel Actuators by Nanothylakoid and Thermoresponsive Polymer Networks. Advanced Functional Materials, 2021, 31, 2105544. | 7.8 | 45 |
| 1316 | Perspective: 3D bioprinted skin - engineering the skin for medical applications. Annals of 3D Printed Medicine, 2021, 3, 100018. | 1.6 | 0 |
| 1317 | Synergistic combination of 4D printing and electroless metallic plating for the fabrication of a highly conductive electrical device. Chemical Engineering Journal, 2022, 430, 132513. | 6.6 | 23 |
| 1318 | Strong, Ultrafast, Reprogrammable Hydrogel Actuators with Muscle-Mimetic Aligned Fibrous Structures. Chemistry of Materials, 2021, 33, 7818-7828. | 3.2 | 49 |
| 1319 | A blueprint of the topology and mechanics of the human ovary for next-generation bioengineering and diagnosis. Nature Communications, 2021, 12, 5603. | 5.8 | 24 |
| 1320 | Skin-like hydrogel devices for wearable sensing, soft robotics and beyond. IScience, 2021, 24, 103174. | 1.9 | 103 |
| 1321 | Biomimetic anisotropic hydrogels: Advanced fabrication strategies, extraordinary functionalities, and broad applications. Progress in Materials Science, 2022, 124, 100870. | 16.0 | 81 |
| 1322 | Nanodancing with Moisture: Humidityâ€ S ensitive Bilayer Actuator Derived from Cellulose Nanofibrils and Reduced Graphene Oxide. Advanced Intelligent Systems, 2022, 4, 2100084. | 3.3 | 15 |
| 1323 | Synthesis and alignment of liquid crystalline elastomers. Nature Reviews Materials, 2022, 7, 23-38. | 23.3 | 205 |
| 1324 | Microalgal nanocellulose – opportunities for a circular bioeconomy. Trends in Plant Science, 2021, 26, 924-939. | 4.3 | 25 |
| 1325 | Microadditive Manufacturing Technologies of 3D Microelectromechanical Systems. Advanced Engineering Materials, 2021, 23, 2100422. | 1.6 | 10 |
| 1326 | A 3Dâ€Bioprinted Multiple Myeloma Model. Advanced Healthcare Materials, 2022, 11, e2100884. | 3.9 | 14 |
| 1327 | Investigation of the mechanical properties of a bony scaffold for comminuted distal radial fractures: Addition of akermanite nanoparticles and using a freeze-drying technique. Journal of the Mechanical Behavior of Biomedical Materials, 2021, 121, 104643. | 1.5 | 23 |
| 1328 | Unconstrained 3D Shape Programming with Lightâ€Induced Stress Gradient. Advanced Materials, 2021, 33, e2105194. | 11.1 | 44 |
| 1329 | Three-Dimensional Photochemical Printing of Thermally Activated Polymer Foams. ACS Applied Polymer Materials, 2021, 3, 4984-4991. | 2.0 | 9 |
| 1330 | Bio-inspired life-like motile materials systems: Changing the boundaries between living and technical systems in the Anthropocene. Infrastructure Asset Management, 2022, 9, 237-256. | 1.2 | 6 |

| # | Article | IF | CITATIONS |
|------|---|-------------|-----------|
| 1331 | A biofabrication method to align cells within bioprinted photocrosslinkable and cell-degradable hydrogel constructs via embedded fibers. Biofabrication, 2021, 13, 044108. | 3.7 | 37 |
| 1332 | Biology and bioinspiration of soft robotics: Actuation, sensing, and system integration. IScience, 2021, 24, 103075. | 1.9 | 34 |
| 1333 | Single-Layer 4D Printing System Using Focused Light: A Tool for Untethered Microrobot Applications. Chemistry of Materials, 2021, 33, 7703-7712. | 3.2 | 12 |
| 1334 | Coupling Moving Morphable Voids and Components Based Topology Optimization of Hydrogel Structures Involving Large Deformation. Journal of Applied Mechanics, Transactions ASME, 2022, 89, . | 1.1 | 7 |
| 1335 | Tackling Current Biomedical Challenges With Frontier Biofabrication and Organ-On-A-Chip Technologies. Frontiers in Bioengineering and Biotechnology, 2021, 9, 732130. | 2.0 | 11 |
| 1336 | 4D printing of shape memory polylactic acid (PLA). Polymer, 2021, 230, 124080. | 1.8 | 103 |
| 1337 | 3D Printing of Hydrogels for Stretchable Ionotronic Devices. Advanced Functional Materials, 2021, 31, 2107437. | 7.8 | 70 |
| 1338 | Pop-up cookie molds: self-folding elastomer sheets using thermal expansion of embedded air chambers. Smart Materials and Structures, 2021, 30, 115013. | 1.8 | 0 |
| 1339 | 3D-printed strong hybrid materials with low shrinkage for dental restoration. Composites Science and Technology, 2021, 213, 108902. | 3.8 | 13 |
| 1340 | State-of-art affordable bioprinters: A guide for the DiY community. Applied Physics Reviews, 2021, 8, . | 5. 5 | 17 |
| 1341 | Multivalued Inverse Design: Multiple Surface Geometries from One Flat Sheet. Physical Review Letters, 2021, 127, 128001. | 2.9 | 7 |
| 1342 | DLP 4Dâ€Printing of Remotely, Modularly, and Selectively Controllable Shape Memory Polymer Nanocomposites Embedding Carbon Nanotubes. Advanced Functional Materials, 2021, 31, 2106774. | 7.8 | 56 |
| 1343 | 3D printing for polymer/particle-based processing: A review. Composites Part B: Engineering, 2021, 223, 109102. | 5.9 | 129 |
| 1344 | Controlled shape-morphing metallic components for deployable structures. Materials and Design, 2021, 208, 109935. | 3.3 | 18 |
| 1345 | Reconfiguration of multistable 3D ferromagnetic mesostructures guided by energy landscape surveys. Extreme Mechanics Letters, 2021, 48, 101428. | 2.0 | 8 |
| 1346 | Multi-stimuli-response programmable soft actuators with site-specific and anisotropic deformation behavior. Nano Energy, 2021, 88, 106254. | 8.2 | 40 |
| 1347 | Reprogrammable soft actuation and shape-shifting via tensile jamming. Science Advances, 2021, 7, eabh2073. | 4.7 | 41 |
| 1348 | Effects of multiple families of nonlinear fibers on finite deformation near a crack tip in a neo-Hookean sheet. European Journal of Mechanics, A/Solids, 2021, 90, 104324. | 2.1 | 5 |

| # | Article | IF | Citations |
|------|---|------|-----------|
| 1349 | Applications of four-dimensional printing in emerging directions: Review and prospects. Journal of Materials Science and Technology, 2021, 91, 105-120. | 5.6 | 29 |
| 1350 | An anisotropic constitutive model for 3D printed hydrogel-fiber composites. Journal of the Mechanics and Physics of Solids, 2021, 156, 104611. | 2.3 | 17 |
| 1351 | Mechanical design and analytic solution for unfolding deformation of locomotive ferromagnetic robots. International Journal of Mechanical Sciences, 2021, 211, 106799. | 3.6 | 8 |
| 1352 | Recent progress on hydrogel actuators. Journal of Materials Chemistry B, 2021, 9, 1762-1780. | 2.9 | 69 |
| 1353 | Strong anisotropic hydrogels with ion transport capability <i>via</i> reswelling contrast of two oriented polymer networks. Journal of Materials Chemistry A, 2021, 9, 20362-20370. | 5.2 | 14 |
| 1354 | Direct printing of functional 3D objects using polymerization-induced phase separation. Nature Communications, 2021, 12, 55. | 5.8 | 38 |
| 1355 | Evolution and applications of polymer brush hypersurface photolithography. Polymer Chemistry, 2021, 12, 5724-5746. | 1.9 | 8 |
| 1356 | Mechanics of hydrogel-based bioprinting: From 3D to 4D. Advances in Applied Mechanics, 2021, 54, 285-318. | 1.4 | 9 |
| 1357 | Polymer nanocomposites in additive manufacturing processes for typical applications in the industry. , 2021, , 633-673. | | 0 |
| 1358 | 2D material programming for 3D shaping. Nature Communications, 2021, 12, 603. | 5.8 | 43 |
| 1359 | 4D printing for continuous fibers reinforced composites. Journal of Physics: Conference Series, 2021, 1721, 012027. | 0.3 | 0 |
| 1360 | Radical photoinitiation with LEDs and applications in the 3D printing of composites. Chemical Society Reviews, 2021, 50, 3824-3841. | 18.7 | 110 |
| 1361 | From Sketches and Installations to Bioinspired 5D Printing Models. Advances in Civil and Industrial Engineering Book Series, 2021, , 365-387. | 0.2 | 2 |
| 1362 | 3D and 4D printable dual cross-linked polymers with high strength and humidity-triggered reversible actuation. Materials Advances, 2021, 2, 5124-5134. | 2.6 | 11 |
| 1363 | Patterning, morphing, and coding of gel composites by direct ink writing. Journal of Materials Chemistry A, 2021, 9, 8586-8597. | 5.2 | 8 |
| 1364 | Mechanochemical induction of wrinkling morphogenesis on elastic shells. Soft Matter, 2021, 17, 4738-4750. | 1.2 | 9 |
| 1365 | Recent progress of biomimetic motionsâ€"from microscopic micro/nanomotors to macroscopic actuators and soft robotics. RSC Advances, 2021, 11, 27406-27419. | 1.7 | 9 |
| | Potential of Bio-Inspiration in 3- and 4-D Printing. Advances in Chemical and Materials Engineering | | |

| # | ARTICLE | IF | CITATIONS |
|------|---|-----|-----------|
| 1367 | Conductive Hydrogels for Bioelectronic Interfaces. , 2020, , 237-265. | | 3 |
| 1369 | Design for Additive Manufacturing., 2021,, 555-607. | | 18 |
| 1370 | A New Dimension: 4D Printing Opportunities in Pharmaceutics. AAPS Advances in the Pharmaceutical Sciences Series, 2018, , 153-162. | 0.2 | 14 |
| 1371 | Hydrogel Production Platform with Dynamic Movement Using Photo-Crosslinkable/Temperature Reversible Chitosan Polymer and Stereolithography 4D Printing Technology. Tissue Engineering and Regenerative Medicine, 2020, 17, 423-431. | 1.6 | 53 |
| 1372 | Recent advances in the fabrication and application of biopolymer-based micro- and nanostructures: A comprehensive review. Chemical Engineering Journal, 2020, 397, 125409. | 6.6 | 80 |
| 1373 | 3D printing technologies: techniques, materials, and post-processing. Current Opinion in Chemical Engineering, 2020, 28, 134-143. | 3.8 | 154 |
| 1374 | 4D printing of shape memory polymers. European Polymer Journal, 2020, 134, 109771. | 2.6 | 101 |
| 1375 | Programmable and Reversible 3D-/4D-Shape-Morphing Hydrogels with Precisely Defined Ion Coordination. ACS Applied Materials & Interfaces, 2020, 12, 26476-26484. | 4.0 | 41 |
| 1376 | Selective Laser Sintering-Based 4D Printing of Magnetism-Responsive Grippers. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12679-12688. | 4.0 | 49 |
| 1377 | 3D-Printed Multi-Stimuli-Responsive Mobile Micromachines. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12759-12766. | 4.0 | 64 |
| 1378 | 4D-Printable Liquid Metal–Liquid Crystal Elastomer Composites. ACS Applied Materials & Samp; Interfaces, 2021, 13, 12805-12813. | 4.0 | 98 |
| 1379 | A machine learning workflow for 4D printing: understand and predict morphing behaviors of printed active structures. Smart Materials and Structures, 2021, 30, 015028. | 1.8 | 17 |
| 1380 | 4D printing and collaborative design of highly flexible shape memory alloy structures: a case study for a metallic robot prototype. Smart Materials and Structures, 2021, 30, 015018. | 1.8 | 24 |
| 1381 | Shape-programmable and healable materials and devices using thermo- and photo-responsive vitrimer. Multifunctional Materials, 2020, 3, 045001. | 2.4 | 19 |
| 1382 | Multifunctional magnetic soft composites: a review. Multifunctional Materials, 2020, 3, 042003. | 2.4 | 159 |
| 1383 | Sequential shapeshifting 4D printing: programming the pathway of multi-shape transformation by 3D printing stimuli-responsive polymers. Multifunctional Materials, 2020, 3, 042002. | 2.4 | 14 |
| 1384 | Additive manufacturing of polymer-based structures by extrusion technologies. Oxford Open Materials Science, 2020, $1, \dots$ | 0.5 | 26 |
| 1385 | 4D pine scale: biomimetic 4D printed autonomous scale and flap structures capable of multi-phase movement. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2020, 378, 20190445. | 1.6 | 59 |

