Takayuki Kurokawa

List of Publications by Year in Descending Order

194 papers	13,649 citations	55 h-index	113 g-index
200 ext. papers	15,601 ext. citations	7.8 avg, IF	6.5 L-index

#	Paper	IF	Citations
194	High strength hydrogels enable dendrite-free Zn metal anodes and high-capacity Zn MnO2 batteries via a modified mechanical suppression effect. *Journal of Materials Chemistry A*, **2022**, 10, 3122-3133	13	2
193	Unique crack propagation of double network hydrogels under high stretch. *Extreme Mechanics Letters*, **2022**, 51, 101588	3.9	1
192	Facile preparation of cellulose hydrogel with Achilles tendon-like super strength through aligning hierarchical fibrous structure. *Chemical Engineering Journal*, **2022**, 428, 132040	14.7	5
191	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,	11.5	4
190	Rapid reprogramming of tumour cells into cancer stem cells on double-network hydrogels. *Nature Biomedical Engineering*, **2021**, 5, 914-925	19	17
189	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,	11.5	10
188	Effect of mesoscale phase contrast on fatigue-delaying behavior of self-healing hydrogels. *Science Advances*, **2021**, 7,	14.3	16
187	Experimental Verification of the Balance between Elastic Pressure and Ionic Osmotic Pressure of Highly Swollen Charged Gels. *Gels*, **2021**, 7,	4.2	3
186	Nanophase Separation in Immiscible Double Network Elastomers Induces Synergetic Strengthening, Toughening, and Fatigue Resistance. *Chemistry of Materials*, **2021**, 33, 3321-3334	9.6	13
185	Flower-like Photonic Hydrogel with Superstructure Induced via Modulated Shear Field.. *ACS Macro Letters*, **2021**, 10, 708-713	6.6	2
184	Synthetic poly(2-acrylamido-2-methylpropanesulfonic acid) gel induces chondrogenic differentiation of ATDC5 cells via a novel protein reservoir function. *Journal of Biomedical Materials Research - Part A*, **2021**, 109, 354-364	5.4	0
183	Fast in vivo fixation of double network hydrogel to bone by monetite surface hybridization. *Journal of the Ceramic Society of Japan*, **2021**, 129, 584-589	1	1
182	Tiny yet tough: Maximizing the toughness of fiber-reinforced soft composites in the absence of a fiber-fracture mechanism. *Matter*, **2021**,	12.7	2
181	In Situ Evaluation of the Polymer Concentration Distribution of Microphase-Separated Polyelectrolyte Hydrogels by the Microelectrode Technique. *Macromolecules*, **2021**, 54, 10776-10785	5.5	1
180	Anisotropic Double-Network Hydrogels via Controlled Orientation of a Physical Sacrificial Network. *ACS Applied Polymer Materials*, **2020**, 2, 2350-2358	4.3	11
179	Double-network gels as polyelectrolyte gels with salt-insensitive swelling properties. *Soft Matter*, **2020**, 16, 5487-5496	3.6	4
178	Integrin 4 mediates ATDC5 cell adhesion to negatively charged synthetic polymer hydrogel leading to chondrogenic differentiation. *Biochemical and Biophysical Research Communications*, **2020**, 528, 120-126	3.4	2

177	Lamellar Bilayer to Fibril Structure Transformation of Tough Photonic Hydrogel under Elongation. *Macromolecules*, **2020**, 53, 4711-4721	5.5	4
176	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	11.5	48
175	Fiber-Reinforced Viscoelastomers Show Extraordinary Crack Resistance That Exceeds Metals. *Advanced Materials*, **2020**, 32, e1907180	24	35
174	Phase Separation Behavior in Tough and Self-Healing Polyampholyte Hydrogels. *Macromolecules*, **2020**, 53, 5116-5126	5.5	25
173	Non-linear rheological study of hydrogel sliding friction in water and concentrated hyaluronan solution. *Tribology International*, **2020**, 147, 106270	4.9	3
