

Abraham D Stroock

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93
papers

13,629
citations

41
h-index

101
g-index

101
ext. papers

14,939
ext. citations

7.9
avg, IF

6.31
L-index

#	Paper	IF	Citations
93	ENGINEERING FLOWS IN SMALL DEVICES. <i>Annual Review of Fluid Mechanics</i> , 2004 , 36, 381-411	22	2632
92	Chaotic mixer for microchannels. <i>Science</i> , 2002 , 295, 647-51	33.3	2471
91	Generation of Solution and Surface Gradients Using Microfluidic Systems. <i>Langmuir</i> , 2000 , 16, 8311-8316	14	776
90	In vitro microvessels for the study of angiogenesis and thrombosis. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2012 , 109, 9342-7	11.5	657
89	Microfluidic scaffolds for tissue engineering. <i>Nature Materials</i> , 2007 , 6, 908-15	27	498
88	Components for integrated poly(dimethylsiloxane) microfluidic systems. <i>Electrophoresis</i> , 2002 , 23, 3461-7	3.8	496
87	Experimental and theoretical scaling laws for transverse diffusive broadening in two-phase laminar flows in microchannels. <i>Applied Physics Letters</i> , 2000 , 76, 2376-2378	3.4	436
86	Flexible Methods for Microfluidics. <i>Physics Today</i> , 2001 , 54, 42-48	0.9	430
85	Membraneless vanadium redox fuel cell using laminar flow. <i>Journal of the American Chemical Society</i> , 2002 , 124, 12930-1	16.4	347
84	An integrated fluorescence detection system in poly(dimethylsiloxane) for microfluidic applications. <i>Analytical Chemistry</i> , 2001 , 73, 4491-8	7.8	347
83	The transpiration of water at negative pressures in a synthetic tree. <i>Nature</i> , 2008 , 455, 208-12	50.4	341
82	Patterning flows using grooved surfaces. <i>Analytical Chemistry</i> , 2002 , 74, 5306-12	7.8	315
81	Patterning electro-osmotic flow with patterned surface charge. <i>Physical Review Letters</i> , 2000 , 84, 3314-7	7.4	271
80	Dense type I collagen matrices that support cellular remodeling and microfabrication for studies of tumor angiogenesis and vasculogenesis in vitro. <i>Biomaterials</i> , 2010 , 31, 8596-607	15.6	243
79	Prototyping of microfluidic devices in poly(dimethylsiloxane) using solid-object printing. <i>Analytical Chemistry</i> , 2002 , 74, 1537-45	7.8	211
78	A microfluidic biomaterial. <i>Journal of the American Chemical Society</i> , 2005 , 127, 13788-9	16.4	190
77	Formation of microvascular networks in vitro. <i>Nature Protocols</i> , 2013 , 8, 1820-36	18.8	149

76	A miniaturized, parallel, serially diluted immunoassay for analyzing multiple antigens. <i>Journal of the American Chemical Society</i> , 2003 , 125, 5294-5	16.4	144
75	A general method for patterning gradients of biomolecules on surfaces using microfluidic networks. <i>Analytical Chemistry</i> , 2005 , 77, 2338-47	7.8	141
74	The Physicochemical Hydrodynamics of Vascular Plants. <i>Annual Review of Fluid Mechanics</i> , 2014 , 46, 615-642	6.4	122
73	Controlling flows in microchannels with patterned surface charge and topography. <i>Accounts of Chemical Research</i> , 2003 , 36, 597-604	24.3	121
72	Shape selectivity in the assembly of lithographically designed colloidal particles. <i>Journal of the American Chemical Society</i> , 2007 , 129, 40-1	16.4	107
71	Nanobiotechnology: protein-nanomaterial interactions. <i>Biotechnology Progress</i> , 2007 , 23, 316-9	2.8	105
70	Investigation of the staggered herringbone mixer with a simple analytical model. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2004 , 362, 971-86	3	92
69	3D culture broadly regulates tumor cell hypoxia response and angiogenesis via pro-inflammatory pathways. <i>Biomaterials</i> , 2015 , 55, 110-8	15.6	90
68	Oxygen-controlled three-dimensional cultures to analyze tumor angiogenesis. <i>Tissue Engineering - Part A</i> , 2010 , 16, 2133-41	3.9	84
67	Integration of layered chondrocyte-seeded alginate hydrogel scaffolds. <i>Biomaterials</i> , 2007 , 28, 2987-93	15.6	78
66	The competition between liquid and vapor transport in transpiring leaves. <i>Plant Physiology</i> , 2014 , 164, 1741-58	6.6	77
65	Using three-dimensional microfluidic networks for solving computationally hard problems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2001 , 98, 2961-6	11.5	74
64	Microfluidic culture models of tumor angiogenesis. <i>Tissue Engineering - Part A</i> , 2010 , 16, 2143-6	3.9	70
63	Synthesis of Free-Standing Quasi-Two-Dimensional Polymers. <i>Langmuir</i> , 2003 , 19, 2466-2472	4	69
62	Patterned Polymer Multilayers as Etch Resists. <i>Langmuir</i> , 1999 , 15, 6862-6867	4	68
61	Membraneless, room-temperature, direct borohydride/cerium fuel cell with power density of over 0.25 W/cm ² . <i>Journal of the American Chemical Society</i> , 2012 , 134, 6076-9	16.4	64
60	Cubic liquid-crystalline behavior in a system of hard cuboids. <i>Journal of Chemical Physics</i> , 2004 , 120, 9383-9	3.9	60
59	Physicochemical regulation of endothelial sprouting in a 3D microfluidic angiogenesis model. <i>Journal of Biomedical Materials Research - Part A</i> , 2013 , 101, 2948-56	5.4	59

