Patrick T Mather

List of Publications by Year
in descending order

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138 papers	13,877 citations	18482 62 h-index	20358 116 g-index
139 all docs	139 docs citations	139 times ranked	9737 citing authors

#	Article	IF	Citations
1	Review of progress in shape-memory polymers. Journal of Materials Chemistry, 2007, 17, 1543.	6.7	1,713
2	Shape Memory Polymer Research. Annual Review of Materials Research, 2009, 39, 445-471.	9.3	822
3	Two-Way Reversible Shape Memory in a Semicrystalline Network. Macromolecules, 2008, 41, 184-192.	4.8	464
4	Mechanical Relaxation and Microstructure of Poly(norbornyl-POSS) Copolymers. Macromolecules, 1999, 32, 1194-1203.	4.8	381
5	Linear/Network Poly(Îµ-caprolactone) Blends Exhibiting Shape Memory Assisted Self-Healing (SMASH). ACS Applied Materials & Interfaces, 2011, 3, 152-161.	8.0	346
6	Shape Memory Assisted Self-Healing Coating. ACS Macro Letters, 2013, 2, 152-156.	4.8	346
7	POSS Polymers: Physical Properties and Biomaterials Applications. Polymer Reviews, 2009, 49, 25-63.	10.9	332
8	Reinforcement and environmental degradation of nylon-6/clay nanocomposites. Polymer, 2001, 42, 5849-5858.	3.8	294
9	Structural development during deformation of polyurethane containing polyhedral oligomeric silsesquioxanes (POSS) molecules. Polymer, 2001, 42, 599-611.	3.8	274
10	Shape Memory Effect Exhibited by Smectic-C Liquid Crystalline Elastomers. Journal of the American Chemical Society, 2003, 125, 15300-15301.	13.7	267
11	Chemically Cross-Linked Polycyclooctene:Â Synthesis, Characterization, and Shape Memory Behavior. Macromolecules, 2002, 35, 9868-9874.	4.8	257
12	Tripleâ€Shape Polymeric Composites (TSPCs). Advanced Functional Materials, 2010, 20, 2649-2656.	14.9	255
13	Viscoelastic and morphological behavior of hybrid styryl-based polyhedral oligomeric silsesquioxane (POSS) copolymers. Journal of Polymer Science, Part B: Polymer Physics, 1998, 36, 1857-1872.	2.1	239
14	Shape memory polymers with built-in threshold temperature sensors. Journal of Materials Chemistry, 2008, 18, 1082.	6.7	221
15	Conductive shape memory nanocomposites for high speed electrical actuation. Soft Matter, 2010, 6, 2146.	2.7	215
16	Dynamic cell behavior on shape memory polymer substrates. Biomaterials, 2011, 32, 2285-2293.	11.4	208
17	ABA triblock copolymers containing polyhedral oligomeric silsesquioxane pendant groups: synthesis and unique properties. Polymer, 2003, 44, 2739-2750.	3.8	200
18	Shape memory and nanostructure in poly(norbornyl-POSS) copolymers. Polymer International, 2000, 49, 453-457.	3.1	188

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19	Polycaprolactoneâ^'POSS Chemical/Physical Double Networks. Macromolecules, 2008, 41, 4730-4738.	4.8	188
20	Nanoscale reinforcement of polyhedral oligomeric silsesquioxane (POSS) in polyurethane elastomer. Polymer International, 2000, 49, 437-440.	3.1	182
21	Deformation-Induced Color Changes in Mechanochromic Polyethylene Blends. Macromolecules, 2007, 40, 2400-2408.	4.8	177
22	A Thermoplastic/Thermoset Blend Exhibiting Thermal Mending and Reversible Adhesion. ACS Applied Materials & Interfaces, 2009, 1, 612-620.	8.0	176
23	Nanofiber Network Ion-Exchange Membranes. Macromolecules, 2008, 41, 4569-4572.	4.8	169
24	Combined One-Way and Two-Way Shape Memory in a Glass-Forming Nematic Network. Macromolecules, 2009, 42, 273-280.	4.8	167
