Takayuki Kurokawa

List of Publications by Year
in descending order

198 papers	17,649 citations	19608 61 h-index	14156 128 g-index
200 all docs	200 docs citations	200 times ranked	10664 citing authors

#	Article	IF	Citations
1	Double-Network Hydrogels with Extremely High Mechanical Strength. Advanced Materials, 2003, 15, 1155-1158.	11.1	3,537
2	Physical hydrogels composed of polyampholytes demonstrate high toughness and viscoelasticity. Nature Materials, 2013, 12, 932-937.	13.3	1,636
3	Super tough double network hydrogels and their application as biomaterials. Polymer, 2012, 53, 1805-1822.	1.8	611
4	Oppositely Charged Polyelectrolytes Form Tough, Selfâ€Healing, and Rebuildable Hydrogels. Advanced Materials, 2015, 27, 2722-2727.	11.1	545
5	Tough Physical Doubleâ€Network Hydrogels Based on Amphiphilic Triblock Copolymers. Advanced Materials, 2016, 28, 4884-4890.	11.1	442
6	Lamellar Bilayers as Reversible Sacrificial Bonds To Toughen Hydrogel: Hysteresis, Self-Recovery, Fatigue Resistance, and Crack Blunting. Macromolecules, 2011, 44, 8916-8924.	2.2	322
7	Determination of Fracture Energy of High Strength Double Network Hydrogels. Journal of Physical Chemistry B, 2005, 109, 11559-11562.	1.2	261
8	True Chemical Structure of Double Network Hydrogels. Macromolecules, 2009, 42, 2184-2189.	2.2	258
9	Unidirectional Alignment of Lamellar Bilayer in Hydrogel: Oneâ€Dimensional Swelling, Anisotropic Modulus, and Stress/Strain Tunable Structural Color. Advanced Materials, 2010, 22, 5110-5114.	11.1	256
10	Microgel-Reinforced Hydrogel Films with High Mechanical Strength and Their Visible Mesoscale Fracture Structure. Macromolecules, 2011, 44, 7775-7781.	2.2	248
11	A Facile Method to Fabricate Anisotropic Hydrogels with Perfectly Aligned Hierarchical Fibrous Structures. Advanced Materials, 2018, 30, 1704937.	11.1	244
12	Tough Hydrogels with Fast, Strong, and Reversible Underwater Adhesion Based on a Multiscale Design. Advanced Materials, 2018, 30, e1801884.	11.1	235
13	Synthesis of Hydrogels with Extremely Low Surface Friction. Journal of the American Chemical Society, 2001, 123, 5582-5583.	6.6	229
14	Doubleâ€Network Hydrogels Strongly Bondable to Bones by Spontaneous Osteogenesis Penetration. Advanced Materials, 2016, 28, 6740-6745.	11.1	225
15	Mechano-actuated ultrafast full-colour switching in layered photonic hydrogels. Nature Communications, 2014, 5, 4659.	5.8	210
16	Adjacent cationicâ€“aromatic sequences yield strong electrostatic adhesion of hydrogels in seawater. Nature Communications, 2019, 10, 5127.	5.8	202
17	Structural Characteristics of Double Network Gels with Extremely High Mechanical Strength. Macromolecules, 2004, 37, 5370-5374.	2.2	198
18	Characterization of internal fracture process of double network hydrogels under uniaxial elongation. Soft Matter, 2013, 9, 1955-1966.	1.2	195

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19	Self-Healing Behaviors of Tough Polyampholyte Hydrogels. Macromolecules, 2016, 49, 4245-4252.	2.2	191
20	Effect of Polymer Entanglement on the Toughening of Double Network Hydrogels. Journal of Physical Chemistry B, 2005, 109, 16304-16309.	1.2	177
21	A Universal Molecular Stent Method to Toughen any Hydrogels Based on Double Network Concept. Advanced Functional Materials, 2012, 22, 4426-4432.	7.8	175
22	Mechanically Strong Hydrogels with Ultra-Low Frictional Coefficients. Advanced Materials, 2005, 17, 535-538.	11.1	166
