

# Takayuki Kurokawa

## List of Publications by Citations

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194  
papers

13,649  
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55  
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200  
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15,601  
ext. citations

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#	Paper	IF	Citations
194	Double-Network Hydrogels with Extremely High Mechanical Strength. <i>Advanced Materials</i> , <b>2003</b> , 15, 1155-1158	24	2799
193	Physical hydrogels composed of polyampholytes demonstrate high toughness and viscoelasticity. <i>Nature Materials</i> , <b>2013</b> , 12, 932-7	27	1264
192	Super tough double network hydrogels and their application as biomaterials. <i>Polymer</i> , <b>2012</b> , 53, 1805-1820	3.9	488
191	Oppositely charged polyelectrolytes form tough, self-healing, and rebuildable hydrogels. <i>Advanced Materials</i> , <b>2015</b> , 27, 2722-7	24	439
190	Tough Physical Double-Network Hydrogels Based on Amphiphilic Triblock Copolymers. <i>Advanced Materials</i> , <b>2016</b> , 28, 4884-90	24	328
189	Lamellar Bilayers as Reversible Sacrificial Bonds To Toughen Hydrogel: Hysteresis, Self-Recovery, Fatigue Resistance, and Crack Blunting. <i>Macromolecules</i> , <b>2011</b> , 44, 8916-8924	5.5	282
188	Determination of fracture energy of high strength double network hydrogels. <i>Journal of Physical Chemistry B</i> , <b>2005</b> , 109, 11559-62	3.4	239
187	True Chemical Structure of Double Network Hydrogels. <i>Macromolecules</i> , <b>2009</b> , 42, 2184-2189	5.5	222
186	Microgel-Reinforced Hydrogel Films with High Mechanical Strength and Their Visible Mesoscale Fracture Structure. <i>Macromolecules</i> , <b>2011</b> , 44, 7775-7781	5.5	214
185	Unidirectional alignment of lamellar bilayer in hydrogel: one-dimensional swelling, anisotropic modulus, and stress/strain tunable structural color. <i>Advanced Materials</i> , <b>2010</b> , 22, 5110-4	24	210
184	Synthesis of hydrogels with extremely low surface friction. <i>Journal of the American Chemical Society</i> , <b>2001</b> , 123, 5582-3	16.4	190
183	Structural Characteristics of Double Network Gels with Extremely High Mechanical Strength. <i>Macromolecules</i> , <b>2004</b> , 37, 5370-5374	5.5	180
182	Double-Network Hydrogels Strongly Bondable to Bones by Spontaneous Osteogenesis Penetration. <i>Advanced Materials</i> , <b>2016</b> , 28, 6740-5	24	174
181	Mechano-actuated ultrafast full-colour switching in layered photonic hydrogels. <i>Nature Communications</i> , <b>2014</b> , 5, 4659	17.4	165
180	Characterization of internal fracture process of double network hydrogels under uniaxial elongation. <i>Soft Matter</i> , <b>2013</b> , 9, 1955-1966	3.6	161
179	Effect of polymer entanglement on the toughening of double network hydrogels. <i>Journal of Physical Chemistry B</i> , <b>2005</b> , 109, 16304-9	3.4	154
178	Tough Hydrogels with Fast, Strong, and Reversible Underwater Adhesion Based on a Multiscale Design. <i>Advanced Materials</i> , <b>2018</b> , 30, e1801884	24	154

