Koichi Mayumi

List of Publications by Year
in descending order

60 papers	2,520 citations	218381 26 h-index	197535 49 g-index
63 all docs	63 docs citations	63 times ranked	1929 citing authors

#	Article	IF	Citations
1	Tough hydrogels with rapid self-reinforcement. Science, 2021, 372, 1078-1081.	6.0	343
2	Time Dependent Behavior of a Dual Cross-Link Self-Healing Gel: Theory and Experiments. Macromolecules, 2014, 47, 7243-7250.	2.2	166
3	Stressâ€"Strain Relationship of Highly Stretchable Dual Cross-Link Gels: Separability of Strain and Time Effect. ACS Macro Letters, 2013, 2, 1065-1068.	2.3	164
4	Viscoelastic Properties of Poly(vinyl alcohol) Hydrogels Having Permanent and Transient Cross-Links Studied by Microrheology, Classical Rheometry, and Dynamic Light Scattering. Macromolecules, 2013, 46, 4174-4183.	2.2	154
5	Structure and dynamics of polyrotaxane and slide-ring materials. Polymer, 2010, 51, 959-967.	1.8	125
6	Highly Stretchable and Instantly Recoverable Slide-Ring Gels Consisting of Enzymatically Synthesized Polyrotaxane with Low Host Coverage. Chemistry of Materials, 2018, 30, 5013-5019.	3.2	120
7	Optically transparent, high-toughness elastomer using a polyrotaxane cross-linker as a molecular pulley. Science Advances, 2018, 4, eaat7629.	4.7	114
8	Fracture of dual crosslink gels with permanent and transient crosslinks. Extreme Mechanics Letters, 2016, 6, 52-59.	2.0	87
9	Unusual Fracture Behavior of Slide-Ring Gels with Movable Cross-Links. ACS Macro Letters, 2017, 6, 1409-1413.	2.3	86
10	Mechanics of slide-ring gels: novel entropic elasticity of a topological network formed by ring and string. Soft Matter, 2012, 8, 8179.	1.2	79
11	Mechanics of a Dual Cross-Link Gel with Dynamic Bonds: Steady State Kinetics and Large Deformation Effects. Macromolecules, 2016, 49, 3497-3507.	2.2	74
12	Slide-Ring Cross-Links Mediated Tough Metallosupramolecular Hydrogels with Superior Self-Recoverability. Macromolecules, 2019, 52, 6748-6755.	2.2	68
13	One-Pot Synthesis and Characterization of Polyrotaxaneâ€"Silica Hybrid Aerogel. ACS Macro Letters, 2017, 6, 281-286.	2.3	67
14	Molecular Dynamics of Polyrotaxane in Solution Investigated by Quasi-Elastic Neutron Scattering and Molecular Dynamics Simulation: Sliding Motion of Rings on Polymer. Journal of the American Chemical Society, 2019, 141, 9655-9663.	6.6	50
15	Mechanical properties of supramolecular elastomers prepared from polymer-grafted polyrotaxane. Polymer, 2017, 128, 386-391.	1.8	48
16	Rheology of a dual crosslink self-healing gel: Theory and measurement using parallel-plate torsional rheometry. Journal of Rheology, 2015, 59, 643-665.	1.3	46
17	Concentration-Induced Conformational Change in Linear Polymer Threaded into Cyclic Molecules. Macromolecules, 2008, 41, 6480-6485.	2.2	41
18	Molecular weight dependency of polyrotaxane-cross-linked polymer gel extensibility. Chemical Communications, 2016, 52, 13757-13759.	2.2	41

#	Article	IF	Citations
19	Movable cross-linked elastomer with aligned carbon nanotube/nanofiber as high thermally conductive tough flexible composite. Composites Science and Technology, 2020, 190, 108009.	3.8	41
20	Rheological properties of tough hydrogels based on an associating polymer with permanent and transient crosslinks: Effects of crosslinking density. Journal of Rheology, 2017, 61, 1371-1383.	1.3	36
21	Visualization and Quantitative Evaluation of Toughening Polymer Networks by a Sacrificial Dynamic Cross-Linker with Mechanochromic Properties. ACS Macro Letters, 2020, 9, 1108-1113.	2.3	36
22	Tri-branched gels: Rubbery materials with the lowest branching factor approach the ideal elastic limit. Science Advances, 2022, 8, eabk0010.	4.7	32
23	Ion-Conductive and Elastic Slide-Ring Gel Li Electrolytes Swollen with Ionic Liquid. Electrochimica Acta, 2017, 229, 166-172.	2.6	28
24	Ductile Glass of Polyrotaxane Toughened by Stretch-Induced Intramolecular Phase Separation. ACS Applied Materials & Interfaces, 2017, 9, 32436-32440.	4.0	27
25	Mechanically Interlocked Structure of Polyrotaxane Investigated by Contrast Variation Small-Angle Neutron Scattering. Macromolecules, 2009, 42, 6327-6329.	2.2	26
26	Thermally conductive tough flexible elastomers as composite of slide-ring materials and surface modified boron nitride particles via plasma in solution. Applied Physics Letters, 2018, 112, .	1.5	26
27	Influence of Structural Characteristics on Stretching-Driven Swelling of Polyrotaxane Gels with Movable Cross Links. Macromolecules, 2012, 45, 6733-6740.	2.2	25
28	Sliding Dynamics of Ring on Polymer in Rotaxane: A Coarse-Grained Molecular Dynamics Simulation Study. Macromolecules, 2019, 52, 3787-3793.	2.2	25
29	Softness, Elasticity, and Toughness of Polymer Networks with Slide-Ring Cross-Links. Gels, 2021, 7, 91.	2.1	24
30	Crack propagation resistance of slide-ring gels. Polymer, 2019, 181, 121782.	1.8	23
31	Dynamics of polyrotaxane investigated by neutron spin echo. Physica B: Condensed Matter, 2009, 404, 2600-2602.	1.3	22
32	Molecular Dynamics Simulation and Theoretical Model of Elasticity in Slide-Ring Gels. ACS Macro Letters, 2020, 9, 1280-1285.	2.3	22
33	Highly Transparent and Tough Filler Composite Elastomer Inspired by the Cornea. , 2020, 2, 325-330.		21
34	Applicability of a particularly simple model to nonlinear elasticity of slide-ring gels with movable cross-links as revealed by unequal biaxial deformation. Journal of Chemical Physics, 2014, 141, 134906.	1.2	19
35	Direct Observation of Large Deformation and Fracture Behavior at the Crack Tip of Slide-Ring Gel. Journal of the Electrochemical Society, 2019, 166, B3143-B3147.	1.3	19
36	Dynamic lightâ€scattering measurement of sieving polymer solutions for protein separation on SDS CE. Electrophoresis, 2009, 30, 3607-3612.	1.3	18