23	Selfâ€Adjustable Adhesion of Polyampholyte Hydrogels. Advanced Materials, 2015, 27, 7344-7348.	11.1	160
24	A Novel Doubleâ€Network Hydrogel Induces Spontaneous Articular Cartilage Regeneration <i>in vivo</i> in a Large Osteochondral Defect. Macromolecular Bioscience, 2009, 9, 307-316.	2.1	157
25	Direct Observation of Damage Zone around Crack Tips in Double-Network Gels. Macromolecules, 2009, 42, 3852-3855.	2.2	156
26	Proteoglycans and Glycosaminoglycans Improve Toughness of Biocompatible Double Network Hydrogels. Advanced Materials, 2014, 26, 436-442.	11.1	155
27	Lamellar Hydrogels with High Toughness and Ternary Tunable Photonic Stopâ€Band. Advanced Materials, 2013, 25, 3106-3110.	11.1	152
28	Phaseâ€Separationâ€Induced Anomalous Stiffening, Toughening, and Selfâ€Healing of Polyacrylamide Gels. Advanced Materials, 2015, 27, 6990-6998.	11.1	132
29	Crack Blunting and Advancing Behaviors of Tough and Self-healing Polyampholyte Hydrogel. Macromolecules, 2014, 47, 6037-6046.	2.2	123
30	Anisotropic tough double network hydrogel from fish collagen and its spontaneous inÂvivo bonding to bone. Biomaterials, 2017, 132, 85-95.	5.7	122
31	Structure Optimization and Mechanical Model for Microgel-Reinforced Hydrogels with High Strength and Toughness. Macromolecules, 2012, 45, 5218-5228.	2.2	119
32	Brittleâ€“ductile transition of double network hydrogels: Mechanical balance of two networks as the key factor. Polymer, 2014, 55, 914-923.	1.8	119
33	Yielding Criteria of Double Network Hydrogels. Macromolecules, 2016, 49, 1865-1872.	2.2	119
34	Energyâ€Dissipative Matrices Enable Synergistic Toughening in Fiber Reinforced Soft Composites. Advanced Functional Materials, 2017, 27, 1605350.	7.8	116
35	Rapid and Reversible Tuning of Structural Color of a Hydrogel over the Entire Visible Spectrum by Mechanical Stimulation. Chemistry of Materials, 2011, 23, 5200-5207.	3.2	109
36	Robust bonding and one-step facile synthesis of tough hydrogels with desirable shape by virtue of the double network structure. Polymer Chemistry, 2011, 2, 575-580.	1.9	108

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37	Extremely tough composites from fabric reinforced polyampholyte hydrogels. Materials Horizons, 2015, 2, 584-591.	6.4	108
38	Water-Induced Brittle-Ductile Transition of Double Network Hydrogels. Macromolecules, 2010, 43, 9495-9500.	2.2	104
39	Multiscale Energy Dissipation Mechanism in Tough and Self-Healing Hydrogels. Physical Review Letters, 2018, 121, 185501.	2.9	104
40	Bulk Energy Dissipation Mechanism for the Fracture of Tough and Self-Healing Hydrogels. Macromolecules, 2017, 50, 2923-2931.	2.2	102
41	Double-Network Strategy Improves Fracture Properties of Chondroitin Sulfate Networks. ACS Macro Letters, 2013, 2, 137-140.	2.3	101
42	Molecular structure of self-healing polyampholyte hydrogels analyzed from tensile behaviors. Soft Matter, 2015, 11, 9355-9366.	1.2	100
43	Synthesis and Fracture Process Analysis of Double Network Hydrogels with a Well-Defined First Network. ACS Macro Letters, 2013, 2, 518-521.	2.3	99
44	Double network hydrogels from polyzwitterions: high mechanical strength and excellent anti-biofouling properties. Journal of Materials Chemistry B, 2013, 1, 3685.	2.9	99
45	Free Reprocessability of Tough and Self-Healing Hydrogels Based on Polyion Complex. ACS Macro Letters, 2015, 4, 961-964.	2.3	96