172	Surface charge dominated protein absorption on hydrogels. *Soft Matter*, **2020**, 16, 1897-1907	3.6	15
171	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. *Macromolecules*, **2020**, 53, 1154-1163	5.5	27
170	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	9.5	11
169	Stress Relaxation and Underlying Structure Evolution in Tough and Self-Healing Hydrogels. *ACS Macro Letters*, **2020**, 9, 1582-1589	6.6	15
168	Bactericidal effect of cationic hydrogels prepared from hydrophilic polymers. *Journal of Applied Polymer Science*, **2020**, 137, 49583	2.9	2
167	Effect of the constituent networks of double-network gels on their mechanical properties and energy dissipation process. *Soft Matter*, **2020**, 16, 8618-8627	3.6	7
166	Hydrogels as dynamic memory with forgetting ability. *Proceedings of the National Academy of Sciences of the United States of America*, **2020**, 117, 18962-18968	11.5	37
165	Preparation of Tough Double- and Triple-Network Supermacroporous Hydrogels through Repeated Cryogelation. *Chemistry of Materials*, **2020**, 32, 8576-8586	9.6	20
164	Chitin-Based Double-Network Hydrogel as Potential Superficial Soft-Tissue-Repairing Materials. *Biomacromolecules*, **2020**, 21, 4220-4230	6.9	10
163	Modulation and Characterization of the Double Network Hydrogel Surface-Bulk Transition. *Macromolecules*, **2019**, 52, 6704-6713	5.5	11
162	Macroscale Double Networks: Design Criteria for Optimizing Strength and Toughness. *ACS Applied Materials & Interfaces*, **2019**, 11, 35343-35353	9.5	33
161	Internal Damage Evolution in Double-Network Hydrogels Studied by Microelectrode Technique. *Macromolecules*, **2019**, 52, 7114-7122	5.5	6
160	Fabrication of Tough Hydrogel Composites from Photoresponsive Polymers to Show Double-Network Effect. *ACS Applied Materials & Interfaces*, **2019**, 11, 37139-37146	9.5	14

159	Effect of Structure Heterogeneity on Mechanical Performance of Physical Polyampholytes Hydrogels. *Macromolecules*, **2019**, 52, 7369-7378	5.5	28
158	Shearing-induced contact pattern formation in hydrogels sliding in polymer solution. *Soft Matter*, **2019**, 15, 1953-1959	3.6	1
157	Hydrophobic Hydrogels: Hydrophobic Hydrogels with Fruit-Like Structure and Functions (Adv. Mater. 25/2019). *Advanced Materials*, **2019**, 31, 1970177	24	1
156	Facile synthesis of novel elastomers with tunable dynamics for toughness, self-healing and adhesion. *Journal of Materials Chemistry A*, **2019**, 7, 17334-17344	13	37
155	Hydrophobic Hydrogels with Fruit-Like Structure and Functions. *Advanced Materials*, **2019**, 31, e1900702	24	39
154	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	13	26
153	Tough double network elastomers reinforced by the amorphous cellulose network. *Polymer*, **2019**, 178, 121686	3.9	15
152	Polyelectrolyte complexation via viscoelastic phase separation results in tough and self-recovering porous hydrogels. *Journal of Materials Chemistry B*, **2019**, 7, 5296-5305	7.3	17
151	Double network hydrogels based on semi-rigid polyelectrolyte physical networks. *Journal of Materials Chemistry B*, **2019**, 7, 6347-6354	7.3	18
150	Tough Triblock Copolymer Hydrogels with Different Micromorphologies for Medical and Sensory Materials. *ACS Applied Polymer Materials*, **2019**, 1, 1948-1953	4.3	6
149	Tough Double-Network Gels and Elastomers from the Nonprestretched First Network. *ACS Macro Letters*, **2019**, 8, 1407-1412	6.6	23
148	Relaxation Dynamics and Underlying Mechanism of a Thermally Reversible Gel from Symmetric Triblock Copolymer. *Macromolecules*, **2019**, 52, 8651-8661	5.5	11
