Eric R Dufresne

List of Publications by Year
in descending order

125 papers	12,683 citations	28190 55 h-index	24915 109 g-index
134 all docs	134 docs citations	134 times ranked	14730 citing authors

#	Article	IF	Citations
1	Mechanotransduction and extracellular matrix homeostasis. Nature Reviews Molecular Cell Biology, 2014, 15, 802-812.	16.1	1,492
2	The Bacterial Cytoplasm Has Glass-like Properties and Is Fluidized by Metabolic Activity. Cell, 2014, 156, 183-194.	13.5	643
3	Optical tweezer arrays and optical substrates created with diffractive optics. Review of Scientific Instruments, 1998, 69, 1974-1977.	0.6	505
4	Membrane Tension Maintains Cell Polarity by Confining Signals to the Leading Edge during Neutrophil Migration. Cell, 2012, 148, 175-188.	13.5	490
5	Structure, function, and self-assembly of single network gyroid (I 4 ₁ 32) photonic crystals in butterfly wing scales. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 11676-11681.	3.3	428
6	Computer-generated holographic optical tweezer arrays. Review of Scientific Instruments, 2001, 72, 1810.	0.6	390
7	Observation of Plasmon Propagation, Redirection, and Fan-Out in Silver Nanowires. Nano Letters, 2006, 6, 1822-1826.	4.5	376
8	Biomimetic Isotropic Nanostructures for Structural Coloration. Advanced Materials, 2010, 22, 2939-2944.	11.1	345
9	Charge Stabilization in Nonpolar Solvents. Langmuir, 2005, 21, 4881-4887.	1.6	274
10	Flow and Fracture in Drying Nanoparticle Suspensions. Physical Review Letters, 2003, 91, 224501.	2.9	273
11	Universal Deformation of Soft Substrates Near a Contact Line and the Direct Measurement of Solid Surface Stresses. Physical Review Letters, 2013, 110, 066103.	2.9	269
12	Traction force microscopy in physics and biology. Soft Matter, 2014, 10, 4047.	1.2	249
13	Elastocapillarity: Surface Tension and the Mechanics of Soft Solids. Annual Review of Condensed Matter Physics, 2017, 8, 99-118.	5.2	247
14	Surface tension and contact with soft elastic solids. Nature Communications, 2013, 4, 2728.	5.8	242
15	How Noniridescent Colors Are Generated by Quasiâ€ordered Structures of Bird Feathers. Advanced Materials, 2010, 22, 2871-2880.	11.1	228
16	Deformation of an Elastic Substrate by a Three-Phase Contact Line. Physical Review Letters, 2011, 106, 186103.	2.9	223
17	Self-assembly of amorphous biophotonic nanostructures by phase separation. Soft Matter, 2009, 5, 1792.	1.2	222
18	Cadherin-based intercellular adhesions organize epithelial cellâ€“matrix traction forces. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 842-847.	3.3	215

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19	Stiffening solids with liquid inclusions. Nature Physics, 2015, 11, 82-87.	6.5	212
20	Hydrodynamic Coupling of Two Brownian Spheres to a Planar Surface. Physical Review Letters, 2000, 85, 3317-3320.	2.9	211
21	Static wetting on deformable substrates, from liquids to soft solids. Soft Matter, 2012, 8, 7177.	1.2	210
22	Automated trapping, assembly, and sorting with holographic optical tweezers. Optics Express, 2006, 14, 13095.	1.7	207
23	High-Yield Synthesis of Monodisperse Dumbbell-Shaped Polymer Nanoparticles. Journal of the American Chemical Society, 2010, 132, 5960-5961.	6.6	193
24	Assembly of Optical-Scale Dumbbells into Dense Photonic Crystals. ACS Nano, 2011, 5, 6695-6700.	7.3	182
25	Patterning droplets with durotaxis. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 12541-12544.	3.3	172
26	Scaling of Traction Forces with the Size of Cohesive Cell Colonies. Physical Review Letters, 2012, 108, 198101.	2.9	158
27	E-cadherin integrates mechanotransduction and EGFR signaling to control junctional tissue polarization and tight junction positioning. Nature Communications, 2017, 8, 1250.	5.8	147
28	Mechanical properties of individual microgel particles through the deswelling transition. Soft Matter, 2009, 5, 3682.	1.2	137
29	Structure and optical function of amorphous photonic nanostructures from avian feather barbs: a comparative small angle X-ray scattering (SAXS) analysis of 230 bird species. Journal of the Royal Society Interface, 2012, 9, 2563-2580.	1.5	127
30	Dynamics of Fracture in Drying Suspensions. Langmuir, 2006, 22, 7144-7147.	1.6	126
31	Electrostatic Interactions of Colloidal Particles in Nonpolar Solvents:â€‰ Role of Surface Chemistry and Charge Control Agents. Langmuir, 2008, 24, 1160-1164.	1.6	118
32	Brownian dynamics of a sphere between parallel walls. Europhysics Letters, 2001, 53, 264-270.	0.7	115
33	Adsorption of soft particles at fluid interfaces. Soft Matter, 2015, 11, 7412-7419.	1.2	115
34	Large Deformations of a Soft Porous Material. Physical Review Applied, 2016, 5, .	1.5	111
35	Electrostatic Interactions of Colloidal Particles at Vanishing Ionic Strength. Langmuir, 2008, 24, 13334-13337.	1.6	105
36	Stimuli-Responsive Smart Gels Realized via Modular Protein Design. Journal of the American Chemical Society, 2010, 132, 14024-14026.	6.6	105