25	Amphiphilic Telechelics Incorporating Polyhedral Oligosilsesquioxane:Â 1. Synthesis and Characterization. Macromolecules, 2002, 35, 8378-8384.	4.8	145
26	Preparation and Characterization of Shape Memory Elastomeric Composites. Macromolecules, 2009, 42, 7251-7253.	4.8	145
27	Biodegradable Thermoplastic Polyurethanes Incorporating Polyhedral Oligosilsesquioxane. Biomacromolecules, 2008, 9, 2458-2467.	5.4	141
28	Hybrid epoxy-based thermosets based on polyhedral oligosilsesquioxane: Cure behavior and toughening mechanisms. Journal of Polymer Science, Part B: Polymer Physics, 2003, 41, 3299-3313.	2.1	129
29	Shape-memory-actuated change in scaffold fiber alignment directs stem cell morphology. Acta Biomaterialia, 2013, 9, 8790-8801.	8.3	129
30	Two-way reversible shape memory effects in a free-standing polymer composite. Smart Materials and Structures, 2011, 20, 065010.	3.5	128
31	Rheological Behavior of Entangled Polystyreneâ^'Polyhedral Oligosilsesquioxane (POSS) Copolymers. Macromolecules, 2007, 40, 544-554.	4.8	121
32	Soft shape memory in main-chain liquid crystalline elastomers. Journal of Materials Chemistry, 2010, 20, 3449.	6.7	121
33	Effect of Methyl Methacrylate/Polyhedral Oligomeric Silsesquioxane Random Copolymers in Compatibilization of Polystyrene and Poly(methyl methacrylate) Blends. Macromolecules, 2002, 35, 8029-8038.	4.8	120
34	Tailored drug release from biodegradable stent coatings based on hybrid polyurethanes. Journal of Controlled Release, 2009, 137, 224-233.	9.9	113
35	PEGâ^'POSS Multiblock Polyurethanes: Synthesis, Characterization, and Hydrogel Formation. Macromolecules, 2010, 43, 7637-7649.	4.8	111
36	Welded Electrochromic Conductive Polymer Nanofibers by Electrostatic Spinning. Advanced Materials, 2005, 17, 2177-2180.	21.0	108

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37	Antimicrobial Properties of Nanostructured Hydrogel Webs Containing Silver. Biomacromolecules, 2009, 10, 2686-2693.	5.4	101
38	Entanglement-based shape memory polyurethanes: Synthesis and characterization. Polymer, 2012, 53, 5924-5934.	3.8	100
39	A functionally graded shape memory polymer. Soft Matter, 2011, 7, 68-74.	2.7	97
40	Constitutive Modeling of Shape Memory Effects in Semicrystalline Polymers With Stretch Induced Crystallization. Journal of Engineering Materials and Technology, Transactions of the ASME, 2010, 132, .	1.4	96
41	Characterization of the cure-state of DGEBA-DDS epoxy using ultrasonic, dynamic mechanical, and thermal probes. Polymer Engineering and Science, 2002, 42, 51-67.	3.1	94
42	Rheology of highly swollen chitosan/polyacrylate hydrogels. Polymer, 1999, 40, 4593-4602.	3.8	92
43	Thermomechanical behavior of shape memory elastomeric composites. Journal of the Mechanics and Physics of Solids, 2012, 60, 67-83.	4.8	91
44	Nanofiber composite membranes with low equivalent weight perfluorosulfonic acid polymers. Journal of Materials Chemistry, 2010, 20, 6282.	6.7	89
45	Water-triggered shape memory of multiblock thermoplastic polyurethanes (TPUs). RSC Advances, 2013, 3, 15783.	3.6	86
46	Vertex Group Effects in Entangled Polystyreneâ^'Polyhedral Oligosilsesquioxane (POSS) Copolymers. Macromolecules, 2009, 42, 1142-1152.	4.8	85
47	Poly(vinyl alcohol) (PVA)/sulfonated polyhedral oligosilsesquioxane (sPOSS) hybrid membranes for direct methanol fuel cell applications. Polymers for Advanced Technologies, 2007, 18, 535-543.	3.2	83