#	Article	IF	Citations
37	Synthesis, structure, and mechanical properties of silica nanocomposite polyrotaxane gels. Beilstein Journal of Organic Chemistry, 2015, 11, 2194-2201.	1.3	16
38	Viscoelastic relaxation attributed to the molecular dynamics of polyrotaxane confined in an epoxy resin network. Polymer Journal, 2020, 52, 1211-1221.	1.3	14
39	Drastic Change of Mechanical Properties of Polyrotaxane Bulk: ABAâ€“BAB Sequence Change Depending on Ring Position. ACS Macro Letters, 2019, 8, 140-144.	2.3	13
40	Fabrication of flexible porous slide-ring polymer/carbon nanofiber composite elastomer by simultaneous freeze-casting and cross-linking reaction with dimethyl sulfoxide. Composites Science and Technology, 2021, 215, 109028.	3.8	12
41	The static structure of polyrotaxane in solution investigated by contrast variation small-angle neutron scattering. Polymer Journal, 2011, 43, 155-163.	1.3	11
42	Effect of movable crosslinking points on mechanical properties in composite materials of large amount of plasma-surface-modified boron nitride and slide-ring elastomer. Composites Science and Technology, 2021, 216, 109036.	3.8	11
43	Development of High Thermally Conductive Flexible Elastomer as a Composite Material of Slide-Ring Material and Plasma-Surface-Modified Boron Nitride Particles: Effect of Plasma-Surface Modification of Boron Nitride Particles. Nippon Kinzoku Gakkaishi/Journal of the Japan Institute of Metals, 2018, 82, 403-407.	0.2	10
44	Efficient mechanical toughening of polylactic acid without substantial decreases in stiffness and transparency by the reactive grafting of polyrotaxanes. Journal of Inclusion Phenomena and Macrocyclic Chemistry, 2019, 93, 107-116.	0.9	10
45	Molecular dynamics and structure of polyrotaxane in solution. Polymer Journal, 2021, 53, 581-586.	1.3	9
46	Crack velocity dependent toughness of polyrotaxane networks: The sliding dynamics of rings on polymer under stretching. Mechanics of Materials, 2021, 156, 103784.	1.7	9
47	Theory of volume phase transition of slide-ring gels. Reactive and Functional Polymers, 2013, 73, 904-910.	2.0	8
48	Mechanical and scratch behaviors of <scp>polyrotaxaneâ€•modified</scp> poly(methyl methacrylate). Journal of Applied Polymer Science, 2021, 138, 51237.	1.3	8
49	Slide-Ring Material/Highly Dispersed Graphene Oxide Composite with Mechanical Strength and Tunable Electrical Conduction as a Stretchable-Base Substrate. ACS Applied Materials & Interfaces, 2020, 12, 47911-47920.	4.0	7
50	Fracture Behavior of Polyrotaxane-Toughened Poly(Methyl Methacrylate). Langmuir, 2022, 38, 2335-2345.	1.6	7
51	Static and dynamic light scattering studies on dilute polyrotaxane solutions. Journal of Physics: Conference Series, 2009, 184, 012018.	0.3	6
52	Fabrication of polyrotaxane and graphene nanoplate composites with high thermal conductivities. Polymer Composites, 2021, 42, 5556-5563.	2.3	6
53	High-yield one-pot synthesis of polyrotaxanes with tunable well-defined threading ratios over a wide range. RSC Advances, 2022, 12, 3796-3800.	1.7	5
54	Buffers to suppress sodium dodecyl sulfate adsorption to polyethylene oxide for protein separation on capillary polymer electrophoresis. Electrophoresis, 2011, 32, 448-454.	1.3	4

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55	Ionic transport and mechanical properties of slide-ring gel swollen with Mg-ion electrolytes. Ionics, 2020, 26, 255-261.	1.2	4
56	Mechanical properties of slide-ring materials for dielectric elastomer actuators. , 2019, , .		3
57	Mechanical and Fracture Properties of Dynamically Cross-Linked Polymer Gels and Elastomers with Molecular Necklaces. Nihon Reoroji Gakkaishi, 2019, 47, 43-49.	0.2	1
58	Mechanical and Fracture Properties of Dynamically Cross-Linked Polymeric Materials. Nihon Reoroji Gakkaishi, 2021, 49, 295-301.	0.2	1
59	Mechanical Properties of Self-Recovery Tough Gels with Permanent and Reversible Crosslinks. Kobunshi Ronbunshu, 2015, 72, 597-605.	0.2	0
60	Towards Restarting of SANS-U and iNSE. Hamon, 2021, 31, 22-23.	0.0	0