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37	Development of colour-producing Î²-keratin nanostructures in avian feather barbs. Journal of the Royal Society Interface, 2009, 6, S253-65.	1.5	103
38	Elastic ripening and inhibition of liquidâ€“liquid phase separation. Nature Physics, 2020, 16, 422-425.	6.5	92
39	Surface tension and the mechanics of liquid inclusions in compliant solids. Soft Matter, 2015, 11, 672-679.	1.2	91
40	Magnetically Addressable Shapeâ€Memory and Stiffening in a Composite Elastomer. Advanced Materials, 2019, 31, e1900561.	11.1	91
41	Cell stimulation with optically manipulated microsources. Nature Methods, 2009, 6, 905-909.	9.0	89
42	Edges of human embryonic stem cell colonies display distinct mechanical properties and differentiation potential. Scientific Reports, 2015, 5, 14218.	1.6	80
43	Structural Diversity of Arthropod Biophotonic Nanostructures Spans Amphiphilic Phase-Space. Nano Letters, 2015, 15, 3735-3742.	4.5	80
44	Direct measurement of strain-dependent solid surface stress. Nature Communications, 2017, 8, 555.	5.8	79
45	Solid capillarity: when and how does surface tension deform soft solids?. Soft Matter, 2016, 12, 2993-2996.	1.2	77
46	Wetting and phase separation in soft adhesion. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 14490-14494.	3.3	73
47	Statistics of Particle Trajectories at Short Time Intervals Reveal fN-Scale Colloidal Forces. Physical Review Letters, 2007, 99, 018303.	2.9	69
48	Many-Body Electrostatic Forces between Colloidal Particles at Vanishing Ionic Strength. Physical Review Letters, 2009, 103, 138301.	2.9	68
49	Short-range order and near-field effects on optical scattering and structural coloration. Optics Express, 2011, 19, 8208.	1.7	65
50	Single-step microfluidic fabrication of soft monodisperse polyelectrolyte microcapsules by interfacial complexation. Lab on A Chip, 2014, 14, 3494-3497.	3.1	65
51	Grasshoppers alter jumping biomechanics to enhance escape performance under chronic risk of spider predation. Functional Ecology, 2011, 25, 279-288.	1.7	63
52	Nanofabrication with holographic optical tweezers. Review of Scientific Instruments, 2002, 73, 1956-1957.	0.6	61
53	Imaging in-plane and normal stresses near an interface crack using traction force microscopy. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 14964-14967.	3.3	59
54	Photonic band gaps in three-dimensional network structures with short-range order. Physical Review A, 2011, 84, .	1.0	57