147	Adjacent cationic-aromatic sequences yield strong electrostatic adhesion of hydrogels in seawater. *Nature Communications*, **2019**, 10, 5127	17.4	106
146	Designing Responsive Photonic Crystal Patterns by Using Laser Engraving. *ACS Applied Materials & Interfaces*, **2019**, 11, 10841-10847	9.5	19
145	Osteochondral Autograft Transplantation Technique Augmented by an Ultrapurified Alginate Gel Enhances Osteochondral Repair in a Rabbit Model. *American Journal of Sports Medicine*, **2019**, 47, 468-478	6.8	6
144	Hydrogels: A Facile Method to Fabricate Anisotropic Hydrogels with Perfectly Aligned Hierarchical Fibrous Structures (Adv. Mater. 9/2018). *Advanced Materials*, **2018**, 30, 1870060	24	3
143	A Facile Method to Fabricate Anisotropic Hydrogels with Perfectly Aligned Hierarchical Fibrous Structures. *Advanced Materials*, **2018**, 30, 1704937	24	149
142	Tough and Variable-Band-Gap Photonic Hydrogel Displaying Programmable Angle-Dependent Colors. *ACS Omega*, **2018**, 3, 55-62	3.9	10

141	Creating Stiff, Tough, and Functional Hydrogel Composites with Low-Melting-Point Alloys. *Advanced Materials*, **2018**, 30, e1706885	24	63
140	Hydrogel Membranes: Tough and Self-Recoverable Thin Hydrogel Membranes for Biological Applications (Adv. Funct. Mater. 31/2018). *Advanced Functional Materials*, **2018**, 28, 1870218	15.6	
139	Tough and Self-Recoverable Thin Hydrogel Membranes for Biological Applications. *Advanced Functional Materials*, **2018**, 28, 1801489	15.6	31
138	Micro patterning of hydroxyapatite by soft lithography on hydrogels for selective osteoconduction. *Acta Biomaterialia*, **2018**, 81, 60-69	10.8	15
137	Tough Particle-Based Double Network Hydrogels for Functional Solid Surface Coatings. *Advanced Materials Interfaces*, **2018**, 5, 1801018	4.6	46
136	Elastic-Plastic Transformation of Polyelectrolyte Complex Hydrogels from Chitosan and Sodium Hyaluronate. *Macromolecules*, **2018**, 51, 8887-8898	5.5	14
135	Multiscale Energy Dissipation Mechanism in Tough and Self-Healing Hydrogels. *Physical Review Letters*, **2018**, 121, 185501	7.4	63
134	Tough Hydrogels with Fast, Strong, and Reversible Underwater Adhesion Based on a Multiscale Design. *Advanced Materials*, **2018**, 30, e1801884	24	154
133	Energy-Dissipative Matrices Enable Synergistic Toughening in Fiber Reinforced Soft Composites. *Advanced Functional Materials*, **2017**, 27, 1605350	15.6	84
132	Supramolecular hydrogels with multi-cylindrical lamellar bilayers: Swelling-induced contraction and anisotropic molecular diffusion. *Polymer*, **2017**, 128, 373-378	3.9	10
131	Tough polyion-complex hydrogels from soft to stiff controlled by monomer structure. *Polymer*, **2017**, 116, 487-497	3.9	29
130	Anisotropic tough double network hydrogel from fish collagen and its spontaneous in vivo bonding to bone. *Biomaterials*, **2017**, 132, 85-95	15.6	81
129	Bulk Energy Dissipation Mechanism for the Fracture of Tough and Self-Healing Hydrogels. *Macromolecules*, **2017**, 50, 2923-2931	5.5	76
128	Anisotropic Growth of Hydroxyapatite in Stretched Double Network Hydrogel. *ACS Nano*, **2017**, 11, 12103-12110	13.7	35
127	Water-Triggered Ductile–Brittle Transition of Anisotropic Lamellar Hydrogels and Effect of Confinement on Polymer Dynamics. *Macromolecules*, **2017**, 50, 8169-8177	5.5	19
126	Stimuli-Responsive Transformation of a Gradient Gel. *Kobunshi Ronbunshu*, **2017**, 74, 311-318	0	
125	Effects of osteochondral defect size on cartilage regeneration using a double-network hydrogel. *BMC Musculoskeletal Disorders*, **2017**, 18, 210	2.8	14