177	Self-Healing Behaviors of Tough Polyampholyte Hydrogels. <i>Macromolecules</i> , <b>2016</b> , 49, 4245-4252	5.5	151
176	A Facile Method to Fabricate Anisotropic Hydrogels with Perfectly Aligned Hierarchical Fibrous Structures. <i>Advanced Materials</i> , <b>2018</b> , 30, 1704937	24	149
175	Direct Observation of Damage Zone around Crack Tips in Double-Network Gels. <i>Macromolecules</i> , <b>2009</b> , 42, 3852-3855	5.5	143
174	Mechanically Strong Hydrogels with Ultra-Low Frictional Coefficients. <i>Advanced Materials</i> , <b>2005</b> , 17, 535-538	24	143
173	A Universal Molecular Stent Method to Toughen any Hydrogels Based on Double Network Concept. <i>Advanced Functional Materials</i> , <b>2012</b> , 22, 4426-4432	15.6	141
172	A novel double-network hydrogel induces spontaneous articular cartilage regeneration in vivo in a large osteochondral defect. <i>Macromolecular Bioscience</i> , <b>2009</b> , 9, 307-16	5.5	135
171	Proteoglycans and glycosaminoglycans improve toughness of biocompatible double network hydrogels. <i>Advanced Materials</i> , <b>2014</b> , 26, 436-42	24	127
170	Self-Adjustable Adhesion of Polyampholyte Hydrogels. <i>Advanced Materials</i> , <b>2015</b> , 27, 7344-8	24	127
169	Lamellar hydrogels with high toughness and ternary tunable photonic stop-band. <i>Advanced Materials</i> , <b>2013</b> , 25, 3106-10	24	124
168	Adjacent cationic-aromatic sequences yield strong electrostatic adhesion of hydrogels in seawater. <i>Nature Communications</i> , <b>2019</b> , 10, 5127	17.4	106
167	Structure Optimization and Mechanical Model for Microgel-Reinforced Hydrogels with High Strength and Toughness. <i>Macromolecules</i> , <b>2012</b> , 45, 5218-5228	5.5	105
166	Crack Blunting and Advancing Behaviors of Tough and Self-healing Polyampholyte Hydrogel. <i>Macromolecules</i> , <b>2014</b> , 47, 6037-6046	5.5	99
165	Yielding Criteria of Double Network Hydrogels. <i>Macromolecules</i> , <b>2016</b> , 49, 1865-1872	5.5	95
164	Phase-Separation-Induced Anomalous Stiffening, Toughening, and Self-Healing of Polyacrylamide Gels. <i>Advanced Materials</i> , <b>2015</b> , 27, 6990-8	24	93
163	Brittle-Ductile transition of double network hydrogels: Mechanical balance of two networks as the key factor. <i>Polymer</i> , <b>2014</b> , 55, 914-923	3.9	92
162	Water-Induced Brittle-Ductile Transition of Double Network Hydrogels. <i>Macromolecules</i> , <b>2010</b> , 43, 9495-9500	5.5	92
161	Double network hydrogels from polyzwitterions: high mechanical strength and excellent anti-biofouling properties. <i>Journal of Materials Chemistry B</i> , <b>2013</b> , 1, 3685-3693	7.3	91
160	Double-Network Strategy Improves Fracture Properties of Chondroitin Sulfate Networks.. <i>ACS Macro Letters</i> , <b>2013</b> , 2, 137-140	6.6	86

159	Rapid and Reversible Tuning of Structural Color of a Hydrogel over the Entire Visible Spectrum by Mechanical Stimulation. <i>Chemistry of Materials</i> , <b>2011</b> , 23, 5200-5207	9.6	86
158	Extremely tough composites from fabric reinforced polyampholyte hydrogels. <i>Materials Horizons</i> , <b>2015</b> , 2, 584-591	14.4	85
157	Energy-Dissipative Matrices Enable Synergistic Toughening in Fiber Reinforced Soft Composites. <i>Advanced Functional Materials</i> , <b>2017</b> , 27, 1605350	15.6	84
156	Robust bonding and one-step facile synthesis of tough hydrogels with desirable shape by virtue of the double network structure. <i>Polymer Chemistry</i> , <b>2011</b> , 2, 575-580	4.9	84
155	Anisotropic tough double network hydrogel from fish collagen and its spontaneous in vivo bonding to bone. <i>Biomaterials</i> , <b>2017</b> , 132, 85-95	15.6	81
154	Synthesis and Fracture Process Analysis of Double Network Hydrogels with a Well-Defined First Network.. <i>ACS Macro Letters</i> , <b>2013</b> , 2, 518-521	6.6	79
153	Molecular structure of self-healing polyampholyte hydrogels analyzed from tensile behaviors. <i>Soft Matter</i> , <b>2015</b> , 11, 9355-66	3.6	78
152	Bulk Energy Dissipation Mechanism for the Fracture of Tough and Self-Healing Hydrogels. <i>Macromolecules</i> , <b>2017</b> , 50, 2923-2931	5.5	76
151	Strong and Tough Polyion-Complex Hydrogels from Oppositely Charged Polyelectrolytes: A Comparative Study with Polyampholyte Hydrogels. <i>Macromolecules</i> , <b>2016</b> , 49, 2750-2760	5.5	73
150	Free Reprocessability of Tough and Self-Healing Hydrogels Based on Polyion Complex. <i>ACS Macro Letters</i> , <b>2015</b> , 4, 961-964	6.6	72
149	Localized Yielding Around Crack Tips of Double-Network Gels. <i>Macromolecular Rapid Communications</i> , <b>2008</b> , 29, 1514-1520	4.8	69
148	Anisotropic hydrogel based on bilayers: color, strength, toughness, and fatigue resistance. <i>Soft Matter</i> , <b>2012</b> , 8, 8008	3.6	66
147	High Fracture Efficiency and Stress Concentration Phenomenon for Microgel-Reinforced Hydrogels Based on Double-Network Principle. <i>Macromolecules</i> , <b>2012</b> , 45, 9445-9451	5.5	64
146	Elastic-hydrodynamic transition of gel friction. <i>Langmuir</i> , <b>2005</b> , 21, 8643-8	4	64
145	Creating Stiff, Tough, and Functional Hydrogel Composites with Low-Melting-Point Alloys. <i>Advanced Materials</i> , <b>2018</b> , 30, e1706885	24	63
144	Multiscale Energy Dissipation Mechanism in Tough and Self-Healing Hydrogels. <i>Physical Review Letters</i> , <b>2018</b> , 121, 185501	7.4	63
143	A phase diagram of neutral polyampholyte - from solution to tough hydrogel. <i>Journal of Materials Chemistry B</i> , <b>2013</b> , 1, 4555-4562	7.3	62
142	Formation of a strong hydrogel-porous solid interface via the double-network principle. <i>Acta Biomaterialia</i> , <b>2010</b> , 6, 1353-9	10.8	61