| # | Article | IF | CITATIONS |
|------|--|-----|-----------|
| 1389 | Reversible patterning of spherical shells through constrained buckling. Physical Review Materials, $2017, 1, .$ | 0.9 | 17 |
| 1390 | Programmable filaments and textiles. Physical Review Materials, 2019, 3, . | 0.9 | 2 |
| 1391 | Modeling of Flexible Beam Networks and Morphing Structures by Geometrically Exact Discrete Beams. Journal of Applied Mechanics, Transactions ASME, 2020, 87, . | 1.1 | 10 |
| 1392 | Kinetics-Induced Morphing of Three-Dimensional-Printed Gel Structures Based on Geometric Asymmetry. Journal of Applied Mechanics, Transactions ASME, 2020, 87, . | 1.1 | 8 |
| 1393 | CurveUps. ACM Transactions on Graphics, 2017, 36, 1-12. | 4.9 | 71 |
| 1394 | Morphino., 2020,,. | | 5 |
| 1395 | Self-shaping Curved Folding:., 2020,,. | | 17 |
| 1396 | Multifunctional Mesostructures: DesignÂandÂMaterialÂProgrammingÂforÂ4D-printing. , 2020, , . | | 12 |
| 1397 | Inverse Design Tool for Asymmetrical Self-Rising Surfaces with Color Texture., 2020,,. | | 5 |
| 1398 | MorphingCircuit. , 2020, 4, 1-26. | | 30 |
| 1399 | Bioinspired Ultra-Low Adhesive Energy Interface for Continuous 3D Printing: Reducing Curing Induced Adhesion. Research, 2018, 2018, 4795604. | 2.8 | 49 |
| 1400 | Inside-Out 3D Reversible Ion-Triggered Shape-Morphing Hydrogels. Research, 2019, 2019, 1-12. | 2.8 | 16 |
| 1401 | Design and preparation of 3D printing intelligent poly <i>N</i> , <i>N</i> -dimethylacrylamide hydrogel actuators. E-Polymers, 2020, 20, 273-281. | 1.3 | 11 |
| 1402 | Theoretical modeling of tunable vibrations of three-dimensional serpentine structures for simultaneous measurement of adherent cell mass and modulus. MRS Bulletin, 2021, 46, 1-8. | 1.7 | 1 |
| 1403 | MODIFICATION OF ADDITIVE TECHNOLOGIES FOR OBTAINING MEDICAL FORMS. , 2020, 19, 13-21. | 0.3 | 2 |
| 1404 | Post-printing surface modification and functionalization of 3D-printed biomedical device. International Journal of Bioprinting, 2017, 3, 93. | 1.7 | 21 |
| 1405 | 3D printing for drug manufacturing: A perspective on the future of pharmaceuticals. International Journal of Bioprinting, 2018, 4, 119. | 1.7 | 16 |
| 1406 | 3D printing of hydrogel composite systems: Recent advances in technology for tissue engineering. International Journal of Bioprinting, 2018, 4, 126. | 1.7 | 159 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1407 | Polymeric Scaffolds for Pancreatic Tissue Engineering: A Review. Review of Diabetic Studies, 2017, 14, 334-353. | 0.5 | 18 |
| 1408 | FOUR-DIMENSIONAL BIOPRINTING FOR REGENERATIVE MEDICINE: MECHANISMS TO INDUCE SHAPE VARIATION AND POTENTIAL APPLICATIONS. European Medical Journal Innovations, 0, , 36-43. | 2.0 | 8 |
| 1409 | Two-Way and Multiple-Way Shape Memory Polymers for Soft Robotics: An Overview. Actuators, 2020, 9, 10. | 1.2 | 104 |
| 1410 | Four-Dimensional (Bio-)printing: A Review on Stimuli-Responsive Mechanisms and Their Biomedical Suitability. Applied Sciences (Switzerland), 2020, 10, 9143. | 1.3 | 28 |
| 1411 | Inside-Out 3D Reversible Ion-Triggered Shape-Morphing Hydrogels. Research, 2019, 2019, 6398296. | 2.8 | 65 |
| 1412 | Emerging polymeric materials in additive manufacturing for use in biomedical applications. AIMS Bioengineering, 2019, 6, 1-20. | 0.6 | 19 |
| 1413 | MicroMotility: State of the art, recent accomplishments and perspectives on the mathematical modeling of bio-motility at microscopic scales. Mathematics in Engineering, 2020, 2, 230-252. | 0.5 | 3 |
| 1415 | On the theoretical basis of rational continuum mechanics in softmatter. Wuli Xuebao/Acta Physica Sinica, 2016, 65, 188103. | 0.2 | 2 |
| 1416 | The Matrisome Contributes to the Increased Rigidity of the Bovine Ovarian Cortex and Provides a Source of New Bioengineering Tools to Investigate Ovarian Biology. SSRN Electronic Journal, 0, , . | 0.4 | 1 |
| 1417 | 3D Bioprinting of Cell‣aden Hydrogels for Improved Biological Functionality. Advanced Materials, 2022, 34, e2103691. | 11.1 | 88 |
| 1419 | Complicated deformation simulating on temperature-driven 4D printed bilayer structures based on reduced bilayer plate model. Applied Mathematics and Mechanics (English Edition), 2021, 42, 1619-1632. | 1.9 | 9 |
| 1420 | 3Dâ€Printed Anisotropic Polymer Materials for Functional Applications. Advanced Materials, 2022, 34, e2102877. | 11.1 | 92 |
| 1421 | Integrating helicoid channels for passive control of fiber alignment in direct-write 3D printing. Additive Manufacturing, 2021, 48, 102419. | 1.7 | 5 |
| 1422 | Carbonâ∈Based Materials for Articular Tissue Engineering: From Innovative Scaffolding Materials toward Engineered Living Carbon. Advanced Healthcare Materials, 2022, 11, e2101834. | 3.9 | 30 |
| 1423 | Design of topological elastic waveguides. Journal of Applied Physics, 2021, 130, . | 1.1 | 29 |
| 1424 | Mechanicallyâ€Guided 4D Printing of Magnetoresponsive Soft Materials across Different Length Scale. Advanced Intelligent Systems, 2022, 4, 2100137. | 3.3 | 23 |
| 1425 | 4D Printing of Engineered Living Materials. Advanced Functional Materials, 2022, 32, 2106843. | 7.8 | 38 |
| 1426 | Emerging Technologies in Multiâ€Material Bioprinting. Advanced Materials, 2021, 33, e2104730. | 11.1 | 100 |

| # | Article | IF | CITATIONS |
|------|--|-----|-----------|
| 1427 | Manufacturing process-driven structured materials (MPDSMs): design and fabrication for extrusion-based additive manufacturing. Rapid Prototyping Journal, 2021, ahead-of-print, . | 1.6 | 3 |
| 1428 | Totimorphic assemblies from neutrally stable units. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, e2107003118. | 3.3 | 6 |
| 1429 | Structurally anisotropic hydrogels for tissue engineering. Trends in Chemistry, 2021, 3, 1002-1026. | 4.4 | 28 |
| 1430 | Modern concepts and application of soft robotics in 4D printing. Journal of Physics: Conference Series, 2021, 2054, 012056. | 0.3 | 7 |
| 1431 | Solventâ€Castâ€Assisted Printing of Biomimetic Morphing Hydrogel Structures with Solvent Evaporationâ€Induced Swelling Mismatch. Advanced Functional Materials, 2022, 32, 2108548. | 7.8 | 17 |
| 1432 | Hybrid colloidal gels assembled from inorganic and polymeric nanoparticles as a drug-delivery platform. Chemical Physics Letters, 2021, 784, 139122. | 1.2 | 0 |
| 1433 | The shape – morphing performance of magnetoactive soft materials. Materials and Design, 2021, 211, 110172. | 3.3 | 94 |
| 1434 | 4D printing of continuous flax-fibre based shape-changing hygromorph biocomposites: Towards sustainable metamaterials. Materials and Design, 2021, 211, 110158. | 3.3 | 35 |
| 1435 | In vitro experimental models and their molding technology of tumor cell. Wuli Xuebao/Acta Physica Sinica, 2016, 65, 188705. | 0.2 | 0 |
| 1436 | Additive Manufacturing. Seikei-Kakou, 2017, 29, 254-259. | 0.0 | 0 |
| 1438 | HIDROGEL PARA IMPRESSÃO 4D. , 0, , . | | 0 |
| 1439 | 3D-Drucken – wir designen uns selbst. , 2018, , 161-184. | | 0 |
| 1440 | A Quest towards Fashion Design Protection Model for the Intellectual Property Rights Global Regime. International Journal for Research in Applied Sciences and Biotechnology, 2018, 5, 4-14. | 0.2 | 0 |
| 1441 | Mechanics Modeling of Additive Manufactured Polymers. , 2019, , 51-71. | | 1 |
| 1442 | Polymers in Biofabrication and 3D Tissue Modelling. Biomaterials Science Series, 2019, , 119-147. | 0.1 | 0 |
| 1443 | Shear Thinning Hydrogel-based 3D Tissue Modelling. Biomaterials Science Series, 2019, , 94-118. | 0.1 | 1 |
| 1445 | Finite element analysis of stimuli-responsive mesoscopic hydrogel via ultrafast laser processing (Withdrawal Notice). , 2019, , . | | 0 |
| 1446 | Programming 4D Printed Parts Through Shape-Memory Polymers and Computer-Aided-Design. Lecture Notes in Mechanical Engineering, 2020, , 143-151. | 0.3 | 0 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1449 | Material Extrusion Based Ceramic Additive Manufacturing. , 2020, , 97-111. | | 0 |
| 1450 | Origami MEMS., 2021, , 197-239. | | 2 |
| 1451 | On bioinspired 4d printing: materials, design and potential applications. Australian Journal of Mechanical Engineering, 2021, 19, 642-652. | 1.5 | 8 |
| 1452 | Intrinsic Field-Induced Nanoparticle Assembly in Three-Dimensional (3D) Printing Polymeric Composites. ACS Applied Materials & Samp; Interfaces, 2021, 13, 52274-52294. | 4.0 | 15 |
| 1453 | Additive Manufacturing of Shape Memory Polymer Composites for Futuristic Technology. Industrial & Engineering Chemistry Research, 2021, 60, 15885-15912. | 1.8 | 33 |
| 1454 | Preparation of Smart Materials by Additive Manufacturing Technologies: A Review. Materials, 2021, 14, 6442. | 1.3 | 23 |
| 1455 | Shaping by Internal Material Frustration: Shifting to Architectural Scale. Advanced Science, 2021, 8, e2102171. | 5.6 | 4 |
| 1456 | 3D Hollow Xerogels with Ordered Cellulose Nanocrystals for Tailored Mechanical Properties. Small, 2021, 17, e2104702. | 5.2 | 7 |
| 1457 | 4D Printing of Liquid Crystals: What's Right for Me?. Advanced Materials, 2022, 34, e2104390. | 11.1 | 75 |
| 1458 | Hylozoic by Design: Converging Material and Biological Complexities for Cellâ€Driven Living Materials with 4D Behaviors. Advanced Functional Materials, 2022, 32, 2108057. | 7.8 | 9 |
| 1459 | Smart and Biomimetic 3D and 4D Printed Composite Hydrogels: Opportunities for Different Biomedical Applications. Biomedicines, 2021, 9, 1537. | 1.4 | 49 |
| 1460 | Mono–Material 4D Printing of Digital Shape–Memory Components. Polymers, 2021, 13, 3767. | 2.0 | 6 |
| 1461 | Highâ€Resolution 3D Printing of Mechanically Tough Hydrogels Prepared by Thermoâ€Responsive Poloxamer Ink Platform. Macromolecular Rapid Communications, 2022, 43, e2100579. | 2.0 | 7 |
| 1462 | Patterned Electrode Assisted Oneâ€Step Fabrication of Biomimetic Morphing Hydrogels with Sophisticated Anisotropic Structures. Advanced Science, 2021, 8, e2102353. | 5.6 | 35 |
| 1463 | Photopatterning Crystal Orientation in Shape-Morphing Polymers. ACS Applied Materials & Samp; Interfaces, 2022, 14, 22762-22770. | 4.0 | 5 |
| 1464 | Advances in polymers for bio-additive manufacturing: A state of art review. Journal of Manufacturing Processes, 2021, 72, 439-457. | 2.8 | 19 |
| 1465 | The status, barriers, challenges, and future in design for 4D printing. Materials and Design, 2021, 212, 110193. | 3.3 | 55 |
| 1466 | 3D Printed Responsive Wood Interfaces: Shape-Changing Origami-Inspired Prototypes. , 0, , . | | 4 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1467 | 4D printed programmable auxetic metamaterials with shape memory effects. Composite Structures, 2022, 279, 114791. | 3.1 | 28 |
| 1468 | Programmable multistability for 3D printed reinforced multifunctional composites with reversible shape change. Composites Science and Technology, 2022, 217, 109097. | 3.8 | 7 |
| 1469 | Analytical study on growth-induced axisymmetric deformations and shape-control of circular hyperelastic plates. International Journal of Engineering Science, 2022, 170, 103594. | 2.7 | 12 |
| 1470 | 3D Printing of Microbial Polysaccharides. , 2021, , 1-34. | | 0 |
| 1471 | On Wear of Multi Material 3D Printed PLA Composites. , 2022, , 413-425. | | 1 |
| 1472 | On Process Capability of Multi Stage Primary and Secondary Recycled PLA Composite Matrix for 3D Printing Applications. , 2020, , . | | 0 |
| 1473 | Nanoscaffolds for neural regenerative medicine. , 2020, , 47-88. | | 4 |
| 1474 | 3D Ceramics Forming Using Direct-Writing Technique. Journal of Smart Processing, 2020, 9, 169-173. | 0.0 | 1 |
| 1475 | 4D printing with smart materials and structures. Ceramist, 2020, 23, 27-37. | 0.0 | 1 |
| 1476 | Swelling-induced telephone cord blisters in hydrogel films. Composite Structures, 2022, 280, 114909. | 3.1 | 3 |
| 1477 | Precisely Defining Local Gradients of Stimuliâ€Responsive Hydrogels for Complex 2Dâ€ŧoâ€4D Shape Evolutions. Small, 2022, 18, e2104440. | 5.2 | 12 |
| 1478 | Key progresses of MOE key laboratory of macromolecular synthesis and functionalization in 2020. Chinese Chemical Letters, 2022, 33, 1650-1658. | 4.8 | 47 |
| 1479 | Colloidal Self-Assembly Approaches to Smart Nanostructured Materials. Chemical Reviews, 2022, 122, 4976-5067. | 23.0 | 173 |
| 1480 | Bioengineering textiles across scales for a sustainable circular economy. CheM, 2021, 7, 2913-2926. | 5.8 | 12 |
| 1481 | Four-Dimensional Printing for Hydrogel: Theoretical Concept, 4D Materials, Shape-Morphing Way, and Future Perspectives. Polymers, 2021, 13, 3858. | 2.0 | 13 |
| 1482 | Pop-up Print. , 2020, , . | | 14 |
| 1483 | E-seed., 2020,,. | | 8 |
| 1485 | 4D Printing Using Multifunctional Polymeric Materials: A Review. , 2022, , 17-36. | | 2 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1486 | Hierarchical self-assembly into chiral nanostructures. Chemical Science, 2022, 13, 633-656. | 3.7 | 63 |
| 1487 | Shear-induced alignment in 3D-printed nitrile rubber-reinforced glass fiber composites. Composites Part B: Engineering, 2022, 229, 109479. | 5.9 | 13 |
| 1488 | Ceramic biomaterials for tissue engineering. , 2022, , 3-40. | | 10 |
| 1489 | Generating complex fold patterns through stress-free deformation induced by growth. Journal of the Mechanics and Physics of Solids, 2022, 159, 104702. | 2.3 | 3 |
| 1490 | 4D-actuators by 3D-printing combined with water-based curing. Materials Today Communications, 2022, 30, 102966. | 0.9 | 4 |
| 1491 | Advances in Fieldâ€Assisted 3D Printing of Bioâ€Inspired Composites: From Bioprototyping to Manufacturing. Macromolecular Bioscience, 2022, 22, e2100332. | 2.1 | 19 |
| 1492 | 3D extrusion bioprinting. Nature Reviews Methods Primers, 2021, 1, . | 11.8 | 127 |
| 1493 | Stimuli-Responsive Polymers for Soft Robotics. Annual Review of Control, Robotics, and Autonomous Systems, 2022, 5, 515-545. | 7.5 | 21 |
| 1494 | Recent Developments of Nanomaterials in Hydrogels: Characteristics, Influences, and Applications. ChemistrySelect, 2021, 6, 12358-12382. | 0.7 | 11 |
| 1495 | Soft actuators for real-world applications. Nature Reviews Materials, 2022, 7, 235-249. | 23.3 | 296 |
| 1496 | Strain Sensing Behavior of 3D Printable and Wearable Conductive Polymer Composites Filled with Silaneâ€Modified MWCNTs. Macromolecular Rapid Communications, 2022, 43, e2100663. | 2.0 | 2 |
| 1497 | Advancements in 3D Cell Culture Systems for Personalizing Anti-Cancer Therapies. Frontiers in Oncology, 2021, 11, 782766. | 1.3 | 29 |
| 1498 | Machine Learningâ€Evolutionary Algorithm Enabled Design for 4Dâ€Printed Active Composite Structures. Advanced Functional Materials, 2022, 32, 2109805. | 7.8 | 47 |
| 1499 | Thermally induced deformations in multi-layered polymeric struts. International Journal of Mechanical Sciences, 2022, 215, 106959. | 3.6 | 10 |
| 1500 | Bubble casting soft robotics. Nature, 2021, 599, 229-233. | 13.7 | 113 |
| 1501 | Comprehensive Review on Design and Manufacturing of Bio-scaffolds for Bone Reconstruction. ACS Applied Bio Materials, 2021, 4, 8129-8158. | 2.3 | 22 |
| 1502 | 4D Printing of Surface Morphing Hydrogels. Advanced Materials Technologies, 2022, 7, 2101118. | 3.0 | 4 |
| 1503 | Harnessing the power of chemically active sheets in solution. Nature Reviews Physics, 2022, 4, 125-137. | 11.9 | 13 |