58	Synthesis of Geometrically Well Defined, Molecularly Thin Polymer Films This work was supported by the National Institutes of Health (GM30376). A.D.S is supported by a NIH Molecular Biophysics Training Grant (GM08313-10). <i>Angewandte Chemie - International Edition</i> , 2000 , 39, 1058-1061	16.4	54
57	Exploring water and other liquids at negative pressure. <i>Journal of Physics Condensed Matter</i> , 2012 , 24, 284110	1.8	52
56	Phosphorescent nanoparticles for quantitative measurements of oxygen profiles in vitro and in vivo. <i>Biomaterials</i> , 2012 , 33, 2710-22	15.6	48
55	Drying by cavitation and poroelastic relaxations in porous media with macroscopic pores connected by nanoscale throats. <i>Physical Review Letters</i> , 2014 , 113, 134501	7.4	46
54	Microstructured templates for directed growth and vascularization of soft tissue in vivo. <i>Biomaterials</i> , 2011 , 32, 5391-401	15.6	46
53	Three-dimensional flows in slowly varying planar geometries. <i>Physics of Fluids</i> , 2004 , 16, 3051-3062	4.4	46
52	Capillarity-driven flows at the continuum limit. <i>Soft Matter</i> , 2016 , 12, 6656-61	3.6	41
51	Adipose-derived stem cells increase angiogenesis through matrix metalloproteinase-dependent collagen remodeling. <i>Integrative Biology (United Kingdom)</i> , 2016 , 8, 205-15	3.7	41
50	Experimental investigation of selective colloidal interactions controlled by shape, surface roughness, and steric layers. <i>Langmuir</i> , 2008 , 24, 11451-63	4	39
49	Multiscale models of breast cancer progression. <i>Annals of Biomedical Engineering</i> , 2012 , 40, 2488-500	4.7	38
48	Application of tissue engineering to the immune system: development of artificial lymph nodes. <i>Frontiers in Immunology</i> , 2012 , 3, 343	8.4	37
47	Imbibition Triggered by Capillary Condensation in Nanopores. <i>Langmuir</i> , 2017 , 33, 1655-1661	4	36
46	Passive phloem loading and long-distance transport in a synthetic tree-on-a-chip. <i>Nature Plants</i> , 2017 , 3, 17032	11.5	34
45	Pumping based on transverse electrokinetic effects. <i>Applied Physics Letters</i> , 2003 , 83, 1486-1488	3.4	34
44	Phloem Loading through Plasmodesmata: A Biophysical Analysis. <i>Plant Physiology</i> , 2017 , 175, 904-915	6.6	33
43	Impact of electroviscosity on the hydraulic conductance of the bordered pit membrane: a theoretical investigation. <i>Plant Physiology</i> , 2013 , 163, 999-1011	6.6	33
42	Mass transfer to reactive boundaries from steady three-dimensional flows in microchannels. <i>Physics of Fluids</i> , 2006 , 18, 073602	4.4	32
41	A microtensiometer capable of measuring water potentials below -10 MPa. <i>Lab on A Chip</i> , 2014 , 14, 2806-2817	1.7	31