141	Anisotropic Hydrogel from Complexation-Driven Reorientation of Semirigid Polyanion at Ca <sup>2+</sup> Diffusion Flux Front. <i>Macromolecules</i> , <b>2011</b> , 44, 3535-3541	5.5	59
140	Control superstructure of rigid polyelectrolytes in oppositely charged hydrogels via programmed internal stress. <i>Nature Communications</i> , <b>2014</b> , 5, 4490	17.4	55
139	A facile method for synthesizing free-shaped and tough double network hydrogels using physically crosslinked poly(vinyl alcohol) as an internal mold. <i>Polymer Chemistry</i> , <b>2010</b> , 1, 693	4.9	54
138	Ultrathin tough double network hydrogels showing adjustable muscle-like isometric force generation triggered by solvent. <i>Chemical Communications</i> , <b>2009</b> , 7518-20	5.8	53
137	Strain-Induced Molecular Reorientation and Birefringence Reversion of a Robust, Anisotropic Double-Network Hydrogel. <i>Macromolecules</i> , <b>2011</b> , 44, 3542-3547	5.5	51
136	Mesoscale bicontinuous networks in self-healing hydrogels delay fatigue fracture. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 7606-7612	11.5	48
135	Effect of void structure on the toughness of double network hydrogels. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , <b>2011</b> , 49, 1246-1254	2.6	47
134	Tough Particle-Based Double Network Hydrogels for Functional Solid Surface Coatings. <i>Advanced Materials Interfaces</i> , <b>2018</b> , 5, 1801018	4.6	46
133	Fracture Process of Microgel-Reinforced Hydrogels under Uniaxial Tension. <i>Macromolecules</i> , <b>2014</b> , 47, 3587-3594	5.5	45
132	Antifouling activity of synthetic polymer gels against cyprids of the barnacle ( <i>Balanus amphitrite</i> ) in vitro. <i>Biofouling</i> , <b>2009</b> , 25, 313-20	3.3	45
131	Friction of hydrogels with controlled surface roughness on solid flat substrates. <i>Soft Matter</i> , <b>2014</b> , 10, 3192-9	3.6	43
130	Hydrogels with cylindrically symmetric structure at macroscopic scale by self-assembly of semi-rigid polyion complex. <i>Journal of the American Chemical Society</i> , <b>2010</b> , 132, 10064-9	16.4	43
129	Friction between like-charged hydrogels combined mechanisms of boundary, hydrated and elastohydrodynamic lubrication. <i>Soft Matter</i> , <b>2009</b> , 5, 1879	3.6	40
128	Hydrophobic Hydrogels with Fruit-Like Structure and Functions. <i>Advanced Materials</i> , <b>2019</b> , 31, e1900702	24	39
127	Direct Observation on the Surface Fracture of Ultrathin Film Double-Network Hydrogels. <i>Macromolecules</i> , <b>2011</b> , 44, 3016-3020	5.5	39
126	Facile synthesis of novel elastomers with tunable dynamics for toughness, self-healing and adhesion. <i>Journal of Materials Chemistry A</i> , <b>2019</b> , 7, 17334-17344	13	37
125	Substrate Effect on Topographical, Elastic, and Frictional Properties of Hydrogels. <i>Macromolecules</i> , <b>2002</b> , 35, 8161-8166	5.5	37
124	Hydrogels as dynamic memory with forgetting ability. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2020</b> , 117, 18962-18968	11.5	37