46	Strong and Tough Polyion-Complex Hydrogels from Oppositely Charged Polyelectrolytes: A Comparative Study with Polyampholyte Hydrogels. Macromolecules, 2016, 49, 2750-2760.	2.2	91
47	Mesoscale bicontinuous networks in self-healing hydrogels delay fatigue fracture. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 7606-7612.	3.3	86
48	Creating Stiff, Tough, and Functional Hydrogel Composites with Lowâ€Meltingâ€Point Alloys. Advanced Materials, 2018, 30, e1706885.	11.1	81
49	Anisotropic hydrogel based on bilayers: color, strength, toughness, and fatigue resistance. Soft Matter, 2012, 8, 8008.	1.2	80
50	Formation of a strong hydrogelâ€“porous solid interface via the double-network principle. Acta Biomaterialia, 2010, 6, 1353-1359.	4.1	78
51	Tough Particleâ€Based Double Network Hydrogels for Functional Solid Surface Coatings. Advanced Materials Interfaces, 2018, 5, 1801018.	1.9	78
52	Localized Yielding Around Crack Tips of Doubleâ€Network Gels. Macromolecular Rapid Communications, 2008, 29, 1514-1520.	2.0	77
53	Fiberâ€Reinforced Viscoelastomers Show Extraordinary Crack Resistance That Exceeds Metals. Advanced Materials, 2020, 32, e1907180.	11.1	77
54	Hydrogels as dynamic memory with forgetting ability. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 18962-18968.	3.3	76

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55	High Fracture Efficiency and Stress Concentration Phenomenon for Microgel-Reinforced Hydrogels Based on Double-Network Principle. Macromolecules, 2012, 45, 9445-9451.	2.2	75
56	Elasticâˆ’Hydrodynamic Transition of Gel Friction. Langmuir, 2005, 21, 8643-8648.	1.6	72
57	A phase diagram of neutral polyampholyte â€“ from solution to tough hydrogel. Journal of Materials Chemistry B, 2013, 1, 4555.	2.9	71
58	Facile synthesis of novel elastomers with tunable dynamics for toughness, self-healing and adhesion. Journal of Materials Chemistry A, 2019, 7, 17334-17344.	5.2	70
59	Anisotropic Hydrogel from Complexation-Driven Reorientation of Semirigid Polyanion at Ca²⁺ Diffusion Flux Front. Macromolecules, 2011, 44, 3535-3541.	2.2	67
60	Effect of void structure on the toughness of double network hydrogels. Journal of Polymer Science, Part B: Polymer Physics, 2011, 49, 1246-1254.	2.4	67
61	Control superstructure of rigid polyelectrolytes in oppositely charged hydrogels via programmed internal stress. Nature Communications, 2014, 5, 4490.	5.8	64
62	Hydrophobic Hydrogels with Fruitâ€Like Structure and Functions. Advanced Materials, 2019, 31, e1900702.	11.1	64
63	A facile method for synthesizing free-shaped and tough double network hydrogels using physically crosslinked poly(vinyl alcohol) as an internal mold. Polymer Chemistry, 2010, 1, 693.	1.9	62
64	Strain-Induced Molecular Reorientation and Birefringence Reversion of a Robust, Anisotropic Double-Network Hydrogel. Macromolecules, 2011, 44, 3542-3547.	2.2	61
65	Friction of hydrogels with controlled surface roughness on solid flat substrates. Soft Matter, 2014, 10, 3192-3199.	1.2	60
66	Ultrathin tough double network hydrogels showing adjustable muscle-like isometric force generation triggered by solvent. Chemical Communications, 2009, , 7518.	2.2	58
67	Fracture Process of Microgel-Reinforced Hydrogels under Uniaxial Tension. Macromolecules, 2014, 47, 3587-3594.	2.2	55
68	Antifouling activity of synthetic polymer gels against cyprids of the barnacle (<i>Balanus) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 222 Td (	0.8	52