48	Shape memory poly(Îµ-caprolactone)-co-poly(ethylene glycol) foams with body temperature triggering and two-way actuation. Journal of Materials Chemistry B, 2013, 1, 4916.	5.8	83
49	Polyelectrolyte spin assembly: Influence of ionic strength on the growth of multilayered thin films. Journal of Polymer Science, Part B: Polymer Physics, 2004, 42, 3654-3666.	2.1	82
50	Microstructure and Phase Behavior of POSS/PCL Shape Memory Nanocomposites. Macromolecules, 2011, 44, 5682-5692.	4.8	82
51	Rheo-Optical Evidence of a Flow-Induced Isotropicâ^'Nematic Transition in a Thermotropic Liquid-Crystalline Polymer. Macromolecules, 1997, 30, 7977-7989.	4.8	81
52	Sulfonated Polysulfone/POSS Nanofiber Composite Membranes for PEM Fuel Cells. Journal of the Electrochemical Society, 2010, 157, B914.	2.9	80
53	Morphology, Microstructure, and Rheology of Amphiphilic Telechelics Incorporating Polyhedral Oligosilsesquioxane. Macromolecules, 2006, 39, 9253-9260.	4.8	77
54	Modification of bisphenol-A based bismaleimide resin (BPA-BMI) with an allyl-terminated hyperbranched polyimide (AT-PAEKI). Polymer, 2006, 47, 2813-2821.	3.8	77

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55	Telechelic Poly(ethylene glycol)â^'POSS Amphiphiles at the Air/Water Interface. Macromolecules, 2007, 40, 682-688.	4.8	70
56	PLGAâ^'POSS End-Linked Networks with Tailored Degradation and Shape Memory Behavior. Macromolecules, 2009, 42, 6596-6605.	4.8	70
57	High Conductivity Perfluorosulfonic Acid Nanofiber Composite Fuelâ€Cell Membranes. ChemSusChem, 2010, 3, 1245-1248.	6.8	69
58	Mechanisms of triple-shape polymeric composites due to dual thermal transitions. Soft Matter, 2013, 9, 2212.	2.7	69
59	A thermally responsive, rigid, and reversible adhesive. Polymer, 2010, 51, 1169-1175.	3.8	66
60	Anhydride-Based Reconfigurable Shape Memory Elastomers. ACS Macro Letters, 2016, 5, 203-207.	4.8	66
61	Polyhedral Oligomeric Silsesquioxane (POSS) Suppresses Enzymatic Degradation of PCL-Based Polyurethanes. Biomacromolecules, 2011, 12, 3066-3077.	5.4	63
62	Optically transparent self-reinforced poly(ethylene terephthalate) composites: molecular orientation and mechanical properties. Polymer, 2005, 46, 761-773.	3.8	62
63	Properties of triple shape memory composites prepared via polymerization-induced phase separation. Soft Matter, 2014, 10, 3112-3121.	2.7	62
64	Amphiphilic telechelics with polyhedral oligosilsesquioxane (POSS) end-groups: Dilute solution viscometry. Polymer, 2006, 47, 6202-6207.	3.8	60
65	In vitro wrinkle formation via shape memory dynamically aligns adherent cells. Soft Matter, 2013, 9, 4705.	2.7	59
66	Self-Assembly and Chain-Folding in Hybrid Coilâ^'Coilâ^'Cube Triblock Oligomers of Polyethylene-b-Poly(ethylene oxide)-b-Polyhedral Oligomeric Silsesquioxane. Macromolecules, 2007, 40, 5460-5470.	4.8	58
67	Entanglement-Based Thermoplastic Shape Memory Polymeric Particles with Photothermal Actuation for Biomedical Applications. ACS Applied Materials & Interfaces, 2018, 10, 13333-13341.	8.0	56
68	Molecular Dynamics Simulations of Multilayer Polyelectrolyte Films:Â Effect of Electrostatic and Short-Range Interactions. Langmuir, 2006, 22, 9994-10002.	3.5	55
69	Soft answers for hard problems. Nature Materials, 2007, 6, 93-94.	27.5	55
70	Photo-induced bending in a light-activated polymer laminated composite. Soft Matter, 2015, 11, 2673-2682.	2.7	55