123	Anisotropic Growth of Hydroxyapatite in Stretched Double Network Hydrogel. <i>ACS Nano</i> , <b>2017</b> , 11, 12106-12110	3.1	35
122	Fiber-Reinforced Viscoelastomers Show Extraordinary Crack Resistance That Exceeds Metals. <i>Advanced Materials</i> , <b>2020</b> , 32, e1907180	24	35
121	Antifouling properties of tough gels against barnacles in a long-term marine environment experiment. <i>Biofouling</i> , <b>2009</b> , 25, 657-66	3.3	35
120	Stretching-induced ion complexation in physical polyampholyte hydrogels. <i>Soft Matter</i> , <b>2016</b> , 12, 8833-8840	9.6	34
119	Macroscale Double Networks: Design Criteria for Optimizing Strength and Toughness. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2019</b> , 11, 35343-35353	9.5	33
118	Competition between plasticity-controlled and crack-growth controlled failure in static and cyclic fatigue of thermoplastic polymer systems. <i>Polymer Testing</i> , <b>2016</b> , 50, 101-110	4.5	33
117	Sliding Friction of Zwitterionic Hydrogel and Its Electrostatic Origin. <i>Macromolecules</i> , <b>2014</b> , 47, 3101-3107	5.5	32
116	Tear Velocity Dependence of High-Strength Double Network Gels in Comparison with Fast and Slow Relaxation Modes Observed by Scanning Microscopic Light Scattering. <i>Macromolecules</i> , <b>2008</b> , 41, 7173-7178	5.5	32
115	Tough and Self-Recoverable Thin Hydrogel Membranes for Biological Applications. <i>Advanced Functional Materials</i> , <b>2018</b> , 28, 1801489	15.6	31
114	Hydroxyapatite-coated double network hydrogel directly bondable to the bone: Biological and biomechanical evaluations of the bonding property in an osteochondral defect. <i>Acta Biomaterialia</i> , <b>2016</b> , 44, 125-34	10.8	30
113	Friction of a soft hydrogel on rough solid substrates. <i>Soft Matter</i> , <b>2008</b> , 4, 1645-1652	3.6	30
112	Creep Behavior and Delayed Fracture of Tough Polyampholyte Hydrogels by Tensile Test. <i>Macromolecules</i> , <b>2016</b> , 49, 5630-5636	5.5	30
111	Tough polyion-complex hydrogels from soft to stiff controlled by monomer structure. <i>Polymer</i> , <b>2017</b> , 116, 487-497	3.9	29
110	Induction of spontaneous hyaline cartilage regeneration using a double-network gel: efficacy of a novel therapeutic strategy for an articular cartilage defect. <i>American Journal of Sports Medicine</i> , <b>2011</b> , 39, 1160-9	6.8	29
109	Novel Developed Systems and Techniques Based on Double-Network Principle. <i>Bulletin of the Chemical Society of Japan</i> , <b>2011</b> , 84, 1295-1311	5.1	29
108	Effect of Structure Heterogeneity on Mechanical Performance of Physical Polyampholytes Hydrogels. <i>Macromolecules</i> , <b>2019</b> , 52, 7369-7378	5.5	28
107	Effect of Relative Strength of Two Networks on the Internal Fracture Process of Double Network Hydrogels As Revealed by in Situ Small-Angle X-ray Scattering. <i>Macromolecules</i> , <b>2020</b> , 53, 1154-1163	5.5	27
106	Superior fracture resistance of fiber reinforced polyampholyte hydrogels achieved by extraordinarily large energy-dissipative process zones. <i>Journal of Materials Chemistry A</i> , <b>2019</b> , 7, 13431-13440	13.4	26

105	Decoupling dual-stimuli responses in patterned lamellar hydrogels as photonic sensors. <i>Journal of Materials Chemistry B</i> , <b>2016</b> , 4, 4104-4109	7.3	26
104	Phase Separation Behavior in Tough and Self-Healing Polyampholyte Hydrogels. <i>Macromolecules</i> , <b>2020</b> , 53, 5116-5126	5.5	25
103	Quantitative Observation of Electric Potential Distribution of Brittle Polyelectrolyte Hydrogels Using Microelectrode Technique. <i>Macromolecules</i> , <b>2016</b> , 49, 3100-3108	5.5	25
102	Artificial cartilage made from a novel double-network hydrogel: In vivo effects on the normal cartilage and ex vivo evaluation of the friction property. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2010</b> , 93, 1160-8	5.4	25
101	Polymer Adsorbed Bilayer Membranes Form Self-Healing Hydrogels with Tunable Superstructure. <i>Macromolecules</i> , <b>2015</b> , 48, 2277-2282	5.5	23
100	Tough Double-Network Gels and Elastomers from the Nonprestretched First Network. <i>ACS Macro Letters</i> , <b>2019</b> , 8, 1407-1412	6.6	23
99	Toughness Enhancement and Stick-Slip Tearing of Double-Network Hydrogels in Poly(ethylene glycol) Solution. <i>Macromolecules</i> , <b>2012</b> , 45, 4758-4763	5.5	23
98	Spontaneous hyaline cartilage regeneration can be induced in an osteochondral defect created in the femoral condyle using a novel double-network hydrogel. <i>BMC Musculoskeletal Disorders</i> , <b>2011</b> , 12, 49	2.8	23
97	SUPER TOUGH GELS WITH A DOUBLE NETWORK STRUCTURE. <i>Chinese Journal of Polymer Science (English Edition)</i> , <b>2009</b> , 27, 1	3.5	23
96	Inhibitory Effects of Hydrogels on the Adhesion, Germination, and Development of Zoospores Originating from <i>Laminaria angustata</i> . <i>Macromolecular Bioscience</i> , <b>2002</b> , 2, 163	5.5	23
95	Dual Network Formation in Polyelectrolyte Hydrogel via Viscoelastic Phase Separation: Role of Ionic Strength and Polymerization Kinetics. <i>Macromolecules</i> , <b>2010</b> , 43, 8202-8208	5.5	22
94	Acrylamide Polymer Double-Network Hydrogels: Candidate Cartilage Repair Materials with Cartilage-Like Dynamic Stiffness and Attractive Surgery-Related Attachment Mechanics. <i>Cartilage</i> , <b>2011</b> , 2, 374-83	3	21
93	Effect of Surface Roughness of Hydrophobic Substrate on Heterogeneous Polymerization of Hydrogels. <i>Journal of Physical Chemistry B</i> , <b>2002</b> , 106, 3073-3081	3.4	21
92	Swim bladder collagen forms hydrogel with macroscopic superstructure by diffusion induced fast gelation. <i>Journal of Materials Chemistry B</i> , <b>2015</b> , 3, 7658-7666	7.3	20
91	Preparation of Tough Double- and Triple-Network Supermacroporous Hydrogels through Repeated Cryogelation. <i>Chemistry of Materials</i> , <b>2020</b> , 32, 8576-8586	9.6	20
90	Water-Triggered Ductile-Brittle Transition of Anisotropic Lamellar Hydrogels and Effect of Confinement on Polymer Dynamics. <i>Macromolecules</i> , <b>2017</b> , 50, 8169-8177	5.5	19
89	In situ observation of a hydrogel-glass interface during sliding friction. <i>Soft Matter</i> , <b>2014</b> , 10, 5589-96	3.6	19
88	Swelling-induced long-range ordered structure formation in polyelectrolyte hydrogel. <i>Soft Matter</i> , <b>2012</b> , 8, 8060	3.6	19