124	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, 125-34	10.8	30

123	Fundamental biomaterial properties of tough glycosaminoglycan-containing double network hydrogels newly developed using the molecular stent method. *Acta Biomaterialia*, **2016**, 43, 38-49	10.8	18
122	Tough Bacterial Nanocellulose Hydrogels Based on the Double-Network Technique **2016**, 73-89		1
121	Synthetic PAMPS gel activates BMP/Smad signaling pathway in ATDC5 cells, which plays a significant role in the gel-induced chondrogenic differentiation. *Journal of Biomedical Materials Research - Part A*, **2016**, 104, 734-746	5.4	9
120	Quantitative Observation of Electric Potential Distribution of Brittle Polyelectrolyte Hydrogels Using Microelectrode Technique. *Macromolecules*, **2016**, 49, 3100-3108	5.5	25
119	Decoupling dual-stimuli responses in patterned lamellar hydrogels as photonic sensors. *Journal of Materials Chemistry B*, **2016**, 4, 4104-4109	7.3	26
118	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. *Journal of Biomedical Materials Research - Part A*, **2016**, 104, 2159-65	5.4	16
117	Tough Physical Double-Network Hydrogels Based on Amphiphilic Triblock Copolymers. *Advanced Materials*, **2016**, 28, 4884-90	24	328
116	Yielding Criteria of Double Network Hydrogels. *Macromolecules*, **2016**, 49, 1865-1872	5.5	95
115	Competition between plasticity-controlled and crack-growth controlled failure in static and cyclic fatigue of thermoplastic polymer systems. *Polymer Testing*, **2016**, 50, 101-110	4.5	33
114	Molecular structure and properties of click hydrogels with controlled dangling end defect. *Journal of Polymer Science, Part B: Polymer Physics*, **2016**, 54, 1227-1236	2.6	8
113	Double-Network Hydrogels Strongly Bondable to Bones by Spontaneous Osteogenesis Penetration. *Advanced Materials*, **2016**, 28, 6740-5	24	174
112	Strong and Tough Polyion-Complex Hydrogels from Oppositely Charged Polyelectrolytes: A Comparative Study with Polyampholyte Hydrogels. *Macromolecules*, **2016**, 49, 2750-2760	5.5	73
111	Self-Healing Behaviors of Tough Polyampholyte Hydrogels. *Macromolecules*, **2016**, 49, 4245-4252	5.5	151
110	Coupled instabilities of surface crease and bulk bending during fast free swelling of hydrogels. *Soft Matter*, **2016**, 12, 5081-8	3.6	16
109	Stretching-induced ion complexation in physical polyampholyte hydrogels. *Soft Matter*, **2016**, 12, 8833-8840	3.6	34
108	Creep Behavior and Delayed Fracture of Tough Polyampholyte Hydrogels by Tensile Test. *Macromolecules*, **2016**, 49, 5630-5636	5.5	30
107	Polymer Adsorbed Bilayer Membranes Form Self-Healing Hydrogels with Tunable Superstructure. *Macromolecules*, **2015**, 48, 2277-2282	5.5	23
106	Oppositely charged polyelectrolytes form tough, self-healing, and rebuildable hydrogels. *Advanced Materials*, **2015**, 27, 2722-7	24	439

105	Molecular structure of self-healing polyampholyte hydrogels analyzed from tensile behaviors. *Soft Matter*, **2015**, 11, 9355-66	3.6	78
104	Extremely tough composites from fabric reinforced polyampholyte hydrogels. *Materials Horizons*, **2015**, 2, 584-591	14.4	85
103	Swim bladder collagen forms hydrogel with macroscopic superstructure by diffusion induced fast gelation. *Journal of Materials Chemistry B*, **2015**, 3, 7658-7666	7.3	20
102	Free Reprocessability of Tough and Self-Healing Hydrogels Based on Polyion Complex. *ACS Macro Letters*, **2015**, 4, 961-964	6.6	72
101	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, 375-88	4.4	11
