Patrick S Doyle

List of Publications by Citations

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245 papers	14,908 citations	64 h-index	114 g-index
254 ext. papers	16,594 ext. citations	7.4 avg, IF	6.99 L-index

#	Paper	IF	Citations
245	Continuous-flow lithography for high-throughput microparticle synthesis. *Nature Materials*, **2006**, 5, 365-9	27	806
244	Nanoemulsions: formation, properties and applications. *Soft Matter*, **2016**, 12, 2826-41	3.6	658
243	Multifunctional encoded particles for high-throughput biomolecule analysis. *Science*, **2007**, 315, 1393-6	33.3	613
242	The Synthesis and Assembly of Polymeric Microparticles Using Microfluidics. *Advanced Materials*, **2009**, 21, 4071-4086	24	505
241	Controlled synthesis of nonspherical microparticles using microfluidics. *Langmuir*, **2005**, 21, 2113-6	4	414
240	Self-assembled magnetic matrices for DNA separation chips. *Science*, **2002**, 295, 2237	33.3	409
239	A review of fatty acid profiles and antioxidant content in grass-fed and grain-fed beef. *Nutrition Journal*, **2010**, 9, 10	4.3	407
238	Static and dynamic errors in particle tracking microrheology. *Biophysical Journal*, **2005**, 88, 623-38	2.9	383
237	Stop-flow lithography in a microfluidic device. *Lab on A Chip*, **2007**, 7, 818-28	7.2	316
236	Universal process-inert encoding architecture for polymer microparticles. *Nature Materials*, **2014**, 13, 524-9	27	287
235	Stop-flow lithography to generate cell-laden microgel particles. *Lab on A Chip*, **2008**, 8, 1056-61	7.2	235
234	Multifunctional superparamagnetic Janus particles. *Langmuir*, **2010**, 26, 4281-7	4	222
233	Modeling of Oxygen-Inhibited Free Radical Photopolymerization in a PDMS Microfluidic Device. *Macromolecules*, **2008**, 41, 8547-8556	5.5	218
232	Small but Perfectly Formed? Successes, Challenges, and Opportunities for Microfluidics in the Chemical and Biological Sciences. *CheM*, **2017**, 2, 201-223	16.2	206
231	Microfluidic-based synthesis of non-spherical magnetic hydrogel microparticles. *Lab on A Chip*, **2008** , 8, 1640-7	7.2	184
230	Dynamics of a tethered polymer in shear flow. *Physical Review Letters*, **2000**, 84, 4769-72	7.4	179
229	Dynamic simulation of freely draining flexible polymers in steady linear flows. *Journal of Fluid Mechanics*, **1997**, 334, 251-291	3.7	165