| # | Article | IF | Citations |
|------|--|------|-----------|
| 1504 | Asymmetric Mass Transport through Dense Heterogeneous Polymer Membranes: Fundamental Principles, Lessons from Nature, and Artificial Systems. Macromolecular Rapid Communications, 2022, 43, e2100654. | 2.0 | 1 |
| 1505 | Long-Fiber Embedded Hydrogel 3D Printing for Structural Reinforcement. ACS Biomaterials Science and Engineering, 2022, 8, 303-313. | 2.6 | 10 |
| 1506 | Magnetically driven in-plane modulation of the 3D orientation of vertical ferromagnetic flakes. Soft Matter, 2022, 18, 1054-1063. | 1.2 | 6 |
| 1507 | 4D printing of polymers: Techniques, materials, and prospects. Progress in Polymer Science, 2022, 126, 101506. | 11.8 | 70 |
| 1508 | Smart/stimuli-responsive hydrogels: Cutting-edge platforms for tissue engineering and other biomedical applications. Materials Today Bio, 2022, 13, 100186. | 2.6 | 129 |
| 1509 | A new stereolithographic 3D printing strategy for hydrogels with a large mechanical tunability and self-weldability. Additive Manufacturing, 2022, 50, 102563. | 1.7 | 7 |
| 1510 | A microfluidic printhead with integrated hybrid mixing by sequential injection for multimaterial 3D printing. Additive Manufacturing, 2022, 50, 102559. | 1.7 | 7 |
| 1511 | Recent advances in nature-inspired antifouling membranes for water purification. Chemical Engineering Journal, 2022, 432, 134425. | 6.6 | 36 |
| 1512 | Strong, transparent, and thermochromic composite hydrogel from wood derived highly mesoporous cellulose network and PNIPAM. Composites Part A: Applied Science and Manufacturing, 2022, 154, 106757. | 3.8 | 18 |
| 1513 | Biologically-inspired Stimuli-responsive DDS. Biomaterials Science Series, 2018, , 265-283. | 0.1 | 0 |
| 1514 | Rapid Preparation of Dual Cross-Linked Mechanical Strengthening Hydrogels via Frontal Polymerization for use as Shape Deformable Actuators. ACS Applied Polymer Materials, 2022, 4, 1457-1465. | 2.0 | 6 |
| 1515 | Jammed Microâ€Flake Hydrogel for Fourâ€Dimensional Living Cell Bioprinting. Advanced Materials, 2022, 34, e2109394. | 11.1 | 49 |
| 1516 | 3D Printing of Liquid Crystalline Hydroxypropyl Cellulose—toward Tunable and Sustainable Volumetric Photonic Structures. Advanced Functional Materials, 2022, 32, . | 7.8 | 38 |
| 1517 | Roadmap on soft robotics: multifunctionality, adaptability and growth without borders. Multifunctional Materials, 2022, 5, 032001. | 2.4 | 37 |
| 1518 | 3D printing of functional polymers for miniature machines. Multifunctional Materials, 2022, 5, 012001. | 2.4 | 3 |
| 1519 | Smart Film Actuators for Biomedical Applications. Small, 2022, 18, e2105116. | 5.2 | 15 |
| 1520 | A Shift from Efficiency to Adaptability: Recent Progress in Biomimetic Interactive Soft Robotics in Wet Environments. Advanced Science, 2022, 9, e2104347. | 5.6 | 29 |
| 1521 | A programmable bilayer hydrogel actuator based on the asymmetric distribution of crystalline regions. Journal of Materials Chemistry B, 2021, 10, 120-130. | 2.9 | 10 |