69	Macroscale Double Networks: Design Criteria for Optimizing Strength and Toughness. ACS Applied Materials & Interfaces, 2019, 11, 35343-35353.	4.0	49
70	Phase Separation Behavior in Tough and Self-Healing Polyampholyte Hydrogels. Macromolecules, 2020, 53, 5116-5126.	2.2	49
71	Rapid reprogramming of tumour cells into cancer stem cells on double-network hydrogels. Nature Biomedical Engineering, 2021, 5, 914-925.	11.6	48
72	Friction between like-charged hydrogelsâ€”combined mechanisms of boundary, hydrated and elastohydrodynamic lubrication. Soft Matter, 2009, 5, 1879.	1.2	47

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73	Hydrogels with Cylindrically Symmetric Structure at Macroscopic Scale by Self-Assembly of Semi-rigid Polyion Complex. Journal of the American Chemical Society, 2010, 132, 10064-10069.	6.6	47
74	Stretching-induced ion complexation in physical polyampholyte hydrogels. Soft Matter, 2016, 12, 8833-8840.	1.2	47
75	Tough and Selfâ€Recoverable Thin Hydrogel Membranes for Biological Applications. Advanced Functional Materials, 2018, 28, 1801489.	7.8	47
76	Antifouling properties of tough gels against barnacles in a long-term marine environment experiment. Biofouling, 2009, 25, 657-666.	0.8	45
77	Direct Observation on the Surface Fracture of Ultrathin Film Double-Network Hydrogels. Macromolecules, 2011, 44, 3016-3020.	2.2	45
78	Artificial cartilage made from a novel doubleâ€network hydrogel: <i>In vivo</i> effects on the normal cartilage and <i>ex vivo</i> evaluation of the friction property. Journal of Biomedical Materials Research - Part A, 2010, 93A, 1160-1168.	2.1	44
79	Creep Behavior and Delayed Fracture of Tough Polyampholyte Hydrogels by Tensile Test. Macromolecules, 2016, 49, 5630-5636.	2.2	42
80	Competition between plasticity-controlled and crack-growth controlled failure in static and cyclic fatigue of thermoplastic polymer systems. Polymer Testing, 2016, 50, 101-110.	2.3	42
81	Effect of Structure Heterogeneity on Mechanical Performance of Physical Polyampholytes Hydrogels. Macromolecules, 2019, 52, 7369-7378.	2.2	42
82	Sliding Friction of Zwitterionic Hydrogel and Its Electrostatic Origin. Macromolecules, 2014, 47, 3101-3107.	2.2	41
83	Anisotropic Growth of Hydroxyapatite in Stretched Double Network Hydrogel. ACS Nano, 2017, 11, 12103-12110.	7.3	41
84	Preparation of Tough Double- and Triple-Network Supermacroporous Hydrogels through Repeated Cryogelation. Chemistry of Materials, 2020, 32, 8576-8586.	3.2	41
85	Superior fracture resistance of fiber reinforced polyampholyte hydrogels achieved by extraordinarily large energy-dissipative process zones. Journal of Materials Chemistry A, 2019, 7, 13431-13440.	5.2	40
86	Effect of Relative Strength of Two Networks on the Internal Fracture Process of Double Network Hydrogels As Revealed by <i>in Situ</i> Small-Angle X-ray Scattering. Macromolecules, 2020, 53, 1154-1163.	2.2	40
87	Substrate Effect on Topographical, Elastic, and Frictional Properties of Hydrogels. Macromolecules, 2002, 35, 8161-8166.	2.2	39
88	Tough polyion-complex hydrogels from soft to stiff controlled by monomer structure. Polymer, 2017, 116, 487-497.	1.8	38
89	Friction of a soft hydrogel on rough solid substrates. Soft Matter, 2008, 4, 1645.	1.2	37
90	Quantitative Observation of Electric Potential Distribution of Brittle Polyelectrolyte Hydrogels Using Microelectrode Technique. Macromolecules, 2016, 49, 3100-3108.	2.2	37