100	Friction of Zwitterionic Hydrogel by Dynamic Polymer Adsorption. *Macromolecules*, **2015**, 48, 5394-5401	5.5	8
99	Phase-Separation-Induced Anomalous Stiffening, Toughening, and Self-Healing of Polyacrylamide Gels. *Advanced Materials*, **2015**, 27, 6990-8	24	93
98	Self-Adjustable Adhesion of Polyampholyte Hydrogels. *Advanced Materials*, **2015**, 27, 7344-8	24	127
97	Quasi-unidirectional shrinkage of gels with well-oriented lipid bilayers upon uniaxial stretching. *Soft Matter*, **2015**, 11, 237-40	3.6	11
96	Proteoglycans and glycosaminoglycans improve toughness of biocompatible double network hydrogels. *Advanced Materials*, **2014**, 26, 436-42	24	127
95	Brittle□ductile transition of double network hydrogels: Mechanical balance of two networks as the key factor. *Polymer*, **2014**, 55, 914-923	3.9	92
94	Solvent and Ca2+ triggered robust and fast stress generation by ultrathin triple-network hydrogels. *Extreme Mechanics Letters*, **2014**, 1, 17-22	3.9	
93	Fracture Process of Microgel-Reinforced Hydrogels under Uniaxial Tension. *Macromolecules*, **2014**, 47, 3587-3594	5.5	45
92	Friction of hydrogels with controlled surface roughness on solid flat substrates. *Soft Matter*, **2014**, 10, 3192-9	3.6	43
91	In SituObservation of Ca2+Diffusion-Induced Superstructure Formation of a Rigid Polyanion. *Macromolecules*, **2014**, 47, 7208-7214	5.5	15
90	In situ observation of a hydrogel-glass interface during sliding friction. *Soft Matter*, **2014**, 10, 5589-96	3.6	19
89	Control superstructure of rigid polyelectrolytes in oppositely charged hydrogels via programmed internal stress. *Nature Communications*, **2014**, 5, 4490	17.4	55
88	Sliding Friction of Zwitterionic Hydrogel and Its Electrostatic Origin. *Macromolecules*, **2014**, 47, 3101-3107	5.5	32

87	Crack Blunting and Advancing Behaviors of Tough and Self-healing Polyampholyte Hydrogel. *Macromolecules*, **2014**, 47, 6037-6046	5.5	99
86	Hyaluronic acid enhances the effect of the PAMPS/PDMAAm double-network hydrogel on chondrogenic differentiation of ATDC5 cells. *BMC Musculoskeletal Disorders*, **2014**, 15, 222	2.8	12
85	Significant increase in Young's modulus of ATDC5 cells during chondrogenic differentiation induced by PAMPS/PDMAAm double-network gel: comparison with induction by insulin. *Journal of Biomechanics*, **2014**, 47, 3408-14	2.9	5
84	Effects of culture on PAMPS/PDMAAm double-network gel on chondrogenic differentiation of mouse C3H10T1/2 cells: in vitro experimental study. *BMC Musculoskeletal Disorders*, **2014**, 15, 320	2.8	7
83	Prolonged morphometric study of barnacles grown on soft substrata of hydrogels and elastomers. *Biofouling*, **2014**, 30, 271-9	3.3	10
82	Mechano-actuated ultrafast full-colour switching in layered photonic hydrogels. *Nature Communications*, **2014**, 5, 4659	17.4	165
81	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, 1173-82	4.5	13
80	Physical hydrogels composed of polyampholytes demonstrate high toughness and viscoelasticity. *Nature Materials*, **2013**, 12, 932-7	27	1264
79	Double-Network Strategy Improves Fracture Properties of Chondroitin Sulfate Networks.. *ACS Macro Letters*, **2013**, 2, 137-140	6.6	86
78	A phase diagram of neutral polyampholyte - from solution to tough hydrogel. *Journal of Materials Chemistry B*, **2013**, 1, 4555-4562	7.3	62
77	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	2.8	8
76	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	2.8	10
75	Double-network acrylamide hydrogel compositions adapted to achieve cartilage-like dynamic stiffness. *Biomechanics and Modeling in Mechanobiology*, **2013**, 12, 243-8	3.8	13