| # | Article | IF | Citations |
|------|--|-------------|-----------|
| 1522 | A universal post-treatment strategy for biomimetic composite hydrogel with anisotropic topological structure and wide range of adjustable mechanical properties. Materials Science and Engineering C, 2022, 133, 112654. | 3.8 | 2 |
| 1523 | Bioinspired Self-Shaping Clay Composites for Sustainable Development. Biomimetics, 2022, 7, 13. | 1.5 | 3 |
| 1524 | Stimuliâ€Responsive Liquid Crystal Printheads for Spatial and Temporal Control of Polymerization. Advanced Materials, 2022, , 2106535. | 11.1 | 8 |
| 1525 | Recent advances in the stereolithographic three-dimensional printing of ceramic cores: Challenges and prospects. Journal of Materials Science and Technology, 2022, 117, 79-98. | 5.6 | 29 |
| 1526 | Controlling Properties and Functions of Polymer Gels Using Photochemical Reactions. Macromolecular Rapid Communications, 2022, , 2100703. | 2.0 | 2 |
| 1527 | Increasingly Intelligent Micromachines. Annual Review of Control, Robotics, and Autonomous Systems, 2022, 5, 279-310. | 7. 5 | 35 |
| 1528 | On 3D printed multiblended and hybrid-blended poly(lactic)acid composite matrix for self-assembly. , 2022, , $1-15$. | | 0 |
| 1529 | Photodegradation actuated shapeâ€changing hydrogels. Journal of Polymer Science, 2022, 60, 825-841. | 2.0 | 3 |
| 1530 | A Tissue Adhesion ontrollable and Biocompatible Smallâ€5cale Hydrogel Adhesive Robot. Advanced Materials, 2022, 34, e2109325. | 11.1 | 70 |
| 1531 | Inverse Design of Inflatable Soft Membranes Through Machine Learning. Advanced Functional Materials, 2022, 32, . | 7.8 | 26 |
| 1532 | Multifunctional Injectable Hydrogel for <i>In Vivo</i> Diagnostic and Therapeutic Applications. ACS Nano, 2022, 16, 554-567. | 7.3 | 49 |
| 1533 | Programmable Anisotropic Hydrogel Composites for Soft Bioelectronics. Macromolecular Bioscience, 2022, , 2100467. | 2.1 | 1 |
| 1534 | Light activation of 3D-printed structures: from millimeter to sub-micrometer scale. Nanophotonics, 2022, 11, 461-486. | 2.9 | 12 |
| 1535 | Harnessing 4D Printing Bioscaffolds for Advanced Orthopedics. Small, 2022, 18, e2106824. | 5.2 | 49 |
| 1536 | 3D printing of polymer composites: Materials, processes, and applications. Matter, 2022, 5, 43-76. | 5.0 | 136 |
| 1537 | Additive Manufacturing of Thermoelectrics: Emerging Trends and Outlook. ACS Energy Letters, 2022, 7, 720-735. | 8.8 | 40 |
| 1538 | Shape multistability in flexible tubular crystals through interactions of mobile dislocations. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2115423119. | 3.3 | 1 |
| 1539 | A voyage from 3D to 4D printing in nanomedicine and healthcare: part I. Nanomedicine, 2022, 17, 237-253. | 1.7 | 4 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1540 | Magnetic Soft Materials and Robots. Chemical Reviews, 2022, 122, 5317-5364. | 23.0 | 249 |
| 1541 | Messy or Ordered? Multiscale Mechanics Dictates Shapeâ€Morphing of 2D Networks Hierarchically Assembled of Responsive Microfibers. Advanced Functional Materials, 2022, 32, . | 7.8 | 3 |
| 1542 | Field-assisted additive manufacturing of polymeric composites. Additive Manufacturing, 2022, 51, 102642. | 1.7 | 11 |
| 1543 | Light-controlled multifunctional reconfigurable structures. Applied Materials Today, 2022, 26, 101393. | 2.3 | 2 |
| 1544 | Utilization of Ethyl Cellulose in the Osmotically-Driven and Anisotropically-Actuated 4D Printing Concept of Edible Food Composites. Carbohydrate Polymer Technologies and Applications, 2022, 3, 100183. | 1.6 | 13 |
| 1546 | Shaping soft materials via digital light processing-based 3D printing: A review. Forces in Mechanics, 2022, 6, 100074. | 1.3 | 29 |
| 1547 | Incorporating Shape-Changing Food Materials Into Everyday Culinary Practices., 2022,,. | | 5 |
| 1548 | Assessing Polymer-Surface Adhesion with a Polymer Collection. Langmuir, 2022, , . | 1.6 | 3 |
| 1549 | Shape morphing mechanical metamaterials through reversible plasticity. Science Robotics, 2022, 7, eabg2171. | 9.9 | 67 |
| 1550 | Capillary Flow Characterizations of Chiral Nematic Cellulose Nanocrystal Suspensions. Langmuir, 2022, 38, 2192-2204. | 1.6 | 21 |
| 1551 | Creative transformation of biomedical polyurethanes: from biostable tubing to biodegradable smart materials. Journal of Polymer Research, 2022, 29, 1. | 1.2 | 2 |
| 1552 | Mechanics-based design strategies for 4D printing: A review. Forces in Mechanics, 2022, 7, 100081. | 1.3 | 14 |
| 1553 | An Electrospinning Anisotropic Hydrogel with Remotely-Controlled Photo-Responsive Deformation and Long-Range Navigation for Synergist Actuation. Chemical Engineering Journal, 2022, 433, 134258. | 6.6 | 40 |
| 1554 | Polymer Fabrication Using Photochemical Processes—A Review. , 2022, , 1-20. | | 0 |
| 1555 | Subtractive manufacturing with swelling induced stochastic folding of sacrificial materials for fabricating complex perfusable tissues in multi-well plates. Lab on A Chip, 2022, 22, 1929-1942. | 3.1 | 9 |
| 1556 | Multi-responsive and conductive bilayer hydrogel and its application in flexible devices. RSC Advances, 2022, 12, 7898-7905. | 1.7 | 4 |
| 1557 | 4D Printing: 3D Printing of Responsive and Programmable Materials. , 2022, , 213-237. | | 4 |
| 1558 | 3D Printing of Microbial Polysaccharides. , 2022, , 1213-1245. | | O |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1559 | Hydrogels for Bioprinting., 2022, , 185-211. | | 2 |
| 1560 | Clinically relevant preclinical animal models for testing novel cranioâ€maxillofacial bone 3Dâ€printed biomaterials. Clinical and Translational Medicine, 2022, 12, e690. | 1.7 | 15 |
| 1561 | Mechanism and performance relevance of nanomorphogenesis in polyamide films revealed by quantitative 3D imaging and machine learning. Science Advances, 2022, 8, eabk1888. | 4.7 | 22 |
| 1562 | Wood Warping Composite by 3D Printing. Polymers, 2022, 14, 733. | 2.0 | 5 |
| 1563 | Design of untethered soft material micromachine for life-like locomotion. Materials Today, 2022, 53, 197-216. | 8.3 | 38 |
| 1564 | Microâ€Scale Auxetic Hierarchical Mechanical Metamaterials for Shape Morphing. Advanced Materials, 2022, 34, e2110115. | 11.1 | 69 |
| 1565 | Solid Lubrication at High-Temperatures—A Review. Materials, 2022, 15, 1695. | 1.3 | 60 |
| 1566 | Lightâ€Driven Actuation in Synthetic Polymers: A Review from Fundamental Concepts to Applications. Advanced Optical Materials, 2022, 10, . | 3.6 | 16 |
| 1567 | Construction of 3D shapeâ€changing hydrogels via lightâ€modulated internal stress fields. Energy and Environmental Materials, 0, , . | 7.3 | 2 |
| 1570 | Advances in microfabrication technologies in tissue engineering and regenerative medicine. Artificial Organs, 2022, 46, . | 1.0 | 16 |
| 1571 | Additive manufacturing of cellular ceramic structures: From structure to structure–function integration. Materials and Design, 2022, 215, 110470. | 3.3 | 57 |
| 1572 | A Heating-Assisted Direct Ink Writing Method for Preparation of PDMS Cellular Structure with High Manufacturing Fidelity. Polymers, 2022, 14, 1323. | 2.0 | 4 |
| 1573 | Three-Dimensional Printing and Recycling of Multifunctional Composite Material Based on Commercial Epoxy Resin and Graphene Nanoplatelet. ACS Applied Materials & Samp; Interfaces, 2022, 14, 13758-13767. | 4.0 | 16 |
| 1574 | Structuring Hydrogel Cross-Link Density Using Hierarchical Filament 3D Printing. ACS Applied Materials & Samp; Interfaces, 2022, 14, 15667-15677. | 4.0 | 7 |
| 1575 | Vitrimers: Using Dynamic Associative Bonds to Control Viscoelasticity, Assembly, and Functionality in Polymer Networks. ACS Macro Letters, 2022, 11, 475-483. | 2.3 | 32 |
| 1576 | Innovation in Additive Manufacturing Using Polymers: A Survey on the Technological and Material Developments. Polymers, 2022, 14, 1351. | 2.0 | 16 |
| 1577 | Direct Ink Writing: A 3D Printing Technology for Diverse Materials. Advanced Materials, 2022, 34, e2108855. | 11.1 | 361 |
| 1578 | Flexible Sensory Systems: Structural Approaches. Polymers, 2022, 14, 1232. | 2.0 | 5 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1579 | 3D Printing of Auxetic Metamaterials with Highâ€Temperature and Programmable Mechanical Properties. Advanced Materials Technologies, 2022, 7, . | 3.0 | 15 |
| 1580 | Programming Soft Shape-Morphing Systems by Harnessing Strain Mismatch and Snap-Through Bistability: A Review. Materials, 2022, 15, 2397. | 1.3 | 3 |
| 1581 | Biomimetic and Biologically Compliant Soft Architectures via 3D and 4D Assembly Methods: A Perspective. Advanced Materials, 2022, 34, e2108391. | 11.1 | 34 |
| 1582 | Stimuli-responsive metamaterials with information-driven elastodynamics programming. Matter, 2022, 5, 988-1003. | 5.0 | 12 |
| 1583 | Onâ€Demand Programming of Liquid Metalâ€Composite Microstructures through Direct Ink Write 3D Printing. Advanced Materials, 2022, 34, e2200182. | 11.1 | 40 |
| 1584 | Microphase Separationâ€Driven Sequential Selfâ€Folding of Nanocomposite Hydrogel/Elastomer Actuators. Advanced Functional Materials, 2022, 32, . | 7.8 | 17 |
| 1585 | 3D printing auxetic draft-angle structures towards tunable buckling complexity. Smart Materials and Structures, 2022, 31, 055010. | 1.8 | 3 |
| 1586 | Programmable Lightâ€Driven Liquid Crystal Elastomer Kirigami with Controlled Molecular Orientations. Advanced Intelligent Systems, 2022, 4, . | 3.3 | 9 |
| 1587 | Plant-inspired multi-stimuli and multi-temporal morphing composites. Bioinspiration and Biomimetics, 2022, 17, 046002. | 1.5 | 3 |
| 1589 | Advances in 4D Printed Shape Memory Polymers: From 3D Printing, Smart Excitation, and Response to Applications. Advanced Materials Technologies, 2022, 7, . | 3.0 | 37 |
| 1590 | Celluloseâ€Based Soft Actuators. Macromolecular Materials and Engineering, 2022, 307, . | 1.7 | 23 |
| 1591 | A reliable and easy-to-implement optical characterization method for dynamic and static properties of smart hydrogels. Polymer, 2022, 246, 124713. | 1.8 | 2 |
| 1592 | A Bioinspired Programmable Soft Bilayer Actuator Based on Aluminum Exoskeleton. Advanced Materials Technologies, 0, , 2200036. | 3.0 | 1 |
| 1593 | Controlled morphing of architected liquid crystal elastomer elements: modeling and simulations. Mechanics Research Communications, 2022, 121, 103858. | 1.0 | 8 |
| 1594 | Photoresponsive Movement in 3D Printed Cellulose Nanocomposites. ACS Applied Materials & Samp; Interfaces, 2022, 14, 16703-16717. | 4.0 | 11 |
| 1595 | Flytrap Inspired pHâ€Driven 3D Hydrogel Actuator by Femtosecond Laser Microfabrication. Advanced Materials Technologies, 2022, 7, . | 3.0 | 25 |
| 1597 | A theoretical scheme for shape-programming of thin hyperelastic plates through differential growth. Mathematics and Mechanics of Solids, 2022, 27, 1412-1428. | 1.5 | 9 |
| 1598 | Design of interfaces to promote the bonding strength between dissimilar materials. Journal of Manufacturing Processes, 2022, 76, 786-795. | 2.8 | 6 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1599 | 4D printing of multiple shape memory polymer and nanocomposites with biocompatible, programmable and selectively actuated properties. Additive Manufacturing, 2022, 53, 102689. | 1.7 | 19 |
| 1600 | A review of the structural and physical properties that govern cell interactions with structured biomaterials enabled by additive manufacturing. Bioprinting, 2022, 26, e00201. | 2.9 | 9 |
| 1601 | Programming polymorphable yet stiff truss metamaterials in response to temperature. Applied Materials Today, 2022, 27, 101432. | 2.3 | 4 |
| 1602 | Characterization of a 30µm pixel size CLIP-based 3D printer and its enhancement through dynamic printing optimization. Additive Manufacturing, 2022, 55, 102800. | 1.7 | 8 |
| 1603 | 3Dâ€Printed Strong Dental Crown with Multiâ€Scale Ordered Architecture, Highâ€Precision, and Bioactivity. Advanced Science, 2022, 9, e2104001. | 5.6 | 12 |
| 1604 | Nanocellulose and Its Interface: On the Road to the Design of Emerging Materials. Advanced Materials Interfaces, 2022, 9, . | 1.9 | 7 |
| 1605 | Polymer <scp>4D</scp> printing: Advanced shape hange and beyond. Journal of Polymer Science, 2022, 60, 149-174. | 2.0 | 32 |
| 1606 | Mathematical Modeling of a Supramolecular Assembly for Pyrophosphate Sensing. Frontiers in Chemistry, 2021, 9, 759714. | 1.8 | 0 |
| 1607 | Four-Dimensional Stimuli-Responsive Hydrogels Micro-Structured via Femtosecond Laser Additive Manufacturing. Micromachines, 2022, 13, 32. | 1.4 | 10 |
| 1608 | Metric mechanics with nontrivial topology: Actuating irises, cylinders, and evertors. Physical Review E, 2021, 104, 065004. | 0.8 | 6 |
| 1609 | The integrity of synthetic magnesium silicate in charged compounds. Scientific Reports, 2021, 11, 23717. | 1.6 | 1 |
| 1611 | Materials for Smart Soft Actuator Systems. Chemical Reviews, 2022, 122, 1349-1415. | 23.0 | 131 |
| 1612 | Grayscale Stereolithography of Gradient Hydrogel with Siteâ€Selective Shape Deformation. Advanced Materials Technologies, 2022, 7, . | 3.0 | 12 |
| 1613 | 3D-to-3D Microscale Shape-Morphing from Configurable Helices with Controlled Chirality. ACS Applied Materials & Diterfaces, 2021, 13, 61723-61732. | 4.0 | 2 |
| 1614 | Soft Actuator Based on Metal/Hydrogel Nanocomposites with Anisotropic Structure. Macromolecular Chemistry and Physics, 2022, 223, 2100117. | 1.1 | 10 |
| 1615 | Recent Progress in Shape-Transformable Materials and Their Applications. Electronic Materials Letters, 2022, 18, 215-231. | 1.0 | 2 |
| 1616 | Advances in 4Dâ€printed physiological monitoring sensors. Exploration, 2021, 1, . | 5.4 | 25 |
| 1617 | Patterned Actuators via Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing of Liquid Crystals. ACS Applied Materials & Direct Ink Writing Of Liquid Crystals & Direct Ink Writing Of Liquid | 4.0 | 19 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1618 | Onâ€Demand Editing of Surface Properties of Microstructures Made by 3D Direct Laser Writing via Photoâ€Mediated RAFT Polymerization. Advanced Functional Materials, 2022, 32, . | 7.8 | 18 |
| 1619 | Anisotropic Responsive Microgels Based on the Cholesteric Phase of Chitin Nanocrystals. ACS Macro Letters, 2022, 11, 96-102. | 2.3 | 2 |
| 1620 | Four-Dimensional Printed Shape Memory Metasurface to Memorize Absorption and Reflection Functions. ACS Applied Materials & Samp; Interfaces, 2021, 13, 59487-59496. | 4.0 | 8 |
| 1621 | The effect of the printing temperature on 4D DLP printed pNIPAM hydrogels. Soft Matter, 2022, 18, 3422-3429. | 1.2 | 12 |
| 1622 | 3D printing of sponge spicules-inspired flexible bioceramic-based scaffolds. Biofabrication, 2022, 14, 035009. | 3.7 | 12 |
| 1623 | Formation of Pixelated Elastic Films via Capillary Suction of Curable Elastomers in Templated Heleâ€Shaw Cells. Advanced Materials, 2022, , 2109682. | 11.1 | 2 |
| 1624 | Low Melting Point Alloys Enabled Stiffness Tunable Advanced Materials. Advanced Functional Materials, 2022, 32, . | 7.8 | 38 |
| 1625 | Selfâ€Assembled Artificial Nanocilia Actuators. Advanced Materials, 2022, 34, e2200185. | 11.1 | 13 |
| 1626 | Sharing of Strain Between Nanofiber Forests and Liquid Crystals Leads to Programmable Responses to Electric Fields. Advanced Functional Materials, 2022, 32, . | 7.8 | 5 |
| 1627 | A Brief Overview of Bioinspired Robust Hydrogel Based Shape Morphing Functional Structure for Biomedical Soft Robotics. Frontiers in Materials, 2022, 9, . | 1.2 | 4 |
| 1628 | Triplet fusion upconversion nanocapsules for volumetric 3D printing. Nature, 2022, 604, 474-478. | 13.7 | 100 |
| 1629 | Zeoliteâ€Reinforced Interpenetrating Polymer Network Initiated by Chalcone Based Photoinitiating System and Their Application in 3D/4D Printing. Advanced Materials Technologies, 2022, 7, . | 3.0 | 8 |
| 1630 | Design of pre-stressed plate-strips to cover non-developable shells. European Journal of Mechanics, A/Solids, 2022, 95, 104609. | 2.1 | 0 |
| 1631 | Programmable Morphing Hydrogels for Soft Actuators and Robots: From Structure Designs to Active Functions. Accounts of Chemical Research, 2022, 55, 1533-1545. | 7.6 | 94 |
| 1632 | Hydrogel-based strong and fast actuators by electroosmotic turgor pressure. Science, 2022, 376, 301-307. | 6.0 | 121 |
| 1633 | Digitally Programmable Manufacturing of Living Materials Grown from Biowaste. ACS Applied Materials & Samp; Interfaces, 2022, 14, 20062-20072. | 4.0 | 4 |
| 1634 | Multiâ€Color 3D Printing via Singleâ€Vat Grayscale Digital Light Processing. Advanced Functional Materials, 2022, 32, . | 7.8 | 22 |
| 1635 | Experimental investigations of the effectiveness of simultaneous topology/orientation optimization via SOMP and principal stress directions. Materials and Design, 2022, 217, 110647. | 3.3 | 2 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1636 | Functionalized Hydrogels for Articular Cartilage Tissue Engineering. Engineering, 2022, 13, 71-90. | 3.2 | 25 |
| 1637 | Anisotropic Swelling in Fiber-reinforced Hydrogels: An Incremental Finite Element Method and Its Applications in Design of Bilayer Structures. International Journal of Applied Mechanics, 0, , . | 1.3 | O |
| 1640 | Programming Cellular Alignment in Engineered Cardiac Tissue via Bioprinting Anisotropic Organ Building Blocks. Advanced Materials, 2022, 34, e2200217. | 11.1 | 46 |
| 1641 | Methods for numerical simulation of knit based morphable structures: knitmorphs. Scientific Reports, 2022, 12, 6630. | 1.6 | 3 |
| 1642 | Controlled local orientation of 2D nanomaterials in 3D devices: methods and prospects for multifunctional designs and enhanced performance. Journal of Materials Chemistry A, 2022, 10, 19129-19168. | 5.2 | 9 |
| 1643 | Advances in 4D printing of liquid crystalline elastomers: materials, techniques, and applications. Materials Horizons, 2022, 9, 1825-1849. | 6.4 | 59 |
| 1644 | Bioinspired Structures for Soft Actuators. Advanced Materials Technologies, 2022, 7, . | 3.0 | 20 |
| 1645 | A brief review on mechanical designs for 4D printing. , 2022, 01, . | | 1 |
| 1646 | A Review on Printing of Responsive Smart and 4D Structures Using 2D Materials. Advanced Materials Technologies, 2022, 7, . | 3.0 | 11 |
| 1647 | Fingerprinting soft material nanostructure response to complex flow histories. Physical Review Materials, 2022, 6, . | 0.9 | 6 |
| 1648 | New Industrial Sustainable Growth: 3D and 4D Printing. , 0, , . | | 1 |
| 1649 | Self-regulated non-reciprocal motions in single-material microstructures. Nature, 2022, 605, 76-83. | 13.7 | 63 |
| 1650 | A Scientometric Review of Soft Robotics: Intellectual Structures and Emerging Trends Analysis (2010 \hat{a} e"2021). Frontiers in Robotics and Al, 2022, 9, . | 2.0 | 12 |
| 1651 | Epithelial cells adapt to curvature induction via transient active osmotic swelling. Developmental Cell, 2022, 57, 1257-1270.e5. | 3.1 | 10 |
| 1652 | Overflow Control for Sustainable Development by Superwetting Surface with Biomimetic Structure. Chemical Reviews, 2023, 123, 2276-2310. | 23.0 | 32 |
| 1653 | Untethered selectively actuated microwave 4D printing through ferromagnetic PLA. Additive Manufacturing, 2022, 56, 102866. | 1.7 | 8 |
| 1654 | Photopolymerisable liquid crystals for additive manufacturing. Additive Manufacturing, 2022, 55, 102861. | 1.7 | 1 |
| 1655 | Biomaterials for bioprinting. , 2022, , 51-86. | | 2 |