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91	Elasticâ€"Plastic Transformation of Polyelectrolyte Complex Hydrogels from Chitosan and Sodium Hyaluronate. Macromolecules, 2018, 51, 8887-8898.	2.2	37
92	Effect of mesoscale phase contrast on fatigue-delaying behavior of self-healing hydrogels. Science Advances, 2021, 7, .	4.7	37
93	Nanophase Separation in Immiscible Double Network Elastomers Induces Synergetic Strengthening, Toughening, and Fatigue Resistance. Chemistry of Materials, 2021, 33, 3321-3334.	3.2	37
94	Tear Velocity Dependence of High-Strength Double Network Gels in Comparison with Fast and Slow Relaxation Modes Observed by Scanning Microscopic Light Scattering. Macromolecules, 2008, 41, 7173-7178.	2.2	36
95	Tough Double-Network Gels and Elastomers from the Nonprestretched First Network. ACS Macro Letters, 2019, 8, 1407-1412.	2.3	36
96	Hydroxyapatite-coated double network hydrogel directly bondable to the bone: Biological and biomechanical evaluations of the bonding property in an osteochondral defect. Acta Biomaterialia, 2016, 44, 125-134.	4.1	35
97	Chitin-Based Double-Network Hydrogel as Potential Superficial Soft-Tissue-Repairing Materials. Biomacromolecules, 2020, 21, 4220-4230.	2.6	35
98	Polymer Adsorbed Bilayer Membranes Form Self-Healing Hydrogels with Tunable Superstructure. Macromolecules, 2015, 48, 2277-2282.	2.2	34
99	Decoupling dual-stimuli responses in patterned lamellar hydrogels as photonic sensors. Journal of Materials Chemistry B, 2016, 4, 4104-4109.	2.9	34
100	Double network hydrogels based on semi-rigid polyelectrolyte physical networks. Journal of Materials Chemistry B, 2019, 7, 6347-6354.	2.9	34
101	Designing Responsive Photonic Crystal Patterns by Using Laser Engraving. ACS Applied Materials & Interfaces, 2019, 11, 10841-10847.	4.0	34
102	Novel Developed Systems and Techniques Based on Double-Network Principle. Bulletin of the Chemical Society of Japan, 2011, 84, 1295-1311.	2.0	33
103	Induction of Spontaneous Hyaline Cartilage Regeneration Using a Double-Network Gel. American Journal of Sports Medicine, 2011, 39, 1160-1169.	1.9	31
104	Stress Relaxation and Underlying Structure Evolution in Tough and Self-Healing Hydrogels. ACS Macro Letters, 2020, 9, 1582-1589.	2.3	31
105	Toughness Enhancement and Stickâ€"Slip Tearing of Double-Network Hydrogels in Poly(ethylene glycol) Solution. Macromolecules, 2012, 45, 4758-4763.	2.2	29
106	Water-Triggered Ductileâ€"Brittle Transition of Anisotropic Lamellar Hydrogels and Effect of Confinement on Polymer Dynamics. Macromolecules, 2017, 50, 8169-8177.	2.2	29
107	In situ observation of a hydrogelâ€"glass interface during sliding friction. Soft Matter, 2014, 10, 5589-5596.	1.2	27
108	Swim bladder collagen forms hydrogel with macroscopic superstructure by diffusion induced fast gelation. Journal of Materials Chemistry B, 2015, 3, 7658-7666.	2.9	27

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109	Polyelectrolyte complexation <i>via</i> viscoelastic phase separation results in tough and self-recovering porous hydrogels. Journal of Materials Chemistry B, 2019, 7, 5296-5305.	2.9	27
110	Effect of Surface Roughness of Hydrophobic Substrate on Heterogeneous Polymerization of Hydrogels. Journal of Physical Chemistry B, 2002, 106, 3073-3081.	1.2	26