87	Spontaneous redifferentiation of dedifferentiated human articular chondrocytes on hydrogel surfaces. <i>Tissue Engineering - Part A</i> , <b>2010</b> , 16, 2529-40	3.9	19
86	Long-term in situ observation of barnacle growth on soft substrates with different elasticity and wettability. <i>Soft Matter</i> , <b>2011</b> , 7, 7281	3.6	19
85	Designing Responsive Photonic Crystal Patterns by Using Laser Engraving. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2019</b> , 11, 10841-10847	9.5	19
84	Fundamental biomaterial properties of tough glycosaminoglycan-containing double network hydrogels newly developed using the molecular stent method. <i>Acta Biomaterialia</i> , <b>2016</b> , 43, 38-49	10.8	18
83	Double network hydrogels based on semi-rigid polyelectrolyte physical networks. <i>Journal of Materials Chemistry B</i> , <b>2019</b> , 7, 6347-6354	7.3	18
82	Dynamic behavior and spontaneous differentiation of mouse embryoid bodies on hydrogel substrates of different surface charge and chemical structures. <i>Tissue Engineering - Part A</i> , <b>2011</b> , 17, 2343-57	3.9	18
81	Gene expression profile of the cartilage tissue spontaneously regenerated in vivo by using a novel double-network gel: comparisons with the normal articular cartilage. <i>BMC Musculoskeletal Disorders</i> , <b>2011</b> , 12, 213	2.8	18
80	Gene expression, glycocalyx assay, and surface properties of human endothelial cells cultured on hydrogel matrix with sulfonic moiety: Effect of elasticity of hydrogel. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2010</b> , 95, 531-42	5.4	18
79	Polyelectrolyte complexation via viscoelastic phase separation results in tough and self-recovering porous hydrogels. <i>Journal of Materials Chemistry B</i> , <b>2019</b> , 7, 5296-5305	7.3	17
78	Supramolecular Assemblies of a Semirigid Polyanion in Aqueous Solutions. <i>Macromolecules</i> , <b>2013</b> , 46, 3581-3586	5.5	17
77	Geometric and Edge Effects on Swelling-Induced Ordered Structure Formation in Polyelectrolyte Hydrogels. <i>Macromolecules</i> , <b>2013</b> , 46, 9083-9090	5.5	17
76	Rapid reprogramming of tumour cells into cancer stem cells on double-network hydrogels. <i>Nature Biomedical Engineering</i> , <b>2021</b> , 5, 914-925	19	17
75	In vivo cartilage regeneration induced by a double-network hydrogel: Evaluation of a novel therapeutic strategy for femoral articular cartilage defects in a sheep model. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2016</b> , 104, 2159-65	5.4	16
74	Effect of mesoscale phase contrast on fatigue-delaying behavior of self-healing hydrogels. <i>Science Advances</i> , <b>2021</b> , 7,	14.3	16
73	Coupled instabilities of surface crease and bulk bending during fast free swelling of hydrogels. <i>Soft Matter</i> , <b>2016</b> , 12, 5081-8	3.6	16
72	Surface charge dominated protein absorption on hydrogels. <i>Soft Matter</i> , <b>2020</b> , 16, 1897-1907	3.6	15
71	Tough double network elastomers reinforced by the amorphous cellulose network. <i>Polymer</i> , <b>2019</b> , 178, 121686	3.9	15
70	In Situ Observation of Ca <sup>2+</sup> Diffusion-Induced Superstructure Formation of a Rigid Polyanion. <i>Macromolecules</i> , <b>2014</b> , 47, 7208-7214	5.5	15