40	Stability limit of liquid water in metastable equilibrium with subsaturated vapors. <i>Langmuir</i> , 2009 , 25, 7609-22	4	30
39	Adhesive properties of laminated alginate gels for tissue engineering of layered structures. <i>Journal of Biomedical Materials Research - Part A</i> , 2008 , 85, 611-8	5.4	29
38	Fluidic Ratchet Based on Marangoni-Bénard Convection. <i>Langmuir</i> , 2003 , 19, 4358-4362	4	27
37	Transport phenomena in chaotic laminar flows. <i>Annual Review of Chemical and Biomolecular Engineering</i> , 2012 , 3, 473-96	8.9	25
36	Protein translocation through a tunnel induces changes in folding kinetics: a lattice model study. <i>Biotechnology and Bioengineering</i> , 2006 , 94, 105-17	4.9	21
35	Endothelial cell dynamics during anastomosis in vitro. <i>Integrative Biology (United Kingdom)</i> , 2015 , 7, 454-66	5.6	20
34	Competition of intrinsic and topographically imposed patterns in Bénard-Marangoni convection. <i>Applied Physics Letters</i> , 2001 , 79, 439-441	3.4	20
33	An active wound dressing for controlled convective mass transfer with the wound bed. <i>Journal of Biomedical Materials Research - Part B Applied Biomaterials</i> , 2007 , 82, 210-22	3.5	19
32	Stability Limit of Water by Metastable Vapor-Liquid Equilibrium with Nanoporous Silicon Membranes. <i>Journal of Physical Chemistry B</i> , 2016 , 120, 5209-22	3.4	18
31	Mathematical modeling and frequency gradient analysis of cellular and vascular invasion into integra and strattice: toward optimal design of tissue regeneration scaffolds. <i>Plastic and Reconstructive Surgery</i> , 2012 , 129, 89-99	2.7	18
30	Materials for Micro- and Nanofluidics. <i>MRS Bulletin</i> , 2006 , 31, 87-94	3.2	18
29	Microfluidic Biomaterials. <i>MRS Bulletin</i> , 2006 , 31, 114-119	3.2	17
28	The Stability Limit and other Open Questions on Water at Negative Pressure. <i>Advances in Chemical Physics</i> , 2013 , 51-80		15
27	Multi-scale computational study of the Warburg effect, reverse Warburg effect and glutamine addiction in solid tumors. <i>PLoS Computational Biology</i> , 2018 , 14, e1006584	5	15
26	Ideal rate of collision of cylinders in simple shear flow. <i>Langmuir</i> , 2011 , 27, 11813-23	4	14
25	How a "pinch of salt" can tune chaotic mixing of colloidal suspensions. <i>Soft Matter</i> , 2014 , 10, 4795-9	3.6	13
24	Leaf hydraulics I: scaling transport properties from single cells to tissues. <i>Journal of Theoretical Biology</i> , 2014 , 340, 251-66	2.3	13
23	Rotational motion of a thin axisymmetric disk in a low Reynolds number linear flow. <i>Physics of Fluids</i> , 2014 , 26, 033303	4.4	13

22	Alternative Oxidants for High-Power Fuel Cells Studied by Rotating Disk Electrode (RDE) Voltammetry at Pt, Au, and Glassy Carbon Electrodes. <i>Journal of Physical Chemistry C</i> , 2011 , 115, 6073-6084	3.8	13
21	Rigid ring-shaped particles that align in simple shear flow. <i>Journal of Fluid Mechanics</i> , 2013 , 722, 121-158	3.7	12
20	Interfacial mass transport in steady three-dimensional flows in microchannels. <i>New Journal of Physics</i> , 2009 , 11, 075028	2.9	11
19	Leaf hydraulics II: vascularized tissues. <i>Journal of Theoretical Biology</i> , 2014 , 340, 267-84	2.3	10
18	Analysis of superheated loop heat pipes exploiting nanoporous wick membranes. <i>AIChE Journal</i> , 2014 , 60, 762-777	3.6	7
17	Enhanced Oxygen Solubility in Metastable Water under Tension. <i>Langmuir</i> , 2018 , 34, 12017-12024	4	7
16	The Acellular Dermal Replacement Scaffolds Stratattice [®] and Integra [®] . <i>Plastic and Reconstructive Surgery</i> , 2011 , 128, 37	2.7	6
15	Analysis of a time dependent injection strategy to accelerate the residual trapping of sequestered CO ₂ in the geologic subsurface. <i>International Journal of Greenhouse Gas Control</i> , 2016 , 44, 185-198	4.2	6
14	Adsorption, Desorption, and Crystallization of Aqueous Solutions in Nanopores. <i>Langmuir</i> , 2019 , 35, 3942-3962	4.5	5
13	Controlling rotation and migration of rings in a simple shear flow through geometric modifications. <i>Journal of Fluid Mechanics</i> , 2018 , 840, 379-407	3.7	5
12	Soft Lithography and Microfluidics		5
11	MICROFLUIDICS		4
10	A minimally disruptive method for measuring water potential in planta using hydrogel nanoreporters. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	4
9	How Solutes Modify the Thermodynamics and Dynamics of Filling and Emptying in Extreme Ink-Bottle Pores. <i>Langmuir</i> , 2019 , 35, 2934-2947	4	3
8	and Measurement of Water Activity with a MEMS Tensiometer. <i>Analytical Chemistry</i> , 2020 , 92, 716-723	7.8	3
7	Modeling the dynamics of remobilized CO ₂ within the geologic subsurface. <i>International Journal of Greenhouse Gas Control</i> , 2018 , 70, 128-145	4.2	2
6	Innovative 3D Collagen Microsphere Scaffold (MSS) Promotes Robust Cellular Invasion. <i>Plastic and Reconstructive Surgery</i> , 2014 , 134, 28	2.7	2
5	Microfluidic relief for transport limitations. <i>BioTechniques</i> , 2005 , 39, 159, 161, 163	2.5	2

- 4 Components for integrated poly(dimethylsiloxane) microfluidic systems **2002**, 23, 3461 2
- 3 Interfacial Transfer from Stirred Laminar Flows 91-109 1
- 2 Re-entrant transition as a bridge of broken ergodicity in confined monolayers of hexagonal prisms and cylinders. *Journal of Colloid and Interface Science*, **2022**, 607, 1478-1490 9.3 0
- 1 Patterning Flows Using Grooved Surfaces: Application to Microfluidics **2002**, 620-622