111	Dual Network Formation in Polyelectrolyte Hydrogel via Viscoelastic Phase Separation: Role of Ionic Strength and Polymerization Kinetics. Macromolecules, 2010, 43, 8202-8208.	2.2	26
112	Acrylamide Polymer Double-Network Hydrogels. Cartilage, 2011, 2, 374-383.	1.4	26
113	Spontaneous hyaline cartilage regeneration can be induced in an osteochondral defect created in the femoral condyle using a novel double-network hydrogel. BMC Musculoskeletal Disorders, 2011, 12, 49.	0.8	26
114	Polyzwitterions as a Versatile Building Block of Tough Hydrogels: From Polyelectrolyte Complex Gels to Double-Network Gels. ACS Applied Materials & Interfaces, 2020, 12, 50068-50076.	4.0	26
115	Surface charge dominated protein absorption on hydrogels. Soft Matter, 2020, 16, 1897-1907.	1.2	26
116	Inhibitory Effects of Hydrogels on the Adhesion, Germination, and Development of Zoospores Originating from Laminaria angustata. Macromolecular Bioscience, 2002, 2, 163.	2.1	25
117	SUPER TOUGH GELS WITH A DOUBLE NETWORK STRUCTURE. Chinese Journal of Polymer Science (English) Tj ETQq1 1 0.784314 rgBT /	2.0	25
118	Fabrication of Tough Hydrogel Composites from Photoresponsive Polymers to Show Double-Network Effect. ACS Applied Materials & Interfaces, 2019, 11, 37139-37146.	4.0	24
119	Swelling-induced long-range ordered structure formation in polyelectrolyte hydrogel. Soft Matter, 2012, 8, 8060.	1.2	22
120	Fundamental biomaterial properties of tough glycosaminoglycan-containing double network hydrogels newly developed using the molecular stent method. Acta Biomaterialia, 2016, 43, 38-49.	4.1	22
121	Micro patterning of hydroxyapatite by soft lithography on hydrogels for selective osteoconduction. Acta Biomaterialia, 2018, 81, 60-69.	4.1	22
122	Spontaneous Redifferentiation of Dedifferentiated Human Articular Chondrocytes on Hydrogel Surfaces. Tissue Engineering - Part A, 2010, 16, 2529-2540.	1.6	21
123	Long-term in situ observation of barnacle growth on soft substrates with different elasticity and wettability. Soft Matter, 2011, 7, 7281.	1.2	21
124	Molecular mechanism of abnormally large nonsoftening deformation in a tough hydrogel. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	21
125	Dynamic Behavior and Spontaneous Differentiation of Mouse Embryoid Bodies on Hydrogel Substrates of Different Surface Charge and Chemical Structures. Tissue Engineering - Part A, 2011, 17, 2343-2357.	1.6	20
126	Gene expression profile of the cartilage tissue spontaneously regenerated in vivo by using a novel double-network gel: Comparisons with the normal articular cartilage. BMC Musculoskeletal Disorders, 2011, 12, 213.	0.8	20

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127	Supramolecular Assemblies of a Semirigid Polyanion in Aqueous Solutions. Macromolecules, 2013, 46, 3581-3586.	2.2	20
128	In SituObservation of Ca2+Diffusion-Induced Superstructure Formation of a Rigid Polyanion. Macromolecules, 2014, 47, 7208-7214.	2.2	20
129	Coupled instabilities of surface crease and bulk bending during fast free swelling of hydrogels. Soft Matter, 2016, 12, 5081-5088.	1.2	20
130	Supramolecular hydrogels with multi-cylindrical lamellar bilayers: Swelling-induced contraction and anisotropic molecular diffusion. Polymer, 2017, 128, 373-378.	1.8	20
131	Tough double network elastomers reinforced by the amorphous cellulose network. Polymer, 2019, 178, 121686.	1.8	20