74	Characterization of internal fracture process of double network hydrogels under uniaxial elongation. *Soft Matter*, **2013**, 9, 1955-1966	3.6	161
73	Lamellar–micelle transition in a hydrogel induced by polyethylene glycol grafting. *Soft Matter*, **2013**, 9, 5223	3.6	5
72	Synthesis and Fracture Process Analysis of Double Network Hydrogels with a Well-Defined First Network.. *ACS Macro Letters*, **2013**, 2, 518-521	6.6	79
71	Double network hydrogels from polyzwitterions: high mechanical strength and excellent anti-biofouling properties. *Journal of Materials Chemistry B*, **2013**, 1, 3685-3693	7.3	91
70	Supramolecular Assemblies of a Semirigid Polyanion in Aqueous Solutions. *Macromolecules*, **2013**, 46, 3581-3586	5.5	17

69	Geometric and Edge Effects on Swelling-Induced Ordered Structure Formation in Polyelectrolyte Hydrogels. *Macromolecules*, **2013**, 46, 9083-9090	5.5	17
68	Tuning Mechanical Properties of Chondroitin Sulfate-Based Double-Network Hydrogels. *Macromolecular Symposia*, **2013**, 329, 9-18	0.8	9
67	Lamellar hydrogels with high toughness and ternary tunable photonic stop-band. *Advanced Materials*, **2013**, 25, 3106-10	24	124
66	Optical and Mechanical Properties of a Hydrogel Based on Lamellar Bilayers. *Kobunshi Ronbunshu*, **2013**, 70, 309-316	0	1
65	Super tough double network hydrogels and their application as biomaterials. *Polymer*, **2012**, 53, 1805-1822	3.9	488
64	High Fracture Efficiency and Stress Concentration Phenomenon for Microgel-Reinforced Hydrogels Based on Double-Network Principle. *Macromolecules*, **2012**, 45, 9445-9451	5.5	64
63	Structure Optimization and Mechanical Model for Microgel-Reinforced Hydrogels with High Strength and Toughness. *Macromolecules*, **2012**, 45, 5218-5228	5.5	105
62	Toughness Enhancement and Stick-Slip Tearing of Double-Network Hydrogels in Poly(ethylene glycol) Solution. *Macromolecules*, **2012**, 45, 4758-4763	5.5	23
61	Hydrogels with a macroscopic-scale liquid crystal structure by self-assembly of a semi-rigid polyion complex. *Polymer Journal*, **2012**, 44, 503-511	2.7	10
60	Anisotropic hydrogel based on bilayers: color, strength, toughness, and fatigue resistance. *Soft Matter*, **2012**, 8, 8008	3.6	66
59	Swelling-induced long-range ordered structure formation in polyelectrolyte hydrogel. *Soft Matter*, **2012**, 8, 8060	3.6	19
58	Poly(2-acrylamido-2-methylpropanesulfonic acid) gel induces articular cartilage regeneration in vivo: comparisons of the induction ability between single- and double-network gels. *Journal of Biomedical Materials Research - Part A*, **2012**, 100, 2244-51	5.4	12
57	A Universal Molecular Stent Method to Toughen any Hydrogels Based on Double Network Concept. *Advanced Functional Materials*, **2012**, 22, 4426-4432	15.6	141
56	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	4.9	84
55	Induction of spontaneous hyaline cartilage regeneration using a double-network gel: efficacy of a novel therapeutic strategy for an articular cartilage defect. *American Journal of Sports Medicine*, **2011**, 39, 1160-9	6.8	29
54	Microgel-Reinforced Hydrogel Films with High Mechanical Strength and Their Visible Mesoscale Fracture Structure. *Macromolecules*, **2011**, 44, 7775-7781	5.5	214
53	Lamellar Bilayers as Reversible Sacrificial Bonds To Toughen Hydrogel: Hysteresis, Self-Recovery, Fatigue Resistance, and Crack Blunting. *Macromolecules*, **2011**, 44, 8916-8924	5.5	282