71	A New Hyperbranched Poly(aryleneâ^'etherâ^'ketoneâ^'imide):Â Synthesis, Chain-End Functionalization, and Blending with a Bis(maleimide). Macromolecules, 2002, 35, 4951-4959.	4.8	53
72	Nanoscale Order and Crystallization in POSSâ€“PCL Shape Memory Molecular Networks. Macromolecules, 2015, 48, 5770-5779.	4.8	52

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73	Synthesis and characterization of fluorinated benzoxazole polymers with highTg and low dielectric constant. Journal of Polymer Science Part A, 2000, 38, 1991-2003.	2.3	51
74	Molecular Dynamics Simulations of Layer-by-Layer Assembly of Polyelectrolytes at Charged Surfaces:Â Effects of Chain Degree of Polymerization and Fraction of Charged Monomers. Langmuir, 2005, 21, 6113-6122.	3.5	51
75	Mesogen-jacketed liquid crystalline polymers via stable free radical polymerization. Macromolecular Chemistry and Physics, 1999, 200, 2338-2344.	2.2	50
76	Reversible actuation in main-chain liquid crystalline elastomers with varying crosslink densities. Polymer, 2014, 55, 5897-5907.	3.8	50
77	A finite deformation thermomechanical constitutive model for triple shape polymeric composites based on dual thermal transitions. International Journal of Solids and Structures, 2014, 51, 2777-2790.	2.7	50
78	Thermally modulated nanostructure of poly(Îµ-caprolactone)â€“POSS multiblock thermoplastic polyurethanes. Polymer, 2013, 54, 3350-3362.	3.8	46
79	Enzymatically triggered shape memory polymers. Acta Biomaterialia, 2019, 84, 88-97.	8.3	44
80	Morphological and Rheological Responses to Shear Start-up and Flow Reversal of Thermotropic Liquid-Crystalline Polymers. Macromolecules, 2000, 33, 7594-7608.	4.8	41
81	Soft bacterial polyesterâ€based shape memory nanocomposites featuring reconfigurable nanostructure. Journal of Polymer Science, Part B: Polymer Physics, 2012, 50, 387-393.	2.1	41
82	Dual-Spun Shape Memory Elastomeric Composites. ACS Macro Letters, 2015, 4, 436-440.	4.8	41
83	A hydrogelâ€forming liquid crystalline elastomer exhibiting soft shape memory. Journal of Polymer Science, Part B: Polymer Physics, 2016, 54, 38-52.	2.1	40
84	Tailored Phase Transitions via Mixed-Mesogen Liquid Crystalline Polymers with Silicon-Based Spacers. Macromolecules, 2005, 38, 4103-4113.	4.8	39
85	Metallo-Responsive Liquid Crystalline Monomers and Polymers. Chemistry of Materials, 2011, 23, 3525-3533.	6.7	39
86	Synthesis and characterization of a zwitterionic hydrogel blend with low coefficient of friction. Acta Biomaterialia, 2016, 46, 245-255.	8.3	38
87	Combined Effect of Spin Speed and Ionic Strength on Polyelectrolyte Spin Assembly. Langmuir, 2007, 23, 12589-12597.	3.5	36
88	Thermoviscoplastic behaviors of anisotropic shape memory elastomeric composites for cold programmed non-affine shape change. Journal of the Mechanics and Physics of Solids, 2015, 85, 219-244.	4.8	36
89	Biodegradable Thermoplastic Elastomers Incorporating POSS: Synthesis, Microstructure, and Mechanical Properties. Macromolecules, 2016, 49, 3769-3779.	4.8	36
90	Rapid synthesis of polymer-silica hybrid nanofibers by biomimetic mineralization. Polymer, 2009, 50, 1214-1222.	3.8	32

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91	Mechanically programmed shape change in laminated elastomeric composites. Soft Matter, 2015, 11, 5754-5764.	2.7	31
92	Improved synthesis of functionalized mesogenic 2,6-bisbenzimidazolylpyridine ligands. Tetrahedron, 2008, 64, 8488-8495.	1.9	30