132	Facile preparation of cellulose hydrogel with Achilles tendon-like super strength through aligning hierarchical fibrous structure. Chemical Engineering Journal, 2022, 428, 132040.	6.6	20
133	Gene expression, glycocalyx assay, and surface properties of human endothelial cells cultured on hydrogel matrix with sulfonic moiety: Effect of elasticity of hydrogel. Journal of Biomedical Materials Research - Part A, 2010, 95A, 531-542.	2.1	19
134	Effect of Hyaluronan Solution on Dynamic Friction of PVA Gel Sliding on Weakly Adhesive Glass Substrate. Macromolecules, 2011, 44, 8908-8915.	2.2	19
135	Anisotropic Double-Network Hydrogels via Controlled Orientation of a Physical Sacrificial Network. ACS Applied Polymer Materials, 2020, 2, 2350-2358.	2.0	19
136	<i>In vivo</i> cartilage regeneration induced by a doubleâ€network hydrogel: Evaluation of a novel therapeutic strategy for femoral articular cartilage defects in a sheep model. Journal of Biomedical Materials Research - Part A, 2016, 104, 2159-2165.	2.1	18
137	Tough and Variable-Band-Gap Photonic Hydrogel Displaying Programmable Angle-Dependent Colors. ACS Omega, 2018, 3, 55-62.	1.6	18
138	Modulation and Characterization of the Double Network Hydrogel Surface-Bulk Transition. Macromolecules, 2019, 52, 6704-6713.	2.2	18
139	Effect of the constituent networks of double-network gels on their mechanical properties and energy dissipation process. Soft Matter, 2020, 16, 8618-8627.	1.2	18
140	Geometric and Edge Effects on Swelling-Induced Ordered Structure Formation in Polyelectrolyte Hydrogels. Macromolecules, 2013, 46, 9083-9090.	2.2	17
141	Effects of osteochondral defect size on cartilage regeneration using a double-network hydrogel. BMC Musculoskeletal Disorders, 2017, 18, 210.	0.8	17
142	High strength hydrogels enable dendrite-free Zn metal anodes and high-capacity Znâ€“MnO₂ batteries <i>via</i> a modified mechanical suppression effect. Journal of Materials Chemistry A, 2022, 10, 3122-3133.	5.2	17
143	Brittle, ductile, paste-like behaviors and distinct necking of double network gels with enhanced heterogeneity. Journal of Physics: Conference Series, 2009, 184, 012016.	0.3	16
144	Surfactant-induced friction reduction for hydrogels in the boundary lubrication regime. Journal of Physics Condensed Matter, 2011, 23, 284107.	0.7	16

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145	Double-network acrylamide hydrogel compositions adapted to achieve cartilage-like dynamic stiffness. Biomechanics and Modeling in Mechanobiology, 2013, 12, 243-248.	1.4	16
146	Hydrogels as feeder-free scaffolds for long-term self-renewal of mouse induced pluripotent stem cells. Journal of Tissue Engineering and Regenerative Medicine, 2015, 9, 375-388.	1.3	15
147	Joint immobilization inhibits spontaneous hyaline cartilage regeneration induced by a novel double-network gel implantation. Journal of Materials Science: Materials in Medicine, 2011, 22, 417-425.	1.7	14
148	Intra-articular administration of hyaluronic acid increases the volume of the hyaline cartilage regenerated in a large osteochondral defect by implantation of a double-network gel. Journal of Materials Science: Materials in Medicine, 2014, 25, 1173-1182.	1.7	14
149	Quasi-unidirectional shrinkage of gels with well-oriented lipid bilayers upon uniaxial stretching. Soft Matter, 2015, 11, 237-240.	1.2	14
150	Unique crack propagation of double network hydrogels under high stretch. Extreme Mechanics Letters, 2022, 51, 101588.	2.0	14