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55	Liquid-Liquid Phase Separation in an Elastic Network. Physical Review X, 2018, 8, .	2.8	57
56	Multiplexed force measurements on live cells with holographic optical tweezers. Optics Express, 2009, 17, 6209.	1.7	56
57	Synthesis of Colloidal Particles with the Symmetry of Water Molecules. Langmuir, 2009, 25, 8903-8906.	1.6	55
58	Low-loss high-speed speckle reduction using a colloidal dispersion. Applied Optics, 2013, 52, 1168.	0.9	55
59	Extreme cavity expansion in soft solids: Damage without fracture. Science Advances, 2020, 6, eaaz0418.	4.7	45
60	Surface elastic constants of a soft solid. Soft Matter, 2018, 14, 916-920.	1.2	44
61	Imaging stress and strain in the fracture of drying colloidal films. Soft Matter, 2013, 9, 3735.	1.2	42
62	Sustained enzymatic activity and flow in crowded protein droplets. Nature Communications, 2021, 12, 6293.	5.8	41
63	Non-specific adhesive forces between filaments and membraneless organelles. Nature Physics, 2022, 18, 571-578.	6.5	41
64	A modular approach to the design of proteinâ€based smart gels. Biopolymers, 2012, 97, 508-517.	1.2	40
65	Double scattering of light from Biophotonic Nanostructures with short-range order. Optics Express, 2010, 18, 11942.	1.7	39
66	Intrinsic Fluctuations and Driven Response of Insect Swarms. Physical Review Letters, 2015, 115, 118104.	2.9	39
67	Small-scale demixing in confluent biological tissues. Soft Matter, 2020, 16, 3325-3337.	1.2	34
68	Adsorption of Sub-Micron Amphiphilic Dumbbells to Fluid Interfaces. Langmuir, 2014, 30, 5057-5063.	1.6	32
69	Elastic stresses reverse Ostwald ripening. Soft Matter, 2020, 16, 5892-5897.	1.2	32
70	Surface tensiometry of phase separated protein and polymer droplets by the sessile drop method. Soft Matter, 2021, 17, 1655-1662.	1.2	32
71	Putting the Squeeze on Phase Separation. Jacs Au, 2022, 2, 66-73.	3.6	31
72	Fluid-Driven Deformation of a Soft Granular Material. Physical Review X, 2015, 5, .	2.8	30

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73	Soft microcapsules with highly plastic shells formed by interfacial polyelectrolyteâ€“nanoparticle complexation. Soft Matter, 2015, 11, 7478-7482.	1.2	30
74	Domain morphology, boundaries, and topological defects in biophotonic gyroid nanostructures of butterfly wing scales. Science Advances, 2016, 2, e1600149.	4.7	29
75	Wrapping of Microparticles by Floppy Lipid Vesicles. Physical Review Letters, 2020, 125, 198102.	2.9	29
76	Evolution of single gyroid photonic crystals in bird feathers. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	3.3	26
77	Switchable adhesion of soft composites induced by a magnetic field. Soft Matter, 2020, 16, 5806-5811.	1.2	24
78	Contribution of double scattering to structural coloration in quasiordered nanostructures of bird feathers. Physical Review E, 2010, 81, 051923.	0.8	23
79	Segregated Ice Growth in a Suspension of Colloidal Particles. Journal of Physical Chemistry B, 2016, 120, 3941-3949.	1.2	23
80	Transient supramolecular assembly of a functional perylene diimide controlled by a programmable pH cycle. Soft Matter, 2020, 16, 591-594.	1.2	23
81	Heterogeneous Drying Stresses in Stratum Corneum. Biophysical Journal, 2012, 102, 2424-2432.	0.2	22
82	Controlled formation of chitosan particles by a clock reaction. Soft Matter, 2018, 14, 6415-6418.	1.2	22
83	Non-invasive in vivo quantification of human skin tension lines. Acta Biomaterialia, 2019, 88, 141-148.	4.1	22
84	Long-range attraction of particles adhered to lipid vesicles. Physical Review E, 2016, 94, 012604.	0.8	21
85	Supramolecular assembly by time-programmed acid autocatalysis. Molecular Systems Design and Engineering, 2020, 5, 445-448.	1.7	21
86	Viscoelastic and Poroelastic Relaxations of Soft Solid Surfaces. Physical Review Letters, 2020, 125, 238002.	2.9	21
87	Many-body force and mobility measurements in colloidal systems. Soft Matter, 2010, 6, 2187.	1.2	20
88	Singular dynamics in the failure of soft adhesive contacts. Soft Matter, 2019, 15, 1327-1334.	1.2	19
89	Designing refractive index fluids using the Kramersâ€“Kronig relations. Faraday Discussions, 2020, 223, 136-144.	1.6	19
90	Forming Anisotropic Crystal Composites: Assessing the Mechanical Translation of Gel Network Anisotropy to Calcite Crystal Form. Journal of the American Chemical Society, 2021, 143, 3439-3447.	6.6	19