228	Permeation-driven flow in poly(dimethylsiloxane) microfluidic devices. *Proceedings of the National Academy of Sciences of the United States of America*, **2005**, 102, 10813-8	11.5	165
227	Double-Stranded DNA Diffusion in Slitlike Nanochannels. *Macromolecules*, **2006**, 39, 6273-6281	5.5	159
226	Synthesis and self-assembly of amphiphilic polymeric microparticles. *Langmuir*, **2007**, 23, 4669-74	4	155
225	Inertio-elastic focusing of bioparticles in microchannels at high throughput. *Nature Communications* , **2014**, 5, 4120	17.4	148
224	Hydrogel microparticles for biosensing. *European Polymer Journal*, **2015**, 72, 386-412	5.2	125
223	Rapid microRNA profiling on encoded gel microparticles. *Angewandte Chemie - International Edition* , **2011**, 50, 2289-93	16.4	125
222	Relaxation of dilute polymer solutions following extensional flow. *Journal of Non-Newtonian Fluid Mechanics*, **1998**, 76, 79-110	2.7	123
221	Multiplexed protein quantification with barcoded hydrogel microparticles. *Analytical Chemistry*, **2011**, 83, 193-9	7.8	117
220	Mesoporous organohydrogels from thermogelling photocrosslinkable nanoemulsions. *Nature Materials*, **2012**, 11, 344-52	27	116
219	Bar-coded hydrogel microparticles for protein detection: synthesis, assay and scanning. *Nature Protocols*, **2011**, 6, 1761-74	18.8	116
218	On the coarse-graining of polymers into bead-spring chains. *Journal of Non-Newtonian Fluid Mechanics*, **2004**, 122, 3-31	2.7	114
217	Gel-induced selective crystallization of polymorphs. *Journal of the American Chemical Society*, **2012**, 134, 673-84	16.4	113
216	Stop-flow lithography for the production of shape-evolving degradable microgel particles. *Journal of the American Chemical Society*, **2009**, 131, 4499-504	16.4	112
215	Hydrogel microparticles from lithographic processes: novel materials for fundamental and applied colloid science. *Current Opinion in Colloid and Interface Science*, **2011**, 16, 106-117	7.6	110
214	Revealing the competition between peeled ssDNA, melting bubbles, and S-DNA during DNA overstretching by single-molecule calorimetry. *Proceedings of the National Academy of Sciences of the United States of America*, **2013**, 110, 3865-70	11.5	109
213	Material properties of biofilms-a review of methods for understanding permeability and mechanics. *Reports on Progress in Physics*, **2015**, 78, 036601	14.4	108
212	Compression and self-entanglement of single DNA molecules under uniform electric field. *Proceedings of the National Academy of Sciences of the United States of America*, **2011**, 108, 16153-8	11.5	108
211	Dynamic remodeling of microbial biofilms by functionally distinct exopolysaccharides. *MBio*, **2014**, 5, e01536-14	7.8	106

210	Revisiting the Conformation and Dynamics of DNA in Slitlike Confinement. *Macromolecules*, **2010**, 43, 7368-7377	5.5	104
209	Two distinct overstretched DNA structures revealed by single-molecule thermodynamics measurements. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 8103-8	11.5	101
208	Ionic effects on the equilibrium dynamics of DNA confined in nanoslits. *Nano Letters*, **2008**, 8, 1683-8	11.5	101
207	Ultrasensitive multiplexed microRNA quantification on encoded gel microparticles using rolling circle amplification. *Analytical Chemistry*, **2011**, 83, 7179-85	7.8	97
206	Extended de Gennes Regime of DNA Confined in a Nanochannel. *Macromolecules*, **2014**, 47, 2445-2450	5.5	96
205	Multiplexed detection of mRNA using porosity-tuned hydrogel microparticles. *Analytical Chemistry*, **2012**, 84, 9370-8	7.8	96
204	Synthesis of nonspherical superparamagnetic particles: in situ coprecipitation of magnetic nanoparticles in microgels prepared by stop-flow lithography. *Journal of the American Chemical Society*, **2012**, 134, 7337-43	16.4	96
203	A route to three-dimensional structures in a microfluidic device: stop-flow interference lithography. *Angewandte Chemie - International Edition*, **2007**, 46, 9027-31	16.4	90
202	Stretching tethered DNA chains in shear flow. *Europhysics Letters*, **2000**, 52, 511-517	1.6	90
201	Optimization of encoded hydrogel particles for nucleic acid quantification. *Analytical Chemistry*, **2009**, 81, 4873-81	7.8	87
200	Is DNA a Good Model Polymer?. *Macromolecules*, **2013**, 46,	5.5	84
199	A conformal nano-adhesive via initiated chemical vapor deposition for microfluidic devices. *Lab on A Chip*, **2009**, 9, 411-6	7.2	84
198	Patterning nanodomains with orthogonal functionalities: solventless synthesis of self-sorting surfaces. *Journal of the American Chemical Society*, **2008**, 130, 14424-5	16.4	84
197	Squishy non-spherical hydrogel microparticles. *Macromolecular Rapid Communications*, **2010**, 31, 128-34	4.8	80
196	Controlled nucleation from solution using polymer microgels. *Journal of the American Chemical Society*, **2011**, 133, 3756-9	16.4	78
195	Stop-Flow Lithography of Colloidal, Glass, and Silicon Microcomponents. *Advanced Materials*, **2008**, 20, 4734-4739	24	78
194	Methods to electrophoretically stretch DNA: microcontractions, gels, and hybrid gel-microcontraction devices. *Lab on A Chip*, **2006**, 6, 516-25	7.2	77
193	Effect of YOYO-1 on the mechanical properties of DNA. *Soft Matter*, **2014**, 10, 9721-8	3.6	76