151	Hydrogels with a macroscopic-scale liquid crystal structure by self-assembly of a semi-rigid polyion complex. Polymer Journal, 2012, 44, 503-511.	1.3	13
152	Poly(2â€acrylamidoâ€2â€methylpropanesulfonic acid) gel induces articular cartilage regeneration <i>in vivo</i>: Comparisons of the induction ability between singleâ€and doubleâ€network gels. Journal of Biomedical Materials Research - Part A, 2012, 100A, 2244-2251.	2.1	13
153	Hyaluronic acid enhances the effect of the PAMPS/PDMAAm double-network hydrogel on chondrogenic differentiation of ATDC5 cells. BMC Musculoskeletal Disorders, 2014, 15, 222.	0.8	12
154	Relaxation Dynamics and Underlying Mechanism of a Thermally Reversible Gel from Symmetric Triblock Copolymer. Macromolecules, 2019, 52, 8651-8661.	2.2	12
155	How chain dynamics affects crack initiation in double-network gels. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	12
156	First Observation of Stickâˆ'Slip Instability in Tearing of Poly(vinyl alcohol) Gel Sheets. Macromolecules, 2009, 42, 5425-5426.	2.2	11
157	Study on the Sliding Friction of Endothelial Cells Cultured on Hydrogel and the Role of Glycocalyx on Friction Reduction. Advanced Engineering Materials, 2010, 12, B628.	1.6	11
158	Synthetic <scp>PAMPS</scp> gel activates <scp>BMP</scp>/Smad signaling pathway in <scp>ATDC</scp>5 cells, which plays a significant role in the gelâ€induced chondrogenic differentiation. Journal of Biomedical Materials Research - Part A, 2016, 104, 734-746.	2.1	11
159	Double-network gels as polyelectrolyte gels with salt-insensitive swelling properties. Soft Matter, 2020, 16, 5487-5496.	1.2	11
160	Tiny yet tough: Maximizing the toughness of fiber-reinforced soft composites in the absence of a fiber-fracture mechanism. Matter, 2021, 4, 3646-3661.	5.0	11
161	Hydrogel with cubic-packed giant concentric domains of semi-rigid polyion complex. Soft Matter, 2011, 7, 1884.	1.2	10
162	Hyaluronic acid affects the in vitro induction effects of Synthetic PAMPS and PDMAAm hydrogels on chondrogenic differentiation of ATDC5 cells, depending on the level of concentration. BMC Musculoskeletal Disorders, 2013, 14, 56.	0.8	10

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163	Influence of the gel thickness on in vivo hyaline cartilage regeneration induced by double-network gel implanted at the bottom of a large osteochondral defect: Short-term results. BMC Musculoskeletal Disorders, 2013, 14, 50.	0.8	10
164	Prolonged morphometric study of barnacles grown on soft substrata of hydrogels and elastomers. Biofouling, 2014, 30, 271-279.	0.8	10
165	Friction of Zwitterionic Hydrogel by Dynamic Polymer Adsorption. Macromolecules, 2015, 48, 5394-5401.	2.2	10
166	Molecular structure and properties of click hydrogels with controlled dangling end defect. Journal of Polymer Science, Part B: Polymer Physics, 2016, 54, 1227-1236.	2.4	10
167	Internal Damage Evolution in Double-Network Hydrogels Studied by Microelectrode Technique. Macromolecules, 2019, 52, 7114-7122.	2.2	10
168	Tuning Mechanical Properties of Chondroitin Sulfateâ€<scp>B</scp>ased Doubleâ€<scp>N</scp>etwork Hydrogels. Macromolecular Symposia, 2013, 329, 9-18.	0.4	9
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170	Toughening of Hydrogels with Double Network Structure. E-Journal of Surface Science and Nanotechnology, 2005, 3, 8-11.	0.1	8
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