| # | ARTICLE | IF | CITATIONS |
|------|---|------|-----------|
| 1656 | Formation of rolls from liquid crystal elastomer bistrips. Soft Matter, 2022, 18, 4077-4089. | 1.2 | 2 |
| 1658 | Patterning meets gels: Advances in engineering functional gels at micro/nanoscales for soft devices. Journal of Polymer Science, 2022, 60, 2679-2700. | 2.0 | 4 |
| 1659 | Hybrid Stents Based on Magnetic Hydrogels for Biomedical Applications. ACS Applied Bio Materials, 2022, 5, 2598-2607. | 2.3 | 3 |
| 1662 | Recent Developments on 4D Printings and Applications. , 2022, , 361-388. | | 2 |
| 1663 | Synthesis Techniques of Shape-Memory Polymer Composites. , 2022, , 115-153. | | 1 |
| 1664 | Effective continuum models for the buckling of non-periodic architected sheets that display quasi-mechanism behaviors. Journal of the Mechanics and Physics of Solids, 2022, 166, 104934. | 2.3 | 6 |
| 1665 | Double-layer temperature-sensitive hydrogel fabricated by 4D printing with fast shape deformation. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2022, 648, 129307. | 2.3 | 13 |
| 1666 | Encoding of direct 4D printing of isotropic single-material system for double-curvature and multimodal morphing. Extreme Mechanics Letters, 2022, 54, 101779. | 2.0 | 12 |
| 1667 | Anti-Freezing, Non-Drying, Localized Stiffening, and Shape-Morphing Organohydrogels. Gels, 2022, 8, 331. | 2.1 | 3 |
| 1668 | Silk Fibroin Nacre. Advanced Fiber Materials, 2022, 4, 1191-1208. | 7.9 | 8 |
| 1669 | Additive manufacturing of biomaterials for bone tissue engineering – A critical review of the state of the art and new concepts. Progress in Materials Science, 2022, 130, 100963. | 16.0 | 52 |
| 1670 | Computational Design of Selfâ€Actuated Surfaces by Printing Plastic Ribbons on Stretched Fabric. Computer Graphics Forum, 2022, 41, 493-506. | 1.8 | 6 |
| 1671 | The Föppl–von Kármán equations of elastic plates with initial stress. Royal Society Open Science, 2022, 9, . | 1.1 | 1 |
| 1672 | Bioderived 4D Printable Terpene Photopolymers from Limonene and \hat{l}^2 -Myrcene. Biomacromolecules, 2022, 23, 2342-2352. | 2.6 | 16 |
| 1673 | 3D printed magnetic polymer composite hydrogels for hyperthermia and magnetic field driven structural manipulation. Progress in Polymer Science, 2022, 131, 101574. | 11.8 | 49 |
| 1674 | Fabrication of a tunable photothermal actuator <i>via in situ</i> oxidative polymerization of polydopamine nanoparticles in hydrogel bilayers. Soft Matter, 2022, 18, 4604-4612. | 1.2 | 5 |
| 1675 | Hydrogels with both mechanical strength and luminescence anisotropy. Inorganic Chemistry Frontiers, 2022, 9, 4194-4200. | 3.0 | 5 |
| 1676 | Geometry, analysis, and morphogenesis: Problems and prospects. Bulletin of the American Mathematical Society, 2022, 59, 331-369. | 0.8 | 4 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1677 | Fabrication and Functionality Integration Technologies for Smallâ€Scale Soft Robots. Advanced Materials, 2022, 34, . | 11.1 | 13 |
| 1678 | Advances in 4D printing: from stimulation to simulation. Drug Delivery and Translational Research, 2023, 13, 164-188. | 3.0 | 23 |
| 1679 | Tunable hyperbolic out-of-plane deformation of 3D-printed auxetic PLA shape memory arrays. Smart Materials and Structures, 2022, 31, 075025. | 1.8 | 4 |
| 1680 | Direct Ink Write Printing of Chitin-Based Gel Fibers with Customizable Fibril Alignment, Porosity, and Mechanical Properties for Biomedical Applications. Journal of Functional Biomaterials, 2022, 13, 83. | 1.8 | 4 |
| 1681 | Stretchâ€Activated Reprogrammable Shapeâ€Morphing Composite Elastomers. Advanced Functional Materials, 2022, 32, . | 7.8 | 7 |
| 1682 | Multistimuli-responsive hydrogels with both anisotropic mechanical performance and anisotropic luminescent behavior. Chemical Engineering Journal, 2022, 449, 137718. | 6.6 | 26 |
| 1683 | Frequency Memorizing Shape Morphing Microstrip Monopole Antenna using Hybrid Programmable 3-Dimensional Printing. Additive Manufacturing, 2022, , 102988. | 1.7 | 1 |
| 1684 | Co-extrusion 4D printing of shape memory polymers with continuous metallic fibers for selective deformation. Composites Science and Technology, 2022, 227, 109603. | 3.8 | 18 |
| 1685 | 3D bioprinted glioma models. Progress in Biomedical Engineering, 2022, 4, 042001. | 2.8 | 14 |
| 1686 | Design and printing of embedded conductive patterns in liquid crystal elastomer for programmable electrothermal actuation. Virtual and Physical Prototyping, 2022, 17, 881-893. | 5.3 | 8 |
| 1687 | Singleâ€Stepâ€Lithography Microâ€Stepper Based on Frictional Contact and Chiral Metamaterial. Small, 2022, 18, . | 5.2 | 12 |
| 1689 | Untethered small-scale magnetic soft robot with programmable magnetization and integrated multifunctional modules. Science Advances, 2022, 8, . | 4.7 | 105 |
| 1690 | Natural tooth enamel and its analogs. Cell Reports Physical Science, 2022, 3, 100945. | 2.8 | 6 |
| 1691 | Polymers in Technologies of Additive and Inkjet Printing of Dosage Formulations. Polymers, 2022, 14, 2543. | 2.0 | 7 |
| 1692 | Responsive materials architected in space and time. Nature Reviews Materials, 2022, 7, 683-701. | 23.3 | 80 |
| 1693 | Dumbbell-Shaped Block Copolymers for the Fabrication of Anisotropic Soft Actuators. ACS Applied Polymer Materials, 0, , . | 2.0 | O |
| 1694 | 4D printed self-helix structure based on internal stress reversibility. Smart Materials and Structures, 2022, 31, 085001. | 1.8 | 4 |
| 1695 | 4D printing: Technological developments in robotics applications. Sensors and Actuators A: Physical, 2022, 343, 113670. | 2.0 | 60 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1696 | Biotemplating synthesis of organized structures inspired by biological processes. Giant, 2022, 11, 100108. | 2.5 | 6 |
| 1697 | Forming three-dimensional micro-objects using two-dimensional gradient printing. Applied Materials Today, 2022, 28, 101538. | 2.3 | 1 |
| 1698 | 4D-printed light-responsive structures. , 2022, , 55-105. | | 0 |
| 1699 | 4D-printed stimuli-responsive hydrogels modeling and fabrication. , 2022, , 151-192. | | 1 |
| 1700 | Digital light processing 3D printing of hydrogels: a minireview. Molecular Systems Design and Engineering, 2022, 7, 1017-1029. | 1.7 | 22 |
| 1701 | Reversible 4D printing., 2022, , 395-417. | | 0 |
| 1702 | 4D-printed shape memory polymer: Modeling and fabrication. , 2022, , 195-228. | | 3 |
| 1703 | Multimaterial 4D printing simulation using a grasshopper plugin. , 2022, , 329-345. | | 0 |
| 1705 | A Global Methodology for 3d Multi-Material Laser Powder Bed Fusion Processes. SSRN Electronic Journal, 0, , . | 0.4 | 0 |
| 1706 | 4D printing of natural fiber composite. , 2022, , 297-333. | | 1 |
| 1707 | Closed-loop control of 4D-printed hydrogel soft robots. , 2022, , 251-278. | | 1 |
| 1708 | 4D printing of gels and soft materials. , 2022, , 265-295. | | 0 |
| 1709 | 4D-printed low-voltage electroactive polymers modeling and fabrication., 2022,, 107-150. | | 0 |
| 1710 | 4D bioprinting: Fabrication approaches and biomedical applications. , 2022, , 193-229. | | 1 |
| 1711 | Manufacturing highly elastic skin integrated with twisted and coiled polymer muscles: Toward 4D printing., 2022,, 311-327. | | 0 |
| 1712 | Kirigamiâ€Inspired Pressure Sensors for Wearable Dynamic Cardiovascular Monitoring. Advanced Materials, 2022, 34, . | 11.1 | 63 |
| 1713 | The Synergy of Biomimetic Design Strategies for Tissue Constructs. Advanced Functional Materials, 2022, 32, . | 7.8 | 12 |
| 1714 | RAFT-Mediated 3D Printing of "Living―Materials with Tailored Hierarchical Porosity. ACS Applied Polymer Materials, 2022, 4, 4940-4948. | 2.0 | 15 |

| # | Article | IF | CITATIONS |
|------|--|-----|-----------|
| 1715 | 4D Printed Shape Morphing Biocompatible Materials Based on Anisotropic Ferromagnetic Nanoparticles. Advanced Functional Materials, 2022, 32, . | 7.8 | 10 |
| 1716 | Direct Ink Writing of Phenylethynyl End-Capped Oligoimide/SiO2 to Additively Manufacture High-Performance Thermosetting Polyimide Composites. Polymers, 2022, 14, 2669. | 2.0 | 4 |
| 1717 | Reconfigurable 4D Printing of Reprocessable and Mechanically Strong Polythiourethane Covalent Adaptable Networks. Advanced Functional Materials, 2022, 32, . | 7.8 | 47 |
| 1718 | Alignment of Colloidal Rods in Crowded Environments. Macromolecules, 2022, 55, 5610-5620. | 2.2 | 10 |
| 1719 | Interfacial metric mechanics: stitching patterns of shape change in active sheets. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2022, 478, . | 1.0 | 4 |
| 1720 | Bimorph electrothermal micro-gripper with large deformation, precise and rapid response, and low operating voltage. Applied Physics Letters, 2022, 121, 023502. | 1.5 | 3 |
| 1721 | Programmed shape-morphing into complex target shapes using architected dielectric elastomer actuators. Science Advances, 2022, 8, . | 4.7 | 25 |
| 1722 | Recent Advances in Stimuliâ€Responsive Shapeâ€Morphing Hydrogels. Advanced Functional Materials, 2022, 32, . | 7.8 | 49 |
| 1723 | Theoretical stiffness limits of 4D printed self-folding metamaterials. Communications Materials, 2022, 3, . | 2.9 | 11 |
| 1724 | Tough, aorta-inspired soft composites. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, . | 3.3 | 12 |
| 1725 | Artificial Intelligence-Empowered 3D and 4D Printing Technologies toward Smarter Biomedical Materials and Approaches. Polymers, 2022, 14, 2794. | 2.0 | 29 |
| 1726 | A Superabsorbent Sodium Polyacrylate Printing Resin as Actuator Material in 4D Printing. Macromolecular Materials and Engineering, 2022, 307, . | 1.7 | 5 |
| 1727 | Monitoring of hand function enabled by low complexity sensors printed on textile. Flexible and Printed Electronics, 2022, 7, 035003. | 1.5 | 4 |
| 1728 | Comparison of Bulk- vs Layer-by-Layer-Cured Stimuli-Responsive PNIPAM–Alginate Hydrogel Dynamic Viscoelastic Property Response via Embedded Sensors. ACS Applied Polymer Materials, 0, , . | 2.0 | 1 |
| 1729 | Recent advances in bioprinting using silk protein-based bioinks. Biomaterials, 2022, 287, 121672. | 5.7 | 36 |
| 1730 | Smart biomaterials: From 3D printing to 4D bioprinting. Methods, 2022, 205, 191-199. | 1.9 | 13 |
| 1731 | Morphological and structural changes in thermally-induced soybean protein isolate xerogels modulated by soybean polysaccharide concentration. Food Hydrocolloids, 2022, 133, 107967. | 5.6 | 12 |
| 1732 | A Highly Multiâ€Stable Metaâ€Structure via Anisotropy for Large and Reversible Shape Transformation. Advanced Science, 2022, 9, . | 5.6 | 14 |

| # | Article | IF | Citations |
|------|---|------|-----------|
| 1733 | Postfabrication Functionalization of 4D-Printed Polycarbonate Photopolymer Scaffolds. ACS Applied Polymer Materials, 2022, 4, 5670-5679. | 2.0 | 8 |
| 1734 | Hydrogels as functional components in artificial cell systems. Nature Reviews Chemistry, 2022, 6, 562-578. | 13.8 | 47 |
| 1735 | Dimension reduction through gamma convergence for general prestrained thin elastic sheets. Calculus of Variations and Partial Differential Equations, 2022, 61, . | 0.9 | 3 |
| 1736 | A hackable, multi-functional, and modular extrusion 3D printer for soft materials. Scientific Reports, 2022, 12, . | 1.6 | 11 |
| 1737 | 4D printing of shape memory polymer composites: A review on fabrication techniques, applications, and future perspectives. Journal of Manufacturing Processes, 2022, 81, 759-797. | 2.8 | 120 |
| 1738 | Multi-material fused filament fabrication of flexible 3D piezoelectric nanocomposite lattices for pressure sensing and energy harvesting applications. Applied Materials Today, 2022, 29, 101596. | 2.3 | 7 |
| 1739 | Multicomponent chiral hydrogel fibers with block configurations based on the chiral liquid crystals of cellulose nanocrystals and M13 bacteriophages. Polymer Chemistry, 2022, 13, 5200-5211. | 1.9 | 1 |
| 1740 | Recent advances in 3D printing hydrogel for topical drug delivery. , 2022, 1, . | | 2 |
| 1741 | Photo-responsive hydrogel-based re-programmable metamaterials. Scientific Reports, 2022, 12, . | 1.6 | 10 |
| 1742 | Design of Under-Actuated Soft Adhesion Actuators for Climbing Robots. Sensors, 2022, 22, 5639. | 2.1 | 1 |
| 1743 | 3D Printing of Polymer Hydrogels—From Basic Techniques to Programmable Actuation. Advanced Functional Materials, 2022, 32, . | 7.8 | 43 |
| 1744 | Additive manufacturing of smart polymeric composites: Literature review and future perspectives. Polymer Composites, 2022, 43, 6355-6380. | 2.3 | 47 |
| 1745 | Knowledge mapping of 4D printing technologies in computer engineering. Computer Applications in Engineering Education, 2022, 30, 1959-1978. | 2.2 | 0 |
| 1746 | Additive Manufacturing of Biomaterialsâ€"Design Principles and Their Implementation. Materials, 2022, 15, 5457. | 1.3 | 31 |
| 1747 | Thermadapt Shape Memory Polymers Enabling Spatially Regulated Plasticity. ACS Macro Letters, 2022, 11, 1112-1116. | 2.3 | 3 |
| 1748 | Conformational Transitionâ€Driven Selfâ€Folding Hydrogel Based on Silk Fibroin and Gelatin for Tissue Engineering Applications. Macromolecular Bioscience, 0, , 2200189. | 2.1 | 2 |
| 1749 | Recent Advances in 3D Printed Sensors: Materials, Design, and Manufacturing. Advanced Materials Technologies, 2023, 8, . | 3.0 | 24 |
| 1750 | An anisotropic constitutive model for fiber reinforced salt-sensitive hydrogels. Mechanics of Advanced Materials and Structures, 2023, 30, 4814-4827. | 1.5 | 7 |

| # | Article | IF | CITATIONS |
|------|--|--------------|-----------|
| 1751 | 3D Printing of Soft Magnetoactive Devices with Thiolâ€Click Photopolymer Composites. Advanced Engineering Materials, 2023, 25, . | 1.6 | 6 |
| 1752 | 4D Printing of Freestanding Liquid Crystal Elastomers via Hybrid Additive Manufacturing. Advanced Materials, 2022, 34, . | 11.1 | 40 |
| 1753 | Rapid and Multimaterial 4D Printing of Shapeâ€Morphing Micromachines for Narrow Micronetworks Traversing. Small, 2022, 18, . | 5 . 2 | 9 |
| 1754 | Emerging application of 3D-printing techniques in lithium batteries: From liquid to solid. Materials Today, 2022, 59, 161-181. | 8.3 | 25 |
| 1755 | Reversible Shape-Shifting of an Ionic Strength Responsive Hydrogel Enabled by Programmable Network Anisotropy. ACS Applied Materials & Samp; Interfaces, 2022, 14, 40344-40350. | 4.0 | 10 |
| 1756 | Critical appraisal and systematic review of 3D & D printing in sustainable and environment-friendly smart manufacturing technologies. Sustainable Materials and Technologies, 2022, 34, e00481. | 1.7 | 12 |
| 1757 | Bioinspired Pattern-Driven Single-Material 4D Printing for Self-Morphing Actuators. Sustainability, 2022, 14, 10141. | 1.6 | 20 |
| 1759 | Phototunable, Reconfigurable, and Complex Shape Transformation of Fe ³⁺ -Containing Bilayer Polymer Materials. Chemistry of Materials, 2022, 34, 7481-7492. | 3.2 | 4 |
| 1760 | Metallic <i>Mimosa pudica</i> : A 3D biomimetic buckling structure made of metallic glasses. Science Advances, 2022, 8, . | 4.7 | 7 |
| 1762 | Smart materials for four-dimensional printing: An overview. Proceedings of the Institution of Mechanical Engineers, Part E: Journal of Process Mechanical Engineering, 2023, 237, 571-579. | 1.4 | 1 |
| 1763 | Design of soft matter for additive processing. , 2022, 1, 592-600. | | 4 |
| 1764 | Auricular reconstruction via 3D bioprinting strategies: An update. Journal of Oral Biology and Craniofacial Research, 2022, 12, 580-588. | 0.8 | 1 |
| 1765 | 4D bioprinting of smart polymers for biomedical applications: recent progress, challenges, and future perspectives. Reactive and Functional Polymers, 2022, 179, 105374. | 2.0 | 72 |
| 1766 | Manufacturing and post-engineering strategies of hydrogel actuators and sensors: From materials to interfaces. Advances in Colloid and Interface Science, 2022, 308, 102749. | 7.0 | 17 |
| 1767 | Mechanical Intelligence (MI): A Bioinspired Concept for Transforming Engineering Design. Advanced Science, 2022, 9, . | 5 . 6 | 7 |
| 1768 | Self-assembled liquid crystal architectures for soft matter photonics. Light: Science and Applications, 2022, 11, . | 7.7 | 44 |
| 1769 | Photopolymerization of ceramic/zeolite reinforced photopolymers: Towards 3D/4D printing and gas adsorption applications. European Polymer Journal, 2022, 179, 111552. | 2.6 | 8 |
| 1770 | Design of 3D and 4D printed continuous fibre composites via an evolutionary algorithm and voxel-based Finite Elements: Application to natural fibre hygromorphs. Additive Manufacturing, 2022, 59, 103144. | 1.7 | 3 |