52	Acrylamide Polymer Double-Network Hydrogels: Candidate Cartilage Repair Materials with Cartilage-Like Dynamic Stiffness and Attractive Surgery-Related Attachment Mechanics. *Cartilage*, **2011**, 2, 374-83	3	21

51	Novel Developed Systems and Techniques Based on Double-Network Principle. *Bulletin of the Chemical Society of Japan*, **2011**, 84, 1295-1311	5.1	29
50	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	2.8	23
49	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, 2343-57	3.9	18
48	Joint immobilization inhibits spontaneous hyaline cartilage regeneration induced by a novel double-network gel implantation. *Journal of Materials Science: Materials in Medicine*, **2011**, 22, 417-25	4.5	13
47	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	2.8	18
46	Effect of void structure on the toughness of double network hydrogels. *Journal of Polymer Science, Part B: Polymer Physics*, **2011**, 49, 1246-1254	2.6	47
45	Long-term in situ observation of barnacle growth on soft substrates with different elasticity and wettability. *Soft Matter*, **2011**, 7, 7281	3.6	19
44	Hydrogel with cubic-packed giant concentric domains of semi-rigid polyion complex. *Soft Matter*, **2011**, 7, 1884	3.6	10
43	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	9.6	86
42	Strain-Induced Molecular Reorientation and Birefringence Reversion of a Robust, Anisotropic Double-Network Hydrogel. *Macromolecules*, **2011**, 44, 3542-3547	5.5	51
41	Effect of Hyaluronan Solution on Dynamic Friction of PVA Gel Sliding on Weakly Adhesive Glass Substrate. *Macromolecules*, **2011**, 44, 8908-8915	5.5	13
40	Direct Observation on the Surface Fracture of Ultrathin Film Double-Network Hydrogels. *Macromolecules*, **2011**, 44, 3016-3020	5.5	39
39	Anisotropic Hydrogel from Complexation-Driven Reorientation of Semirigid Polyanion at Ca2+ Diffusion Flux Front. *Macromolecules*, **2011**, 44, 3535-3541	5.5	59
38	Surfactant-induced friction reduction for hydrogels in the boundary lubrication regime. *Journal of Physics Condensed Matter*, **2011**, 23, 284107	1.8	11
37	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	4.9	54
36	Hydrogels with cylindrically symmetric structure at macroscopic scale by self-assembly of semi-rigid polyion complex. *Journal of the American Chemical Society*, **2010**, 132, 10064-9	16.4	43
35	Water-Induced Brittle-Ductile Transition of Double Network Hydrogels. *Macromolecules*, **2010**, 43, 9495-9500	5.5	92
34	Dual Network Formation in Polyelectrolyte Hydrogel via Viscoelastic Phase Separation: Role of Ionic Strength and Polymerization Kinetics. *Macromolecules*, **2010**, 43, 8202-8208	5.5	22

33	Spontaneous redifferentiation of dedifferentiated human articular chondrocytes on hydrogel surfaces. *Tissue Engineering - Part A*, **2010**, 16, 2529-40	3.9	19
32	Artificial cartilage made from a novel double-network hydrogel: In vivo effects on the normal cartilage and ex vivo evaluation of the friction property. *Journal of Biomedical Materials Research - Part A*, **2010**, 93, 1160-8	5.4	25
31	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**, 95, 531-42	5.4	18
30	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-B636	3.5	9
29	Unidirectional alignment of lamellar bilayer in hydrogel: one-dimensional swelling, anisotropic modulus, and stress/strain tunable structural color. *Advanced Materials*, **2010**, 22, 5110-4	24	210
28	Formation of a strong hydrogel-porous solid interface via the double-network principle. *Acta Biomaterialia*, **2010**, 6, 1353-9	10.8	61
27	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	15