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91	Surfactant treatments influence drying mechanics in human stratum corneum. Journal of Biomechanics, 2013, 46, 2145-2151.	0.9	18
92	Fluctuations and correlations of emission from random lasers. Physical Review A, 2016, 93, .	1.0	17
93	Droplets Sit and Slide Anisotropically on Soft, Stretched Substrates. Physical Review Letters, 2021, 126, 158004.	2.9	17
94	Shape-Controlled Nanoparticles from a Low-Energy Nanoemulsion. Jacs Au, 2021, 1, 1975-1986.	3.6	16
95	Elastic Coupling of Nascent apCAM Adhesions to Flowing Actin Networks. PLoS ONE, 2013, 8, e73389.	1.1	15
96	Vinculin and the mechanical response of adherent fibroblasts to matrix deformation. Scientific Reports, 2018, 8, 17967.	1.6	14
97	Tracking particles with large displacements using energy minimization. Soft Matter, 2017, 13, 2201-2206.	1.2	13
98	Enhancing the Refractive Index of Polymers with a Plantâ€Based Pigment. Small, 2021, 17, e2103061.	5.2	13
99	Surface Tension and the Strain-Dependent Topography of Soft Solids. Physical Review Letters, 2021, 127, 208001.	2.9	13
100	Supramolecular gelation controlled by an iodine clock. Soft Matter, 2021, 17, 1189-1193.	1.2	12
101	Structural color from solid-state polymerization-induced phase separation. Soft Matter, 2021, 17, 5772-5779.	1.2	12
102	Effects of strain-dependent surface stress on the adhesive contact of a rigid sphere to a compliant substrate. Soft Matter, 2019, 15, 2223-2231.	1.2	10
103	Mechanical stability of particle-stabilized droplets under micropipette aspiration. Physical Review E, 2017, 95, 012805.	0.8	9
104	Impact of in situ acid generation and iodine sequestration on the chlorite-iodide clock reaction. Chaos, 2019, 29, 071102.	1.0	9
105	Micromirror Total Internal Reflection Microscopy for High-Performance Single Particle Tracking at Interfaces. ACS Photonics, 2021, 8, 3111-3118.	3.2	9
106	Regeneration of Aplysia Bag Cell Neurons is Synergistically Enhanced by Substrate-Bound Hemolymph Proteins and Laminin. Scientific Reports, 2014, 4, 4617.	1.6	8
107	Vancomycin Reduces Cell Wall Stiffness and Slows Swim Speed of the Lyme Disease Bacterium. Biophysical Journal, 2017, 112, 746-754.	0.2	8
108	Local Arp2/3-dependent actin assembly modulates applied traction force during apCAM adhesion site maturation. Molecular Biology of the Cell, 2017, 28, 98-110.	0.9	8

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109	Measuring Surface Tensions of Soft Solids with Huge Contact-Angle Hysteresis. Physical Review X, 2021, 11, .	2.8	8
110	Spatially extended FCS for visualizing and quantifying high-speed multiphase flows in microchannels. Optics Express, 2007, 15, 6528.	1.7	7
111	How surface stress transforms surface profiles and adhesion of rough elastic bodies. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2020, 476, 20200477.	1.0	7
112	Dynamics of spontaneous wrapping of microparticles by floppy lipid membranes. Physical Review Research, 2022, 4, .	1.3	7
113	Maximum likelihood estimations of force and mobility from single short Brownian trajectories. Soft Matter, 2017, 13, 2174-2180.	1.2	6
114	Strain-Dependent Solid Surface Stress and the Stiffness of Soft Contacts. Physical Review X, 2017, 7, .	2.8	6
115	Contact lines on stretched soft solids: modelling anisotropic surface stresses. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, .	1.0	6
116	A robust method for quantification of surface elasticity in soft solids. Journal of the Mechanics and Physics of Solids, 2022, 161, 104786.	2.3	6
117	Gradients in solid surface tension drive Marangoni-like motions in cell aggregates. Physical Review Fluids, 2022, 7, .	1.0	5
118	When Black and White make Green: the Surprising Interplay of Structure and Pigments. Chimia, 2019, 73, 47.	0.3	4
119	Temporal Control of Soft Materials with Chemical Clocks. Chimia, 2020, 74, 612-612.	0.3	4
120	Structural Color: How Noniridescent Colors Are Generated by Quasi-ordered Structures of Bird Feathers (Adv. Mater. 26-27/2010). Advanced Materials, 2010, 22, n/a-n/a.	11.1	3
121	Towards the void. Nature Materials, 2013, 12, 783-784.	13.3	1
122	Optical Tweezers Shed Light on Cell Motility. , 2009, , .		0
123	Study of Angle Dependent Reflection From a 3D Quasi-Ordered Photonic Crystal. , 2008, , .		0
124	Double Scattering of Light from Biophotonic Nanostructures with Short-Range Order. , 2010, , .		0
125	Reply to the â€˜Comment on â€œSurface elastic constants of a soft solidâ€â€™ by E. Gutman, Soft Matter, 2022, 18, DOI: 10.1039/D1SM01412A. Soft Matter, 2022, 18, 4641-4642.	1.2	0