| # | ARTICLE | IF | CITATIONS |
|------|--|------|-----------|
| 1771 | Advanced cellulose nanocrystals (CNC) and cellulose nanofibrils (CNF) aerogels: Bottom-up assembly perspective for production of adsorbents. International Journal of Biological Macromolecules, 2022, 222, 1-29. | 3.6 | 23 |
| 1772 | Behavior of an FG temperature-responsive hydrogel bilayer: Analytical and numerical approaches. Composite Structures, 2022, 301, 116203. | 3.1 | 3 |
| 1773 | Remarkable gas bubble transport driven by capillary pressure in 3D printing-enabled anisotropic structures for efficient hydrogen evolution electrocatalysts. Applied Catalysis B: Environmental, 2023, 320, 121995. | 10.8 | 12 |
| 1774 | Future of 3D Printing in Oral Health Sciences. , 2022, , 293-311. | | 1 |
| 1775 | Hydroelastomers: soft, tough, highly swelling composites. Soft Matter, 2022, 18, 7229-7235. | 1,2 | 5 |
| 1776 | Emerging Technological Applications of Additive Manufacturing. , 2022, , 169-238. | | 2 |
| 1777 | Direct ink writing of tough, stretchable silicone composites. Soft Matter, 2022, 18, 7341-7347. | 1.2 | 1 |
| 1778 | Evolution and emerging trends of 4D printing: a bibliometric analysis. Manufacturing Review, 2022, 9, 30. | 0.9 | 1 |
| 1779 | Principles of Elastic Bridging in Biological Materials. SSRN Electronic Journal, 0, , . | 0.4 | 0 |
| 1780 | The emerging frontiers in materials for functional three-dimensional printing. , 2022, , 299-343. | | 0 |
| 1781 | Transient shape morphing of active gel plates: geometry and physics. Soft Matter, 2022, 18, 5867-5876. | 1.2 | 3 |
| 1782 | Photo-induced spatial gradient network for shape memory polymer with pattern-memorizing surface. Materials Horizons, 2022, 9, 3078-3086. | 6.4 | 3 |
| 1783 | Recent advances in molecular programming of liquid crystal elastomers with additive manufacturing for 4D printing. Molecular Systems Design and Engineering, 2022, 7, 1588-1601. | 1.7 | 7 |
| 1784 | Direct-write 3D printing of UV-curable composites with continuous carbon fiber. Journal of Composite Materials, 0, , 002199832211271. | 1.2 | 3 |
| 1785 | Naturally Derived Janus Cellulose Nanomaterials: Anisotropic Cellulose Nanomaterial Building Blocks and Their Assembly into Asymmetric Structures. ACS Nano, 2022, 16, 13468-13491. | 7.3 | 19 |
| 1786 | 4D printing: A detailed review of materials, techniques, and applications. Microelectronic Engineering, 2022, 265, 111874. | 1.1 | 15 |
| 1787 | Self-Searching Writing of Human-Organ-Scale Three-Dimensional Topographic Scaffolds with Shape Memory by Silkworm-like Electrospun Autopilot Jet. ACS Applied Materials & (2022, 14, 42841-42851. | 4.0 | 2 |
| 1788 | Morphing of stiffness-heterogeneous liquid crystal elastomers via mechanical training and locally controlled photopolymerization. Matter, 2022, 5, 4332-4346. | 5.0 | 5 |

| # | Article | IF | Citations |
|------|--|------|-----------|
| 1789 | Twoâ€Photon Polymerized Shape Memory Microfibers: A New Mechanical Characterization Method in Liquid. Advanced Functional Materials, 2023, 33, . | 7.8 | 3 |
| 1792 | Soft shape-programmable surfaces by fast electromagnetic actuation of liquid metal networks. Nature Communications, 2022, 13, . | 5.8 | 29 |
| 1794 | A dynamically reprogrammable surface with self-evolving shape morphing. Nature, 2022, 609, 701-708. | 13.7 | 45 |
| 1795 | Recent progress in fabrications and applications of functional hydrogel films. Journal of Polymer Science, 2023, 61, 1026-1039. | 2.0 | 6 |
| 1796 | 4D printing: a cutting-edge platform for biomedical applications. Biomedical Materials (Bristol), 2022, 17, 062001. | 1.7 | 23 |
| 1797 | Principles of elastic bridging in biological materials. Acta Biomaterialia, 2022, 153, 320-330. | 4.1 | 3 |
| 1798 | Calcium Orthophosphate (CaPO4)-Based Bioceramics: Preparation, Properties, and Applications. Coatings, 2022, 12, 1380. | 1.2 | 23 |
| 1799 | Solventâ€Driven Biomimetic Soft Sensors and Actuators. Advanced Materials Interfaces, 0, , 2201349. | 1.9 | 0 |
| 1800 | 2.5D, 3D and 4D printing in nanophotonics - a progress report. Materials Today: Proceedings, 2022, 70, 304-309. | 0.9 | 4 |
| 1801 | Discussion on the possibility of multi-layer intelligent technologies to achieve the best recover of musculoskeletal injuries: Smart materials, variable structures, and intelligent therapeutic planning. Frontiers in Bioengineering and Biotechnology, 0, 10, . | 2.0 | 3 |
| 1802 | Emerging Technologies of Three-Dimensional Printing and Mobile Health in COVID-19 Immunity and Regenerative Dentistry. Tissue Engineering - Part C: Methods, 2023, 29, 163-182. | 1.1 | 1 |
| 1803 | Development and characterisation of structurally reforming engineered flatâ€rice xerogel for hot water cooking. International Journal of Food Science and Technology, 2023, 58, 502-511. | 1.3 | 3 |
| 1804 | Vat photopolymerization of tough glassy polymers with multiple shape memory performances. Additive Manufacturing, 2022, 59, 103171. | 1.7 | 3 |
| 1805 | Geometrical incompatibility guides pattern selection in growing bilayer tubes. Journal of the Mechanics and Physics of Solids, 2022, 169, 105087. | 2.3 | 9 |
| 1806 | Effect of variations in manufacturing and material properties on the self-folding behaviors of hydrogel and elastomer bilayer structures. Soft Matter, 2022, 18, 8771-8778. | 1.2 | 2 |
| 1807 | Introduction to High-Resolution Manufacturing from 2D to 3D/4D Printing Technology Evolutions and Design Considerations. , 2022, , 3-15. | | O |
| 1808 | Biodegradable Materials from Natural Origin for Tissue Engineering and Stem Cells Technologies. , 2022, , 1-40. | | 2 |
| 1809 | 4D printing of light activated shape memory polymers with organic dyes. Molecular Systems Design and Engineering, 2023, 8, 323-329. | 1.7 | 8 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1810 | Curvature arising in shape memory polymer sheets via light absorption. Acta Mechanica, 0, , . | 1.1 | 0 |
| 1811 | Tailored Polypeptide Star Copolymers for 3D Printing of Bacterial Composites Via Direct Ink Writing. Advanced Materials, 2023, 35, . | 11.1 | 9 |
| 1812 | The potential of 3D printing in facilitating carbon neutrality. Journal of Environmental Sciences, 2023, 130, 85-91. | 3.2 | 6 |
| 1813 | 3D bioprinted cancer models: from basic biology to drug development. Nature Reviews Cancer, 2022, 22, 679-692. | 12.8 | 29 |
| 1814 | Three-Dimensional Printable Magnetic Microfibers: Development and Characterization for Four-Dimensional Printing. 3D Printing and Additive Manufacturing, 0, , . | 1.4 | 1 |
| 1815 | Fluid-Mediated Fabrication of Complex Assemblies. Jacs Au, 2022, 2, 2417-2425. | 3.6 | 2 |
| 1816 | 4D Printing of Hydrogels: Innovation in Material Design and Emerging Smart Systems for Drug Delivery. Pharmaceuticals, 2022, 15, 1282. | 1.7 | 19 |
| 1817 | Curvature-driven instabilities in thin active shells. Royal Society Open Science, 2022, 9, . | 1.1 | 1 |
| 1818 | A hydrogel-based mechanical metamaterial for the interferometric profiling of extracellular vesicles in patient samples. Nature Biomedical Engineering, 2023, 7, 135-148. | 11.6 | 11 |
| 1819 | Shape-morphing into 3D curved surfaces with nacre-like composite architectures. Science Advances, 2022, 8, . | 4.7 | 16 |
| 1820 | Elastic Fibers/Fabrics for Wearables and Bioelectronics. Advanced Science, 2022, 9, . | 5.6 | 19 |
| 1821 | Networking of Block Copolymer Nanoassemblies via Digital Light Processing Four-Dimensional Printing for Programmable Actuation. ACS Applied Polymer Materials, 2022, 4, 8676-8683. | 2.0 | 4 |
| 1822 | Boneâ€Adhesive Anisotropic Tough Hydrogel Mimicking Tendon Enthesis. Advanced Materials, 2023, 35, . | 11.1 | 17 |
| 1823 | Enhance Fracture Toughness and Fatigue Resistance of Hydrogels by Reversible Alignment of Nanofibers. ACS Applied Materials & Samp; Interfaces, 2022, 14, 49389-49397. | 4.0 | 10 |
| 1824 | Printing Structurally Anisotropic Biocompatible Fibrillar Hydrogel for Guided Cell Alignment. Gels, 2022, 8, 685. | 2.1 | 7 |
| 1825 | 4D Printing Via Multispeed Fused Deposition Modeling. Advanced Materials Technologies, 2023, 8, . | 3.0 | 10 |
| 1826 | Multiple shapes from a single nematic elastomer sheet activated via patterned illumination. Europhysics Letters, 2022, 140, 36003. | 0.7 | 2 |
| 1827 | A general multi-layered hyperelastic plate theory for growth-induced deformations in soft material samples. Applied Mathematical Modelling, 2023, 115, 300-336. | 2.2 | 3 |

| # | ARTICLE | IF | CITATIONS |
|------|---|------|-----------|
| 1828 | Powerful 2D Soft Morphing Actuator Propels Giant Manta Ray Robot. Advanced Intelligent Systems, 2022, 4, . | 3.3 | 1 |
| 1829 | 4D Printing of Shape Memory Polymers, Blends, and Composites and Their Advanced Applications: A Comprehensive Literature Review. Advanced Engineering Materials, 2023, 25, . | 1.6 | 13 |
| 1830 | Rational Design of Soft–Hard Interfaces through Bioinspired Engineering. Small, 2023, 19, . | 5.2 | 6 |
| 1831 | Advances in Biodegradable Soft Robots. Polymers, 2022, 14, 4574. | 2.0 | 8 |
| 1832 | Poroelastic plant-inspired structures & materials to sense, regulate flow, and move. Bioinspiration and Biomimetics, 2023, 18, 015002. | 1.5 | 1 |
| 1833 | Coupling of a magnetic field with instability for multimodal and multistep deformations of a curved beam with asymmetric magnetic torque. Journal of Applied Mechanics, Transactions ASME, 0, , 1-19. | 1.1 | O |
| 1834 | Advances and Challenges of Hydrogel Materials for Robotic and Sensing Applications. Chemistry of Materials, 2022, 34, 9307-9328. | 3.2 | 20 |
| 1835 | Overview of 3D and 4D Printing Techniques and their Emerging Applications in Medical Sectors. Current Materials Science, 2023, 16, 143-170. | 0.2 | 1 |
| 1836 | 4D Multiscale Origami Soft Robots: A Review. Polymers, 2022, 14, 4235. | 2.0 | 10 |
| 1837 | Targeted Additive Micromodulation of Grain Size in Nanocrystalline Copper Nanostructures by Electrohydrodynamic Redox 3D Printing. Small, 2022, 18, . | 5.2 | 7 |
| 1838 | 4D Printing of Stimuli-Responsive Materials. , 2023, , 85-112. | | 1 |
| 1839 | Functional flexibility: The potential of morphing composites. Composites Science and Technology, 2022, 230, 109792. | 3.8 | 4 |
| 1840 | Merging the Interfaces of Different Shapeâ€Shifting Polymers Using Hybrid Exchange Reactions. Advanced Materials, 2023, 35, . | 11.1 | 11 |
| 1841 | 3D printing of bioinspired hydrogel microstructures with programmable and complex shape deformations based on a digital micro-mirror device. Optics and Laser Technology, 2023, 157, 108759. | 2.2 | 8 |
| 1842 | Design, Analysis, and Experiment of a Novel Ultrasonic Printing System., 2022,,. | | 0 |
| 1843 | 4D Printing of Seed Capsuleâ€Inspired Hygroâ€Responsive Structures via Liquid Crystal Templatingâ€Assisted Vat Photopolymerization. Advanced Functional Materials, 2023, 33, . | 7.8 | 7 |
| 1844 | On the Evolution of Additive Manufacturing (3D/4D Printing) Technologies: Materials, Applications, and Challenges. Polymers, 2022, 14, 4698. | 2.0 | 23 |
| 1845 | Magnetoâ€Thermomechanically Reprogrammable Mechanical Metamaterials. Advanced Materials, 2023, 35, . | 11.1 | 14 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1846 | Design, fabrication and application of self-spiraling pattern-driven 4D-printed actuator. Scientific Reports, 2022, 12, . | 1.6 | 2 |
| 1848 | Stiff Shape Memory Polymers for High-Resolution Reconfigurable Nanophotonics. Nano Letters, 2022, 22, 8917-8924. | 4.5 | 14 |
| 1849 | Unperceivable motion mimicking hygroscopic geometric reshaping of pine cones. Nature Materials, 2022, 21, 1357-1365. | 13.3 | 11 |
| 1850 | 3Dâ€Printed Photoresponsive Liquid Crystal Elastomer Composites for Freeâ€Form Actuation. Advanced Functional Materials, 2023, 33, . | 7.8 | 34 |
| 1851 | Improved Performance of Biohybrid Muscleâ€Based Bioâ€Bots Doped with Piezoelectric Boron Nitride Nanotubes. Advanced Materials Technologies, 2023, 8, . | 3.0 | 5 |
| 1852 | Reconfigurable network structure with tunable multiple deformation modes: Mechanical designs, theoretical predictions, and experimental demonstrations. International Journal of Solids and Structures, 2023, 260-261, 112043. | 1.3 | 1 |
| 1853 | 3D printing of plant-based foods. , 2023, , 301-314. | | 1 |
| 1854 | The Dynamic Mortise-and-Tenon Interlock Assists Hydrated Soft Robots Toward Off-Road Locomotion. Research, 2022, 2022, . | 2.8 | 12 |
| 1855 | Mechanical and heat transfer properties of 4D-printed shape memory graphene oxide/epoxy acrylate composites. Nanotechnology Reviews, 2022, 11, 3138-3154. | 2.6 | 1 |
| 1856 | Printable Multi-Stage Variable Stiffness Material Enabled by Low Melting Point Particles Additives. Journal of Materials Chemistry C, 0, , . | 2.7 | 0 |
| 1857 | Design space and manufacturing of programmable 4D printed continuous flax fibre polylactic acid composite hygromorphs. Materials and Design, 2023, 225, 111472. | 3.3 | 8 |
| 1858 | Emerging 4D printing strategies for on-demand local actuation & micro printing of soft materials. European Polymer Journal, 2023, 184, 111778. | 2.6 | 8 |
| 1859 | A knowledge recommendation approach in design for multi-material 4D printing based on semantic similarity vector space model and case-based reasoning. Computers in Industry, 2023, 145, 103824. | 5.7 | 2 |
| 1860 | Three-Dimensional Printing of Sustainable Polymer for Motion Programming Applications. , 2022, , 1-10. | | 0 |
| 1861 | Optimization and fabrication of programmable domains for soft magnetic robots: A review. Frontiers in Robotics and Al, $0, 9, .$ | 2.0 | 5 |
| 1862 | Shape morphing of plastic films. Nature Communications, 2022, 13, . | 5.8 | 9 |
| 1863 | Microscale 3D Printing and Tuning of Cellulose Nanocrystals Reinforced Polymer Nanocomposites. Small, 2023, 19, . | 5.2 | 11 |
| 1864 | 4D Printing in Biomedical Engineering: a State-of-the-Art Review of Technologies, Biomaterials, and Application. Regenerative Engineering and Translational Medicine, 2023, 9, 339-365. | 1.6 | 2 |