69	Brittle, ductile, paste-like behaviors and distinct necking of double network gels with enhanced heterogeneity. <i>Journal of Physics: Conference Series</i> , <b>2009</b> , 184, 012016	0.3	15
68	Stress Relaxation and Underlying Structure Evolution in Tough and Self-Healing Hydrogels. <i>ACS Macro Letters</i> , <b>2020</b> , 9, 1582-1589	6.6	15
67	Micro patterning of hydroxyapatite by soft lithography on hydrogels for selective osteoconduction. <i>Acta Biomaterialia</i> , <b>2018</b> , 81, 60-69	10.8	15
66	Fabrication of Tough Hydrogel Composites from Photoresponsive Polymers to Show Double-Network Effect. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2019</b> , 11, 37139-37146	9.5	14
65	Effects of osteochondral defect size on cartilage regeneration using a double-network hydrogel. <i>BMC Musculoskeletal Disorders</i> , <b>2017</b> , 18, 210	2.8	14
64	Elastic-Plastic Transformation of Polyelectrolyte Complex Hydrogels from Chitosan and Sodium Hyaluronate. <i>Macromolecules</i> , <b>2018</b> , 51, 8887-8898	5.5	14
63	Double-network acrylamide hydrogel compositions adapted to achieve cartilage-like dynamic stiffness. <i>Biomechanics and Modeling in Mechanobiology</i> , <b>2013</b> , 12, 243-8	3.8	13
62	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. <i>Journal of Materials Science: Materials in Medicine</i> , <b>2014</b> , 25, 1173-82	4.5	13
61	Joint immobilization inhibits spontaneous hyaline cartilage regeneration induced by a novel double-network gel implantation. <i>Journal of Materials Science: Materials in Medicine</i> , <b>2011</b> , 22, 417-25	4.5	13
60	Effect of Hyaluronan Solution on Dynamic Friction of PVA Gel Sliding on Weakly Adhesive Glass Substrate. <i>Macromolecules</i> , <b>2011</b> , 44, 8908-8915	5.5	13
59	Nanophase Separation in Immiscible Double Network Elastomers Induces Synergetic Strengthening, Toughening, and Fatigue Resistance. <i>Chemistry of Materials</i> , <b>2021</b> , 33, 3321-3334	9.6	13
58	Hyaluronic acid enhances the effect of the PAMPS/PDMAAm double-network hydrogel on chondrogenic differentiation of ATDC5 cells. <i>BMC Musculoskeletal Disorders</i> , <b>2014</b> , 15, 222	2.8	12
57	Poly(2-acrylamido-2-methylpropanesulfonic acid) gel induces articular cartilage regeneration in vivo: comparisons of the induction ability between single- and double-network gels. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2012</b> , 100, 2244-51	5.4	12
56	Modulation and Characterization of the Double Network Hydrogel Surface-Bulk Transition. <i>Macromolecules</i> , <b>2019</b> , 52, 6704-6713	5.5	11
55	Hydrogels as feeder-free scaffolds for long-term self-renewal of mouse induced pluripotent stem cells. <i>Journal of Tissue Engineering and Regenerative Medicine</i> , <b>2015</b> , 9, 375-88	4.4	11
54	Anisotropic Double-Network Hydrogels via Controlled Orientation of a Physical Sacrificial Network. <i>ACS Applied Polymer Materials</i> , <b>2020</b> , 2, 2350-2358	4.3	11
53	Relaxation Dynamics and Underlying Mechanism of a Thermally Reversible Gel from Symmetric Triblock Copolymer. <i>Macromolecules</i> , <b>2019</b> , 52, 8651-8661	5.5	11
52	Quasi-unidirectional shrinkage of gels with well-oriented lipid bilayers upon uniaxial stretching. <i>Soft Matter</i> , <b>2015</b> , 11, 237-40	3.6	11