192	Sequence-dependent sliding kinetics of p53. *Proceedings of the National Academy of Sciences of the United States of America*, **2012**, 109, 16552-7	11.5	76
191	Magnetic barcoded hydrogel microparticles for multiplexed detection. *Langmuir*, **2010**, 26, 8008-14	4	76
190	The polymer physics of single DNA confined in nanochannels. *Advances in Colloid and Interface Science*, **2016**, 232, 80-100	14.3	75
189	A systematic study of DNA conformation in slitlike confinement. *Soft Matter*, **2012**, 8, 2972	3.6	75
188	An Experimental Study of DNA Rotational Relaxation Time in Nanoslits. *Macromolecules*, **2007**, 40, 5196-5205	5.5	75
187	Rheology of Polymer Brushes: A Brownian Dynamics Study. *Macromolecules*, **1998**, 31, 5474-5486	5.5	75
186	Controlling and predicting droplet size of nanoemulsions: scaling relations with experimental validation. *Soft Matter*, **2016**, 12, 1452-8	3.6	73
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184	Lock release lithography for 3D and composite microparticles. *Lab on A Chip*, **2009**, 9, 863-6	7.2	70
183	Aptamer-functionalized microgel particles for protein detection. *Analytical Chemistry*, **2011**, 83, 9138-45	7.8	68
182	Hydrodynamic focusing lithography. *Angewandte Chemie - International Edition*, **2010**, 49, 87-90	16.4	66
181	Size dependence of microprobe dynamics during gelation of a discotic colloidal clay. *Journal of Rheology*, **2011**, 55, 273-299	4.1	64
180	Dynamic simulation of freely-draining, flexible bead-rod chains: Start-up of extensional and shear flow1Dedicated to the memory of Professor Gianni Astarita1. *Journal of Non-Newtonian Fluid Mechanics*, **1998**, 76, 43-78	2.7	64
179	Electrophoretic collision of a DNA molecule with an insulating post. *Physical Review Letters*, **2004**, 93, 058102	7.4	63
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171	Microfluidic fabrication of hydrogel microparticles containing functionalized viral nanotemplates. *Langmuir*, **2010**, 26, 13436-41	4	55
170	Rheology of Wet Polymer Brushes via Brownian Dynamics Simulation: Steady vs Oscillatory Shear. *Physical Review Letters*, **1997**, 78, 1182-1185	7.4	55
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167	Nonlinear microrheology of an aging, yield stress fluid using magnetic tweezers. *Soft Matter*, **2011**, 7, 9933	3.6	49
166	Nucleation under Soft Confinement: Role of Polymer Solute Interactions. *Crystal Growth and Design*, **2012**, 12, 508-517	3.5	48
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164	Porous microwells for geometry-selective, large-scale microparticle arrays. *Nature Materials*, **2017**, 16, 139-146	27	47
163	Structure and dynamics of repulsive magnetorheological colloids in two-dimensional channels. *Physical Review E*, **2005**, 72, 011405	2.4	47
162	Encoded Hydrogel Microparticles for Sensitive and Multiplex microRNA Detection Directly from Raw Cell Lysates. *Analytical Chemistry*, **2016**, 88, 3075-81	7.8	46
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160	Stretching self-entangled DNA molecules in elongational fields. *Soft Matter*, **2015**, 11, 3105-14	3.6	45
159	Metastable Tight Knots in Semiflexible Chains. *Macromolecules*, **2014**, 47, 6135-6140	5.5	45
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155	Noninvasive monitoring of single-cell mechanics by acoustic scattering. *Nature Methods*, **2019**, 16, 263-269	22.6	43
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143	Photopatterned oil-reservoir micromodels with tailored wetting properties. *Lab on A Chip*, **2015**, 15, 3047-55	7.2	38
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141	Oil-isolated hydrogel microstructures for sensitive bioassays on-chip. *Analytical Chemistry*, **2013**, 85, 12098-107	7.3	38
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139	Soft microflow sensors. *Lab on A Chip*, **2009**, 9, 1213-8	7.2	38