26	A novel double-network hydrogel induces spontaneous articular cartilage regeneration in vivo in a large osteochondral defect. *Macromolecular Bioscience*, **2009**, 9, 307-16	5.5	135
25	First Observation of Stick□Slip Instability in Tearing of Poly(vinyl alcohol) Gel Sheets. *Macromolecules*, **2009**, 42, 5425-5426	5.5	11
24	True Chemical Structure of Double Network Hydrogels. *Macromolecules*, **2009**, 42, 2184-2189	5.5	222
23	Antifouling activity of synthetic polymer gels against cyprids of the barnacle (Balanus amphitrite) in vitro. *Biofouling*, **2009**, 25, 313-20	3.3	45
22	Antifouling properties of tough gels against barnacles in a long-term marine environment experiment. *Biofouling*, **2009**, 25, 657-66	3.3	35
21	Direct Observation of Damage Zone around Crack Tips in Double-Network Gels. *Macromolecules*, **2009**, 42, 3852-3855	5.5	143
20	SUPER TOUGH GELS WITH A DOUBLE NETWORK STRUCTURE. *Chinese Journal of Polymer Science (English Edition)*, **2009**, 27, 1	3.5	23
19	Ultrathin tough double network hydrogels showing adjustable muscle-like isometric force generation triggered by solvent. *Chemical Communications*, **2009**, 7518-20	5.8	53
18	Friction between like-charged hydrogels□ombined mechanisms of boundary, hydrated and elastohydrodynamic lubrication. *Soft Matter*, **2009**, 5, 1879	3.6	40
17	Friction of a soft hydrogel on rough solid substrates. *Soft Matter*, **2008**, 4, 1645-1652	3.6	30
16	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	5.5	32

15	Creation of Double Network Hydrogels with Extremely High Strength and Its Anomalous Fracture Mechanism. *Kobunshi Ronbunshu*, **2008**, 65, 707-715	0	6
14	Localized Yielding Around Crack Tips of Double-Network Gels. *Macromolecular Rapid Communications*, **2008**, 29, 1514-1520	4.8	69
13	Elastic-hydrodynamic transition of gel friction. *Langmuir*, **2005**, 21, 8643-8	4	64
12	Effect of polymer entanglement on the toughening of double network hydrogels. *Journal of Physical Chemistry B*, **2005**, 109, 16304-9	3.4	154
11	Determination of fracture energy of high strength double network hydrogels. *Journal of Physical Chemistry B*, **2005**, 109, 11559-62	3.4	239
10	Mechanically Strong Hydrogels with Ultra-Low Frictional Coefficients. *Advanced Materials*, **2005**, 17, 535-538	24	143
9	Toughening of Hydrogels with Double Network Structure. *E-Journal of Surface Science and Nanotechnology*, **2005**, 3, 8-11	0.7	6
8	Structural Characteristics of Double Network Gels with Extremely High Mechanical Strength. *Macromolecules*, **2004**, 37, 5370-5374	5.5	180
7	Double-Network Hydrogels with Extremely High Mechanical Strength. *Advanced Materials*, **2003**, 15, 1155-1158	24	2799
6	Inhibitory Effects of Hydrogels on the Adhesion, Germination, and Development of Zoospores Originating from Laminaria angustata. *Macromolecular Bioscience*, **2002**, 2, 163	5.5	23
5	Substrate Effect on Topographical, Elastic, and Frictional Properties of Hydrogels. *Macromolecules*, **2002**, 35, 8161-8166	5.5	37
4	Effect of Surface Roughness of Hydrophobic Substrate on Heterogeneous Polymerization of Hydrogels. *Journal of Physical Chemistry B*, **2002**, 106, 3073-3081	3.4	21
3	Synthesis of hydrogels with extremely low surface friction. *Journal of the American Chemical Society* , **2001**, 123, 5582-3	16.4	190
2	Surface of Gel as the Extremely Low Friction Material. *Oleoscience*, **2001**, 1, 929-934,926	0.1	
1	Tough Double-Network Hydrogels as Scaffolds for Tissue Engineering. *Advances in Bioinformatics and Biomedical Engineering Book Series*,213-222	0.4	