51	First Observation of Stick-Slip Instability in Tearing of Poly(vinyl alcohol) Gel Sheets. <i>Macromolecules</i> , <b>2009</b> , 42, 5425-5426	5.5	11
50	Surfactant-induced friction reduction for hydrogels in the boundary lubrication regime. <i>Journal of Physics Condensed Matter</i> , <b>2011</b> , 23, 284107	1.8	11
49	Polyzwitterions as a Versatile Building Block of Tough Hydrogels: From Polyelectrolyte Complex Gels to Double-Network Gels. <i>ACS Applied Materials &amp; Interfaces</i> , <b>2020</b> , 12, 50068-50076	9.5	11
48	Supramolecular hydrogels with multi-cylindrical lamellar bilayers: Swelling-induced contraction and anisotropic molecular diffusion. <i>Polymer</i> , <b>2017</b> , 128, 373-378	3.9	10
47	Tough and Variable-Band-Gap Photonic Hydrogel Displaying Programmable Angle-Dependent Colors. <i>ACS Omega</i> , <b>2018</b> , 3, 55-62	3.9	10
46	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. <i>BMC Musculoskeletal Disorders</i> , <b>2013</b> , 14, 50	2.8	10
45	Prolonged morphometric study of barnacles grown on soft substrata of hydrogels and elastomers. <i>Biofouling</i> , <b>2014</b> , 30, 271-9	3.3	10
44	Hydrogels with a macroscopic-scale liquid crystal structure by self-assembly of a semi-rigid polyion complex. <i>Polymer Journal</i> , <b>2012</b> , 44, 503-511	2.7	10
43	Hydrogel with cubic-packed giant concentric domains of semi-rigid polyion complex. <i>Soft Matter</i> , <b>2011</b> , 7, 1884	3.6	10
42	Chitin-Based Double-Network Hydrogel as Potential Superficial Soft-Tissue-Repairing Materials. <i>Biomacromolecules</i> , <b>2020</b> , 21, 4220-4230	6.9	10
41	Molecular mechanism of abnormally large nonsoftening deformation in a tough hydrogel. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2021</b> , 118,	11.5	10
40	Synthetic PAMPS gel activates BMP/Smad signaling pathway in ATDC5 cells, which plays a significant role in the gel-induced chondrogenic differentiation. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2016</b> , 104, 734-746	5.4	9
39	Tuning Mechanical Properties of Chondroitin Sulfate-Based Double-Network Hydrogels. <i>Macromolecular Symposia</i> , <b>2013</b> , 329, 9-18	0.8	9
38	Study on the Sliding Friction of Endothelial Cells Cultured on Hydrogel and the Role of Glycocalyx on Friction Reduction. <i>Advanced Engineering Materials</i> , <b>2010</b> , 12, B628-B636	3.5	9
37	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. <i>BMC Musculoskeletal Disorders</i> , <b>2013</b> , 14, 56	2.8	8
36	Friction of Zwitterionic Hydrogel by Dynamic Polymer Adsorption. <i>Macromolecules</i> , <b>2015</b> , 48, 5394-5401	5.5	8
35	Molecular structure and properties of click hydrogels with controlled dangling end defect. <i>Journal of Polymer Science, Part B: Polymer Physics</i> , <b>2016</b> , 54, 1227-1236	2.6	8
34	Effects of culture on PAMPS/PDMAAm double-network gel on chondrogenic differentiation of mouse C3H10T1/2 cells: in vitro experimental study. <i>BMC Musculoskeletal Disorders</i> , <b>2014</b> , 15, 320	2.8	7

33	Effect of the constituent networks of double-network gels on their mechanical properties and energy dissipation process. <i>Soft Matter</i> , <b>2020</b> , 16, 8618-8627	3.6	7
32	Internal Damage Evolution in Double-Network Hydrogels Studied by Microelectrode Technique. <i>Macromolecules</i> , <b>2019</b> , 52, 7114-7122	5.5	6
31	Tough Triblock Copolymer Hydrogels with Different Micromorphologies for Medical and Sensory Materials. <i>ACS Applied Polymer Materials</i> , <b>2019</b> , 1, 1948-1953	4.3	6
30	Creation of Double Network Hydrogels with Extremely High Strength and Its Anomalous Fracture Mechanism. <i>Kobunshi Ronbunshu</i> , <b>2008</b> , 65, 707-715	0	6
29	Toughening of Hydrogels with Double Network Structure. <i>E-Journal of Surface Science and Nanotechnology</i> , <b>2005</b> , 3, 8-11	0.7	6
28	Osteochondral Autograft Transplantation Technique Augmented by an Ultrapurified Alginate Gel Enhances Osteochondral Repair in a Rabbit Model. <i>American Journal of Sports Medicine</i> , <b>2019</b> , 47, 468-478	6.8	6
27	Significant increase in Young's modulus of ATDC5 cells during chondrogenic differentiation induced by PAMPS/PDMAAm double-network gel: comparison with induction by insulin. <i>Journal of Biomechanics</i> , <b>2014</b> , 47, 3408-14	2.9	5
26	Lamellar/nicelle transition in a hydrogel induced by polyethylene glycol grafting. <i>Soft Matter</i> , <b>2013</b> , 9, 5223	3.6	5
25	Facile preparation of cellulose hydrogel with Achilles tendon-like super strength through aligning hierarchical fibrous structure. <i>Chemical Engineering Journal</i> , <b>2022</b> , 428, 132040	14.7	5
24	Double-network gels as polyelectrolyte gels with salt-insensitive swelling properties. <i>Soft Matter</i> , <b>2020</b> , 16, 5487-5496	3.6	4
23	Lamellar Bilayer to Fibril Structure Transformation of Tough Photonic Hydrogel under Elongation. <i>Macromolecules</i> , <b>2020</b> , 53, 4711-4721	5.5	4
22	How chain dynamics affects crack initiation in double-network gels. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2021</b> , 118,	11.5	4
21	Non-linear rheological study of hydrogel sliding friction in water and concentrated hyaluronan solution. <i>Tribology International</i> , <b>2020</b> , 147, 106270	4.9	3
20	Hydrogels: A Facile Method to Fabricate Anisotropic Hydrogels with Perfectly Aligned Hierarchical Fibrous Structures (Adv. Mater. 9/2018). <i>Advanced Materials</i> , <b>2018</b> , 30, 1870060	24	3
19	Experimental Verification of the Balance between Elastic Pressure and Ionic Osmotic Pressure of Highly Swollen Charged Gels. <i>Gels</i> , <b>2021</b> , 7,	4.2	3
18	Integrin $\alpha$ mediates ATDC5 cell adhesion to negatively charged synthetic polymer hydrogel leading to chondrogenic differentiation. <i>Biochemical and Biophysical Research Communications</i> , <b>2020</b> , 528, 120-126	3.4	2
17	High strength hydrogels enable dendrite-free Zn metal anodes and high-capacity Zn/MnO <sub>2</sub> batteries via a modified mechanical suppression effect. <i>Journal of Materials Chemistry A</i> , <b>2022</b> , 10, 3122-3133	13.33	2
16	Bactericidal effect of cationic hydrogels prepared from hydrophilic polymers. <i>Journal of Applied Polymer Science</i> , <b>2020</b> , 137, 49583	2.9	2