93	Blends of Paclitaxel with POSS-Based Biodegradable Polyurethanes: Morphology, Miscibility, and Specific Interactions. Macromolecules, 2010, 43, 4991-4999.	4.8	30
94	Fabrication of Polymeric Coatings with Controlled Microtopographies Using an Electrospraying Technique. PLoS ONE, 2015, 10, e0129960.	2.5	29
95	Preparation and characterization of triple shape memory composite foams. Soft Matter, 2014, 10, 8066-8074.	2.7	28
96	Design strategies for shape memory polymers. Current Opinion in Chemical Engineering, 2013, 2, 103-111.	7.8	26
97	The shape-memory effect in ionic elastomers: fixation through ionic interactions. Soft Matter, 2017, 13, 2983-2994.	2.7	26
98	Nafion Nanofiber Membranes. ECS Transactions, 2009, 25, 1451-1458.	0.5	25
99	Interwoven polymer composites via dual-electrospinning with shape memory and self-healing properties. MRS Communications, 2015, 5, 211-221.	1.8	24
100	Evolution of microstructure during shape memory cycling of a main-chain liquid crystalline elastomer. Polymer, 2013, 54, 2808-2820.	3.8	22
101	Osteogenic Capacity of Human Adipose-Derived Stem Cells is Preserved Following Triggering of Shape Memory Scaffolds. Tissue Engineering - Part A, 2016, 22, 1026-1035.	3.1	22
102	Anisotropic Shapeâ€Memory Elastomeric Composites: Fabrication and Testing. Macromolecular Chemistry and Physics, 2013, 214, 1247-1257.	2.2	21
103	Synthesis and thermal properties of thermosetting bis-benzocyclobutene-terminated arylene ether monomers. Journal of Polymer Science Part A, 1998, 36, 2637-2651.	2.3	20
104	Comparative analysis of shape memoryâ€based selfâ€healing coatings. Journal of Polymer Science, Part B: Polymer Physics, 2016, 54, 1415-1426.	2.1	20
105	Progressive Myofibril Reorganization of Human Cardiomyocytes on a Dynamic Nanotopographic Substrate. ACS Applied Materials & Interfaces, 2020, 12, 21450-21462.	8.0	20
106	Synthesis and Characterization of Unsaturated Thermotropic Polyesters Prepared via Acyclic Diene Metathesis Polymerization. Macromolecules, 2004, 37, 5239-5249.	4.8	18
107	Effect of stoichiometry on liquid crystalline supramolecular polymers formed with complementary nucleobase pair interactions. Journal of Polymer Science Part A, 2006, 44, 5049-5059.	2.3	18
108	Shape Memory RGDâ€Containing Networks: Synthesis, Characterization, and Application in Cell Culture. Macromolecular Symposia, 2011, 309-310, 162-172.	0.7	18

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109	A latent crosslinkable PCL-based polyurethane: Synthesis, shape memory, and enzymatic degradation. Journal of Materials Research, 2018, 33, 2463-2476.	2.6	18
110	Non-uniform curvature and anisotropic deformation control wrinkling patterns on tori. Soft Matter, 2019, 15, 5204-5210.	2.7	15
111	Oddâ˜Even Effect of Flexible Spacer Length on Flow-Induced Isotropic-to-Nematic Transition in Segmented Thermotropic Polymers. Macromolecules, 2002, 35, 1326-1335.	4.8	14
112	Synthesis and Characterization of Zwitterionic Polymer Brush Functionalized Hydrogels with Ionic Responsive Coefficient of Friction. Langmuir, 2020, 36, 3932-3940.	3.5	14
113	Interfacial Tension of a Liquid Crystalline Polymer in an Isotropic Polymer Matrix. Macromolecules, 2005, 38, 7343-7351.	4.8	12
114	Crosslinkable liquid crystalline copolymers with variable isotropization temperature. Journal of Materials Chemistry, 2012, 22, 14518.	6.7	12
115	Molecular Composite Coatings on Nafion Using Layer-by-Layer Self-Assembly. ACS Applied Materials & Interfaces, 2015, 7, 10365-10373.	8.0	12