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137	Transition from two-dimensional to three-dimensional behavior in the self-assembly of magnetorheological fluids confined in thin slits. *Physical Review E*, **2007**, 75, 061406	2.4	36
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130	Experimental study of structure and dynamics in a monolayer of paramagnetic colloids confined by parallel hard walls. *Langmuir*, **2006**, 22, 3601-5	4	32
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121	Effect of H-NS on the elongation and compaction of single DNA molecules in a nanospace. *Soft Matter*, **2013**, 9, 9593-601	3.6	30

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118	Alternative spring force law for bead-spring chain models of the worm-like chain. *Journal of Rheology*, **2006**, 50, 513-529	4.1	29
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113	Synthesis of Cell-Adhesive Anisotropic Multifunctional Particles by Stop Flow Lithography and Streptavidin-Biotin Interactions. *Langmuir*, **2015**, 31, 13165-71	4	25
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98	Self-organizing microfluidic crystals. *Soft Matter*, **2014**, 10, 5177-91	3.6	21
97	Synthesis of magnetic hydrogel microparticles for bioassays and tweezer manipulation in microwells. *Microfluidics and Nanofluidics*, **2012**, 13, 665-674	2.8	21
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93	Using stop-flow lithography to produce opaque microparticles: synthesis and modeling. *Langmuir*, **2011**, 27, 13813-9	4	20
92	Brownian Dynamics Simulations of a DNA Molecule Colliding with a Small Cylindrical Post. *Macromolecules*, **2007**, 40, 9151-9163	5.5	20
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88	Tuning curvature in flow lithography: a new class of concave/convex particles. *Langmuir*, **2009**, 25, 5986-92	4	19
87	Intrachain dynamics of large dsDNA confined to slitlike channels. *Physical Review Letters*, **2013**, 110, 068101	7.1	18
86	Low Energy Nanoemulsions as Templates for the Formulation of Hydrophobic Drugs. *Advanced Therapeutics*, **2018**, 1, 1700020	4.9	17
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84	Simulation of electrophoretic stretching of DNA in a microcontraction using an obstacle array for conformational preconditioning. *Biomicrofluidics*, **2009**, 3, 12803	3.2	17
83	Effect of internal architecture on microgel deformation in microfluidic constrictions. *Soft Matter*, **2017**, 13, 1920-1928	3.6	16
82	Steady-State and Transient Behavior of Knotted Chains in Extensional Fields. *ACS Macro Letters*, **2017**, 6, 1285-1289	6.6	16
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78	Synthesis of colloidal microgels using oxygen-controlled flow lithography. *Soft Matter*, **2014**, 10, 7595-6056	3.6	15
77	Rapid microRNA Profiling on Encoded Gel Microparticles. *Angewandte Chemie*, **2011**, 123, 2337-2341	3.6	15
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71	Nonfouling, Encoded Hydrogel Microparticles for Multiplex MicroRNA Profiling Directly from Formalin-Fixed, Paraffin-Embedded Tissue. *Analytical Chemistry*, **2018**, 90, 10279-10285	7.8	13
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64	Synthesis of Nonspherical Microcapsules through Controlled Polyelectrolyte Coating of Hydrogel Templates. *Langmuir*, **2015**, 31, 9228-35	4	11
63	Deformation Response of Catenated DNA Networks in a Planar Elongational Field. *ACS Macro Letters*, **2020**, 9, 944-949	6.6	11
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60	Photopolymerized Micelle-Laden Hydrogels Can Simultaneously Form and Encapsulate Nanocrystals to Improve Drug Substance Solubility and Expedite Drug Product Design. *Small*, **2019**, 15, e1803372	11	11
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