| # | Article | IF | Citations |
|------|---|------|-----------|
| 1865 | 4D Printingâ€"A Smart Way of 3D Printing: A Brief Review. Lecture Notes in Mechanical Engineering, 2023, , 25-34. | 0.3 | 0 |
| 1866 | Hierarchically structured bioinspired nanocomposites. Nature Materials, 2023, 22, 18-35. | 13.3 | 119 |
| 1867 | Four-Dimensional Printing of Multifunctional Photocurable Resin Based on Waste Cooking Oil. ACS Sustainable Chemistry and Engineering, 2022, 10, 16344-16358. | 3.2 | 4 |
| 1868 | Perceived Affordances in Programmable Matter. , 2022, , . | | 0 |
| 1869 | Orientational Co Nanorod-Enabled Ferromagnetic Hydrogel Actuators with Diverse Hosts. ACS Applied Electronic Materials, 2022, 4, 5963-5972. | 2.0 | 4 |
| 1870 | 4D printing of bilayer structures with programmable shape-shifting behavior. Journal of Materials Science, 2022, 57, 21309-21323. | 1.7 | 3 |
| 1871 | Magnetic Resonance Imaging: Time-Dependent Wetting and Swelling Behavior of an Auxetic Hydrogel Based on Natural Polymers. Polymers, 2022, 14, 5023. | 2.0 | 1 |
| 1872 | Hydrogel Nanocomposite Adsorbents and Photocatalysts for Sustainable Water Purification. Advanced Materials Interfaces, 2023, 10, . | 1.9 | 38 |
| 1873 | Emerging trends in humidity-responsive 4D bioprinting. Chemical Engineering Journal, 2023, 455, 140550. | 6.6 | 11 |
| 1874 | Curvature in Biological Systems: Its Quantification, Emergence, and Implications across the Scales. Advanced Materials, 2023, 35, . | 11.1 | 34 |
| 1875 | Biomaterials of human source for 3D printing strategies. JPhys Materials, 2023, 6, 012002. | 1.8 | 5 |
| 1876 | Utilizing 4D Printing to Design Smart Gastroretentive, Esophageal, and Intravesical Drug Delivery Systems. Advanced Healthcare Materials, 2023, 12, . | 3.9 | 15 |
| 1877 | Programmable aniso-electrodeposited modular hydrogel microrobots. Science Advances, 2022, 8, . | 4.7 | 31 |
| 1878 | Biomaterial inks for extrusion-based 3D bioprinting: Property, classification, modification, and selection. International Journal of Bioprinting, 2022, 9, 649. | 1.7 | 6 |
| 1879 | Untethered unidirectionally crawling gels driven by asymmetry in contact forces. Science Robotics, 2022, 7, . | 9.9 | 18 |
| 1880 | The Design of 4Dâ€Printed Hygromorphs: Stateâ€ofâ€theâ€Art and Future Challenges. Advanced Functional Materials, 2023, 33, . | 7.8 | 6 |
| 1881 | Centrifugal multimaterial 3D printing of multifunctional heterogeneous objects. Nature Communications, 2022, 13, . | 5.8 | 40 |
| 1882 | Highâ€Performance Organohydrogel Artificial Muscle with Compartmentalized Anisotropic Actuation Under Microdomain Confinement. Advanced Materials, 2023, 35, . | 11.1 | 23 |

| # | ARTICLE | IF | CITATIONS |
|------|---|------|-----------|
| 1884 | Biotissueâ€Inspired Anisotropic Carbon Fiber Composite Hydrogels for Logic Gates, Integrated Soft Actuators, and Sensors with Ultraâ€High Sensitivity. Advanced Functional Materials, 2023, 33, . | 7.8 | 15 |
| 1885 | Nature-inspired reentrant surfaces. Progress in Materials Science, 2023, 133, 101064. | 16.0 | 17 |
| 1888 | 3D extrusion printing of density gradients by variation of sinusoidal printing paths for tissue engineering and beyond. Acta Biomaterialia, 2023, 158, 308-323. | 4.1 | 2 |
| 1889 | Air Permeable Vibrotactile Actuators for Wearable Wireless Haptics. Advanced Functional Materials, 2023, 33, . | 7.8 | 8 |
| 1890 | Melt Electrowriting of Liquid Crystal Elastomer Scaffolds with Programmed Mechanical Response. Advanced Materials, 2023, 35, . | 11.1 | 11 |
| 1891 | Computational design and fabrication of active 3D-printed multi-state structures for shape morphing. Smart Materials and Structures, 2023, 32, 015008. | 1.8 | 2 |
| 1892 | Lightâ€Fueled Nonreciprocal Selfâ€Oscillators for Fluidic Transportation and Coupling. Advanced Materials, 0, , . | 11.1 | 10 |
| 1893 | Nanocellulose: Recent Advances Toward Biomedical Applications. Small Science, 2023, 3, . | 5.8 | 11 |
| 1894 | Artificial Intelligence Assisted Fabrication of 3D, 4D and 5D Printed Formulations or Devices for Drug Delivery. Current Drug Delivery, 2023, 20, 752-769. | 0.8 | 7 |
| 1896 | Emerging 3D bioprinting applications in plastic surgery. Biomaterials Research, 2023, 27, . | 3.2 | 31 |
| 1897 | Multifunctional 3Dâ€Printed Pollen Grainâ€Inspired Hydrogel Microrobots for Onâ€Demand Anchoring and Cargo Delivery. Advanced Materials, 2023, 35, . | 11.1 | 24 |
| 1898 | Shape Morphing by Topological Patterns and Profiles in Laser-Cut Liquid Crystal Elastomer Kirigami. ACS Applied Materials & District Sciences, 2023, 15, 4538-4548. | 4.0 | 4 |
| 1899 | Cellulose: A Review of Water Interactions, Applications in Composites, and Water Treatment. Chemical Reviews, 2023, 123, 2016-2048. | 23.0 | 98 |
| 1900 | Four-Dimensional Bioprinting for Regenerative Medicine: Mechanisms to Induce Shape Variation and Potential Applications. European Medical Journal Innovations, 0, , 36-43. | 2.0 | 4 |
| 1901 | Unconventional direct ink writing of polyelectrolyte films. MRS Bulletin, 0, , . | 1.7 | 0 |
| 1902 | Stimuliâ€Triggered Multishape, Multimode, and Multistep Deformations Designed by Microfluidic 3D Droplet Printing. Small, 2023, 19, . | 5.2 | 3 |
| 1904 | A robust and 3D-printed solar evaporator based on naturally occurring molecules. Science Bulletin, 2023, 68, 203-213. | 4.3 | 59 |
| 1905 | Femtosecond Laser 4D Printing of Lightâ€Driven Intelligent Micromachines. Advanced Functional Materials, 2023, 33, . | 7.8 | 20 |

| # | Article | IF | Citations |
|------|--|------|-----------|
| 1906 | Alginate Hydrogels Reinforced by Dehydration under Stressâ€"Application to a Soft Magnetic Actuator. Gels, 2023, 9, 39. | 2.1 | 2 |
| 1907 | Computational design for 4D printing of topology optimized multi-material active composites. Npj Computational Materials, 2023, 9, . | 3.5 | 22 |
| 1908 | Rotational multimaterial printing of filaments with subvoxel control. Nature, 2023, 613, 682-688. | 13.7 | 48 |
| 1909 | Transparent and Cell-Guiding Cellulose Nanofiber 3D Printing Bioinks. ACS Applied Materials & Samp; Interfaces, 2023, 15, 2564-2577. | 4.0 | 4 |
| 1910 | 4Dâ€Printed Soft and Stretchable Selfâ€Folding Cuff Electrodes for Smallâ€Nerve Interfacing. Advanced Materials, 2023, 35, . | 11.1 | 12 |
| 1911 | Application of 4D printing and AI to cardiovascular devices. Journal of Drug Delivery Science and Technology, 2023, 80, 104162. | 1.4 | 6 |
| 1912 | Emerging 3D printing based on polymers and nanomaterial additives: Enhancement of properties and potential applications. European Polymer Journal, 2023, 184, 111806. | 2.6 | 15 |
| 1913 | Ultrasound directed self-assembly of filler in continuous flow of a viscous medium through an extruder nozzle for additive manufacturing. Additive Manufacturing Letters, 2023, 5, 100120. | 0.9 | 4 |
| 1914 | Codesign of Biobased Cellulose-Filled Filaments and Mesostructures for 4D Printing Humidity Responsive Smart Structures. 3D Printing and Additive Manufacturing, 2023, 10, 1-14. | 1.4 | 7 |
| 1915 | Bioinspired Selfâ€Growing Hydrogels by Harnessing Interfacial Polymerization. Advanced Materials, 2023, 35, . | 11.1 | 8 |
| 1916 | Bioinspired shape shifting of liquid-infused ribbed sheets. Proceedings of the National Academy of Sciences of the United States of America, 2023, 120, . | 3.3 | 3 |
| 1917 | 4D printing for product development: State of the art and future scope. , 2023, , 293-306. | | 0 |
| 1918 | Tooth Diversity Underpins Future Biomimetic Replications. Biomimetics, 2023, 8, 42. | 1.5 | 3 |
| 1919 | Role of 3D printing in biomechanics. , 2023, , 1-33. | | 1 |
| 1920 | Structure-property-function relationships of sustainable hydrogels., 2023,, 79-111. | | 0 |
| 1921 | Chemical Optimization Strategy of Rapid Additive Manufacturing via Upâ€Conversion Assisted Photopolymerization Based Direct Ink Writing. Advanced Materials Technologies, 2023, 8, . | 3.0 | 4 |
| 1922 | An Ultra High Gain Converter for Driving HASEL Actuator Used in Soft Mobile Robots. Biomimetics, 2023, 8, 53. | 1.5 | 1 |
| 1923 | Four-dimension printing in healthcare. , 2023, , 337-359. | | 1 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1924 | 3D Laser Nanoprinting of Functional Materials. Advanced Functional Materials, 2023, 33, . | 7.8 | 8 |
| 1925 | From Drosophila material to functional structures: Biomimetic through additive manufacturing technology., 2023,, 129-151. | | 1 |
| 1926 | Self-Powered Sensors: Applications, Challenges, and Solutions. IEEE Sensors Journal, 2023, 23, 20483-20509. | 2.4 | 9 |
| 1927 | Bioinspired, biomimetic hydrogels., 2023,, 325-354. | | О |
| 1928 | Emerging trends in 4d printing of hydrogels in the biomedical field: A review. Materials Today: Proceedings, 2023, , . | 0.9 | 2 |
| 1929 | Regenerative Living 4D Printing via Reversible Growth of Polymer Networks. Advanced Materials, 2023, 35, . | 11.1 | 10 |
| 1930 | Squid/synthetic polymer double-network gel: elaborated anisotropy and outstanding fracture toughness characteristics. NPG Asia Materials, $2023,15,.$ | 3.8 | 0 |
| 1931 | Effect of the fiber-matrix bond on the toughness of soft, short-fiber composites. Journal of Composite Materials, 2023, 57, 521-530. | 1.2 | 0 |
| 1932 | Metallic 4D Printing of Laser Stimulation. Advanced Science, 2023, 10, . | 5.6 | 3 |
| 1933 | Perspectives of 3D and 4D bioprinting. , 2023, , 265-288. | | O |
| 1934 | Quality of AM implants in biomedical application. , 2023, , 689-743. | | 1 |
| 1935 | Ligninâ€Based Materials for Additive Manufacturing: Chemistry, Processing, Structures, Properties, and Applications. Advanced Science, 2023, 10, . | 5.6 | 22 |
| 1936 | 4D printing: An experimental case study on processing of shape memory polymer by FDM/FFF for nature inspired structures. , 2023, , 361-377. | | 5 |
| 1937 | Ontological Knowledge Graph Framework for 4D Printed Product Design: Elongated Homogenous Rod Case. Lecture Notes in Mechanical Engineering, 2023, , 101-109. | 0.3 | 0 |
| 1938 | 3D Printing of Customized Drug Delivery Systems with Controlled Architecture via Reversible Additionâ€Fragmentation Chain Transfer Polymerization. Advanced Engineering Materials, 2023, 25, . | 1.6 | 11 |
| 1939 | Bulk Polymerization of Thermoplastic Shape Memory Epoxy Polymer for Recycling Applications. Polymers, 2023, 15, 809. | 2.0 | 2 |
| 1940 | Hydrogelâ€Based Multifunctional Soft Electronics with Distributed Sensing Units: A Review. , 2023, 2, . | | 3 |
| 1941 | Nature-Inspired Cellulose-Based Active Materials: From 2D to 4D. , 2023, 2, 94-114. | | 5 |