15	Flower-like Photonic Hydrogel with Superstructure Induced via Modulated Shear Field.. <i>ACS Macro Letters</i> , <b>2021</b> , 10, 708-713	6.6	2
14	Tiny yet tough: Maximizing the toughness of fiber-reinforced soft composites in the absence of a fiber-fracture mechanism. <i>Matter</i> , <b>2021</b> ,	12.7	2
13	Shearing-induced contact pattern formation in hydrogels sliding in polymer solution. <i>Soft Matter</i> , <b>2019</b> , 15, 1953-1959	3.6	1
12	Hydrophobic Hydrogels: Hydrophobic Hydrogels with Fruit-Like Structure and Functions (Adv. Mater. 25/2019). <i>Advanced Materials</i> , <b>2019</b> , 31, 1970177	24	1
11	Tough Bacterial Nanocellulose Hydrogels Based on the Double-Network Technique <b>2016</b> , 73-89		1
10	Optical and Mechanical Properties of a Hydrogel Based on Lamellar Bilayers. <i>Kobunshi Ronbunshu</i> , <b>2013</b> , 70, 309-316	0	1
9	Unique crack propagation of double network hydrogels under high stretch. <i>Extreme Mechanics Letters</i> , <b>2022</b> , 51, 101588	3.9	1
8	Fast in vivo fixation of double network hydrogel to bone by monetite surface hybridization. <i>Journal of the Ceramic Society of Japan</i> , <b>2021</b> , 129, 584-589	1	1
7	In Situ Evaluation of the Polymer Concentration Distribution of Microphase-Separated Polyelectrolyte Hydrogels by the Microelectrode Technique. <i>Macromolecules</i> , <b>2021</b> , 54, 10776-10785	5.5	1
6	Synthetic poly(2-acrylamido-2-methylpropanesulfonic acid) gel induces chondrogenic differentiation of ATDC5 cells via a novel protein reservoir function. <i>Journal of Biomedical Materials Research - Part A</i> , <b>2021</b> , 109, 354-364	5.4	0
5	Stimuli-Responsive Transformation of a Gradient Gel. <i>Kobunshi Ronbunshu</i> , <b>2017</b> , 74, 311-318	0	
4	Hydrogel Membranes: Tough and Self-Recoverable Thin Hydrogel Membranes for Biological Applications (Adv. Funct. Mater. 31/2018). <i>Advanced Functional Materials</i> , <b>2018</b> , 28, 1870218	15.6	
3	Solvent and Ca <sup>2+</sup> triggered robust and fast stress generation by ultrathin triple-network hydrogels. <i>Extreme Mechanics Letters</i> , <b>2014</b> , 1, 17-22	3.9	
2	Tough Double-Network Hydrogels as Scaffolds for Tissue Engineering. <i>Advances in Bioinformatics and Biomedical Engineering Book Series</i> , 213-222	0.4	
1	Surface of Gel as the Extremely Low Friction Material. <i>Oleoscience</i> , <b>2001</b> , 1, 929-934,926	0.1	