116	Phase behavior and rheology of blends containing polycarbonate and a thermotropic polyester. Journal of Applied Polymer Science, 1996, 59, 243-250.	2.6	11
117	Optical and Mechanical Rheometry of Semiflexible Main-Chain Thermotropic Liquid-Crystalline Polymers with Varying Pendant Groups. Macromolecules, 2000, 33, 7922-7930.	4.8	11
118	Synthesis and characterization of a semiflexible liquid crystalline polyester with a broad nematic region. Liquid Crystals, 1994, 17, 811-826.	2.2	10
119	Thermally crosslinkable thermotropic copolyesters: synthesis, characterization, and processing. Polymer, 1997, 38, 6009-6022.	3.8	10
120	In vivo kinetic degradation analysis and biocompatibility of aliphatic polyester polyurethanes. Journal of Biomedical Materials Research - Part A, 2010, 94A, 333-343.	4.0	10
121	Hot-compacted interwoven webs of biodegradable polymers. Polymer, 2016, 101, 127-138.	3.8	9
122	Tuning of reversible actuation via ROMP-based copolymerization semicrystalline polymers. Polymer, 2018, 156, 228-239.	3.8	9
123	Polypeptide-catalyzed Biosilicification of Dentin Surfaces. Journal of Dental Research, 2009, 88, 377-381.	5.2	8
124	Dynamic covalent exchange in poly(thioether anhydrides). Polymer Chemistry, 2020, 11, 7551-7561.	3.9	8
125	Mechanics and tribology of a zwitterionic polymer blend: Impact of molecular weight. Materials Science and Engineering C, 2020, 111, 110736.	7.3	8
126	Crystallization of POSS in a PEG-Based Multiblock Polyurethane: Toward A Hybrid Hydrogel. Materials Research Society Symposia Proceedings, 2004, 847, 59.	0.1	6

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127	In vivo kinetic degradation analysis and biocompatibility of aliphatic polyester polyurethanes. Journal of Biomedical Materials Research - Part A, 2010, 94, 333-43.	4.0	6
128	Mid-wavelength IR (MWIR) polarizers from glassy cholesteric liquid crystals. Liquid Crystals, 1999, 26, 557-565.	2.2	5
129	Phase Behavior, Rheology, and Morphology of Binary Blends of Semiflexible Main-Chain Thermotropic Liquid-Crystalline Polymers. Macromolecules, 2001, 34, 7152-7161.	4.8	5
130	Composite Membranes for Hydrogen/Air PEM Fuel Cells. ECS Transactions, 2007, 11, 79-87.	0.5	5
131	Ternary Polymeric Composites Exhibiting Bulk and Surface Quadrupleâ€Shape Memory Properties. ChemPhysChem, 2018, 19, 2014-2024.	2.1	4
132	Profiling the responsiveness of focal adhesions of human cardiomyocytes to extracellular dynamic nano-topography. Bioactive Materials, 2022, 10, 367-377.	15.6	4
133	The origin of stress-oscillation damping during start-up and reversal of torsional shearing of nematics. Rheologica Acta, 1997, 36, 485-497.	2.4	4
134	Rheological and mechanical relaxation behavior of a thermally crosslinkable poly(ethylene) Tj ETQq0 0 0 rgBT /Overlock 10 Tf 50 462 Td	3.1	2
135	Rheological characterization of asphalt in a temperature-gradient combinatorial squeeze-flow setup. Rheologica Acta, 2007, 46, 1075-1082.	2.4	2
136	A programmable shape-changing scaffold for regenerative medicine. , 2012, , .		2
137	Directed Mineralization on Polyelectrolyte Multilayer Films. Materials Research Society Symposia Proceedings, 2006, 975, 1.	0.1	0
138	Abstract 321: A Biomimetic Approach to Developing Antithrombotic Small-Caliber Prosthetic Vascular Grafts. Arteriosclerosis, Thrombosis, and Vascular Biology, 2014, 34, .	2.4	0