| # | Article | IF | CITATIONS |
|------|--|------|-----------|
| 1942 | 4D Printed Thermoplastic Polyamide Elastomers with Reversible Twoâ€Way Shape Memory Effect. Advanced Materials Technologies, 2023, 8, . | 3.0 | 3 |
| 1943 | Microâ€Scale Mechanical Metamaterial with a Controllable Transition in the Poisson's Ratio and Band Gap Formation. Advanced Materials, 2023, 35, . | 11.1 | 20 |
| 1944 | Fabrication, properties and applications of polymer composites additively manufactured with filler alignment control: A review. Composites Part B: Engineering, 2023, 256, 110661. | 5.9 | 24 |
| 1945 | Multi-thermo responsive double network composite hydrogel for 3D printing medical hydrogel mask. Journal of Colloid and Interface Science, 2023, 638, 882-892. | 5.0 | 9 |
| 1946 | Morph-genetic bamboo-reinforced hydrogel complex for bio-mimetic actuator. Chemical Engineering Journal, 2023, 463, 142391. | 6.6 | 9 |
| 1947 | Lignocellulosic biomass from agricultural waste to the circular economy: a review with focus on biofuels, biocomposites and bioplastics. Journal of Cleaner Production, 2023, 402, 136815. | 4.6 | 114 |
| 1948 | A novel chitosan-alginate-dicalcium phosphate membrane coated on poly(lactic acid) to control biological condition, swelling and cell growth. Materials Science and Engineering B: Solid-State Materials for Advanced Technology, 2023, 292, 116435. | 1.7 | 2 |
| 1949 | Additive manufacturing method of electrothermal 4D bimorph microactuator. Sensors and Actuators A: Physical, 2023, 356, 114348. | 2.0 | 5 |
| 1950 | Modeling for silicone foam material extrusion with liquid rope coiling. International Journal of Mechanical Sciences, 2023, 249, 108234. | 3.6 | 3 |
| 1951 | 4D printed TMP origami metamaterials with programmable mechanical properties. International Journal of Mechanical Sciences, 2023, 250, 108275. | 3.6 | 9 |
| 1952 | Programmable Tissue Folding Patterns in Structured Hydrogels. Advanced Materials, 0, , . | 11.1 | 5 |
| 1953 | In situ characterization of material extrusion printing by near-infrared spectroscopy. Additive Manufacturing, 2023, 63, 103420. | 1.7 | 0 |
| 1954 | A general theoretical scheme for shape-programming of incompressible hyperelastic shells through differential growth. International Journal of Solids and Structures, 2023, 265-266, 112128. | 1.3 | 3 |
| 1955 | 4D Printing Materials for Soft Robots. Fashion & Textile Research Journal, 2022, 24, 667-685. | 0.1 | 0 |
| 1956 | Understanding Nanocellulose–Water Interactions: Turning a Detriment into an Asset. Chemical Reviews, 2023, 123, 1925-2015. | 23.0 | 61 |
| 1957 | 3Dâ€Printed Anisotropic Nanofiber Composites with Gradual Mechanical Properties. Advanced Materials Technologies, 2023, 8, . | 3.0 | 5 |
| 1958 | 4D Printing of Shape Memory Polymers: A Concise Review of Photopolymerized Acrylate-Based Materials., 0, 32, 1-12. | | 0 |
| 1959 | A constitutive model for predicting the time-dependent behavior of multi-material 4D printed structures. Progress in Additive Manufacturing, 2024, 9, 27-35. | 2.5 | 1 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1960 | Amphibious Nastic Hydrogel Based on the Tropic Movement of Gelatin and Its Opposite Phase Transition to PNIPAm. Biomacromolecules, 2023, 24, 1522-1531. | 2.6 | 1 |
| 1962 | Advanced supramolecular design for direct ink writing of soft materials. Chemical Society Reviews, 2023, 52, 1614-1649. | 18.7 | 25 |
| 1963 | Additive Manufacturing of Bioceramic Implants for Restoration Bone Engineering: Technologies, Advances, and Future Perspectives. ACS Biomaterials Science and Engineering, 2023, 9, 1164-1189. | 2.6 | 13 |
| 1964 | Perspectives on Computation in Plants. Artificial Life, 0, , 1-15. | 1.0 | 1 |
| 1965 | Vat Photopolymerization Additive Manufacturing of Tough, Fully Recyclable Thermosets. ACS Applied Materials & Samp; Interfaces, 2023, 15, 11111-11121. | 4.0 | 18 |
| 1966 | Wettingâ€Enabled Threeâ€Dimensional Interfacial Polymerization (WETâ€DIP) for Bioinspired Antiâ€Dehydration Hydrogels. Small, 2023, 19, . | 5.2 | 2 |
| 1967 | 3D printed electronics with nanomaterials. Nanoscale, 2023, 15, 5623-5648. | 2.8 | 11 |
| 1968 | Organized mineralized cellulose nanostructures for biomedical applications. Journal of Materials Chemistry B, 2023, 11, 5321-5349. | 2.9 | 2 |
| 1969 | Formulation of threeâ€dimensional, photoâ€responsive printing ink: Gold nanorodâ€hydrogel nanocomposites and their fourâ€dimensional structures that respond quickly to stimuli. Journal of Applied Polymer Science, 2023, 140, . | 1.3 | 0 |
| 1970 | Biodegradable Materials from Natural Origin for Tissue Engineering and Stem Cells Technologies. , 2023, , 1133-1172. | | 0 |
| 1971 | Flow-network-controlled shape transformation of a thin membrane through differential fluid storage and surface expansion. Physical Review E, 2023, 107, . | 0.8 | 0 |
| 1972 | Reconfigurable scaffolds for adaptive tissue regeneration. Nanoscale, 2023, 15, 6105-6120. | 2.8 | 3 |
| 1973 | Fullâ€field hygroscopic characterization of tough <scp>3D</scp> â€printed supramolecular hydrogels. Journal of Polymer Science, 2023, 61, 1120-1131. | 2.0 | 0 |
| 1974 | Application of RAFT in 3D Printing: Where Are the Future Opportunities?. Macromolecules, 2023, 56, 1778-1797. | 2.2 | 12 |
| 1975 | Single-vat single-cure grayscale digital light processing 3D printing of materials with large property difference and high stretchability. Nature Communications, 2023, 14, . | 5.8 | 22 |
| 1976 | 4D printing of polyamide 1212 based shape memory thermoplastic polyamide elastomers by selective laser sintering. Journal of Manufacturing Processes, 2023, 92, 157-164. | 2.8 | 7 |
| 1977 | A Systematic Review on 4D Printing Technology. Materials Today: Proceedings, 2023, , . | 0.9 | 2 |
| 1978 | Twoâ€Photon Polymerization of Sugar Responsive 4D Microstructures. Advanced Functional Materials, 2023, 33, . | 7.8 | 10 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 1979 | Assembly and manipulation of responsive and flexible colloidal structures by magnetic and capillary interactions. Soft Matter, 2023, 19, 2466-2485. | 1.2 | 2 |
| 1980 | Repeatedly Recyclable 3D Printing Catalystâ€Free Dynamic Thermosetting Photopolymers. Advanced Materials, 2023, 35, . | 11.1 | 10 |
| 1981 | Multiscale bilayer hydrogels enabled by macrophase separation. Matter, 2023, 6, 1484-1502. | 5.0 | 18 |
| 1982 | 3D Printing of Biomimetic Functional Nanocomposites <i>via</i> Vat Photopolymerization., 0, , . | | 0 |
| 1983 | Soft Deployable Structures via Core-Shell Inflatables. Physical Review Letters, 2023, 130, . | 2.9 | 2 |
| 1984 | Twoâ€Photon Polymerization Lithography for Optics and Photonics: Fundamentals, Materials, Technologies, and Applications. Advanced Functional Materials, 2023, 33, . | 7.8 | 39 |
| 1985 | Research on imminent enlargements of smart materials and structures towards novel 4D printing (4DP: SMs-SSs). International Journal of Advanced Manufacturing Technology, 2023, 126, 2803-2823. | 1.5 | 3 |
| 1986 | Programming 3D Curves with Discretely Constrained Cylindrical Inflatables. Advanced Materials, 2023, 35, . | 11.1 | 5 |
| 1987 | 3D bioprinting using a new photo-crosslinking method for muscle tissue restoration. Npj Regenerative Medicine, 2023, 8, . | 2.5 | 14 |
| 1988 | New water-soluble photo-initiators for two-photon polymerization based on benzylidene cyclopentanones. Journal of Photochemistry and Photobiology A: Chemistry, 2023, 442, 114743. | 2.0 | 0 |
| 1989 | Natural fiber biocomposites via 4D printing technologies: a review of possibilities for agricultural bio-mulching and related sustainable applications. Progress in Additive Manufacturing, 2024, 9, 37-67. | 2.5 | 3 |
| 1990 | Plant-Fiber and Wood-Based Functional Materials. Springer Handbooks, 2023, , 1645-1693. | 0.3 | 2 |
| 1991 | Swelling under Constraints: Exploiting 3Dâ€Printing to Optimize the Performance of Gelâ€Based Devices. Advanced Materials Technologies, 2023, 8, . | 3.0 | 1 |
| 1992 | 4D Printed Programmable Shapeâ€Morphing Hydrogels as Intraoperative Selfâ€Folding Nerve Conduits for Sutureless Neurorrhaphy. Advanced Healthcare Materials, 2023, 12, . | 3.9 | 14 |
| 1993 | The Universality of Self-Organisation: A Path to an Atom Printer?. Springer Series in Optical Sciences, 2023, , 173-207. | 0.5 | 0 |
| 1994 | Exploration of molecular machines in supramolecular soft robotic systems. Advances in Colloid and Interface Science, 2023, 315, 102892. | 7.0 | 6 |
| 1995 | Magnetically Responsive Melt Electrowritten Structures. Advanced Materials Technologies, 2023, 8, . | 3.0 | 11 |
| 1996 | Molecular dynamics study of low molecular weight gel forming salt-triggered dipeptide. Scientific Reports, 2023, 13, . | 1.6 | 1 |

| # | Article | IF | Citations |
|------|---|-----|-----------|
| 1997 | Octopusâ€Inspired Adaptable Soft Grippers Based on 4D Printing: Numerical Modeling, Inverse Design, and Experimental Validation. Advanced Intelligent Systems, 2023, 5, . | 3.3 | 3 |
| 1998 | Additive manufacturing of hygromorphic structures using regenerated cellulose/PLA biocomposites. Materials Today: Proceedings, 2023, , . | 0.9 | 1 |
| 1999 | Advances in 3D/4D printing of mechanical metamaterials: From manufacturing to applications. Composites Part B: Engineering, 2023, 254, 110585. | 5.9 | 54 |
| 2006 | Advances in 4D printed shape memory composites and structures: Actuation and application. Science China Technological Sciences, 2023, 66, 1271-1288. | 2.0 | 10 |
| 2010 | Recent insights on advancements and substantial transformations in food printing technology from 3 to 7D. Food Science and Biotechnology, 2023, 32, 1783-1804. | 1.2 | 4 |
| 2024 | Hygroscopic Tunable Multishape Memory Effect in Cellulosic Macromolecular Networks with a Supramolecular Mesophase. ACS Macro Letters, 2023, 12, 835-840. | 2.3 | 1 |
| 2036 | 4D Printing in Pharmaceutics and Biomedical Applications. Advanced Clinical PharmacyÂ- Research, Development and Practical Applications, 2023, , 207-247. | 0.0 | 0 |
| 2038 | 4D printing of biopolymers. , 2023, , 191-227. | | 0 |
| 2042 | Evolving variable stiffness fiber patterns for multi-shape robotic sheets., 2023,,. | | 0 |
| 2045 | 3D Printing of Multicomponent Hydrogels for Biomedical Applications. , 2023, , 231-287. | | 0 |
| 2047 | Rapid-Responsive Hydrogel Actuators with Hierarchical Structures: Strategies and Applications. ACS Applied Polymer Materials, 2023, 5, 4605-4620. | 2.0 | 3 |
| 2066 | Application of 4D printing and bioprinting in cardiovascular tissue engineering. Biomaterials Science, 2023, 11, 6403-6420. | 2.6 | 4 |
| 2073 | Recent advances in 4D printing hydrogel for biological interfaces. International Journal of Material Forming, 2023, 16, . | 0.9 | 3 |
| 2085 | 3D shape morphing of stimuli-responsive composite hydrogels. Materials Chemistry Frontiers, 2023, 7, 5989-6034. | 3.2 | 2 |
| 2097 | Bioinspired strategies for biomimetic actuators from ultrafast to ultraslow. Nano Research, 2024, 17, 570-586. | 5.8 | 0 |
| 2127 | Digital Processes for Wood Innovation Design. Lecture Notes in Mechanical Engineering, 2024, , 431-450. | 0.3 | 0 |
| 2133 | Bi-Directional Deformation, Stiffness-Tunable, and Electrically Controlled Soft Actuators Based on LCEs 4D Printing. Lecture Notes in Computer Science, 2023, , 53-62. | 1.0 | 0 |
| 2139 | Developments of additive manufacturing and 5D printing in tissue engineering. Journal of Materials Research, 2023, 38, 4692-4725. | 1.2 | 2 |

| # | Article | IF | CITATIONS |
|------|---|------|-----------|
| 2140 | Intelligent Vascularized 3D/4D/5D/6D-Printed Tissue Scaffolds. Nano-Micro Letters, 2023, 15, . | 14.4 | 5 |
| 2169 | 3D printing of composite material through blending of PLA and PETG using fused deposition modelling. AIP Conference Proceedings, 2023, , . | 0.3 | 0 |
| 2172 | Applications of 3D Bioprinting in Oral and Maxillofacial Surgery: An Insight. Journal of Maxillofacial and Oral Surgery, 0, , . | 0.6 | 0 |
| 2173 | One-way/two-way programming of fabric thermoplastic substrate for sensor applications. , 2023, , . | | 0 |
| 2183 | Additive Manufacturing for Complex Geometries in Polymer Composites. Advances in Material Research and Technology, 2024, , 121-186. | 0.3 | 0 |
| 2185 | Bioinspired magnetic cilia: from materials to applications. Microsystems and Nanoengineering, 2023, 9, | 3.4 | 2 |
| 2194 | A critical review on 4D printing and their processing parameters. International Journal on Interactive Design and Manufacturing, $0, \dots$ | 1.3 | 0 |
| 2200 | Applications of 4D Printing Technology. Advances in Logistics, Operations, and Management Science Book Series, 2024, , 54-66. | 0.3 | 0 |
| 2207 | Role of 3D printing in microfluidics and applications. , 2024, , 67-107. | | 0 |
| 2209 | Material and structural approaches for human-machine interfaces. , 2024, , 227-290. | | 0 |
| 2210 | Emerging trends of three-dimensional printing in biotechnology. , 2024, , 155-180. | | 0 |
| 2228 | Naturally-Derived Biomaterials for Oral and Dental Tissue Engineering. , 2024, , 91-118. | | 0 |
| 2237 | Photo-steered rapid and multimodal locomotion of 3D-printed tough hydrogel robots. Materials Horizons, 0, , . | 6.4 | 0 |
| 2245 | Nanocomposite hydrogel: Fabrication methods and applications. , 2023, , . | | 0 |