Prashanta Dutta

List of Publications by Year
in descending order

108 papers	3,762 citations	126907 33 h-index	138484 58 g-index
108 all docs	108 docs citations	108 times ranked	3806 citing authors

#	Article	IF	Citations
1	Analytical Solution of Combined Electroosmotic/Pressure Driven Flows in Two-Dimensional Straight Channels:â€‰ Finite Debye Layer Effects. Analytical Chemistry, 2001, 73, 1979-1986.	6.5	257
2	Dielectrophoretic separation of bioparticles in microdevices: A review. Electrophoresis, 2014, 35, 691-713.	2.4	208
3	Overcoming bloodâ€“brain barrier transport: Advances in nanoparticle-based drug delivery strategies. Materials Today, 2020, 37, 112-125.	14.2	196
4	A micromachined high throughput Coulter counter for bioparticle detection and counting. Journal of Micromechanics and Microengineering, 2007, 17, 304-313.	2.6	175
5	Analytical Solution of Time Periodic Electroosmotic Flows:Â Analogies to Stokes' Second Problem. Analytical Chemistry, 2001, 73, 5097-5102.	6.5	174
6	Joule heating effects in electroosmotically driven microchannel flows. International Journal of Heat and Mass Transfer, 2004, 47, 3085-3095.	4.8	155
7	A rapid magnetic particle driven micromixer. Microfluidics and Nanofluidics, 2008, 4, 375-389.	2.2	134
8	Isoelectric Focusing in a Poly(dimethylsiloxane) Microfluidic Chip. Analytical Chemistry, 2005, 77, 1303-1309.	6.5	122
9	NUMERICAL SIMULATION OF MIXED ELECTROOSMOTIC/PRESSURE DRIVEN MICROFLOWS. Numerical Heat Transfer; Part A: Applications, 2002, 41, 131-148.	2.1	97
10	Internal cooling augmentation in rectangular channel using two inclined baffles. International Journal of Heat and Fluid Flow, 2005, 26, 223-232.	2.4	93
11	Analysis of microwave heating for cylindrical shaped objects. International Journal of Heat and Mass Transfer, 2010, 53, 5129-5138.	4.8	86
12	In Vitro Study of Receptor-Mediated Silica Nanoparticles Delivery across Bloodâ€“Brain Barrier. ACS Applied Materials & Interfaces, 2017, 9, 20410-20416.	8.0	86
13	Review: Electric field driven pumping in microfluidic device. Electrophoresis, 2018, 39, 702-731.	2.4	84
14	Multistage Isoelectric Focusing in a Polymeric Microfluidic Chip. Analytical Chemistry, 2005, 77, 7878-7886.	6.5	75
15	Effect of baffle size, perforation, and orientation on internal heat transfer enhancement. International Journal of Heat and Mass Transfer, 1998, 41, 3005-3013.	4.8	73
16	Modeling and simulation of dielectrophoretic particleâ€“particle interactions and assembly. Journal of Colloid and Interface Science, 2013, 394, 619-629.	9.4	73
17	10â€‰000-fold concentration increase of the biomarker cardiac troponin I in a reducing union microfluidic chip using cationic isotachophoresis. Lab on A Chip, 2011, 11, 890.	6.0	67
18	Enhancement of Lithium Ion Mobility in Ionic Liquid Electrolytes in Presence of Additives. Journal of Physical Chemistry C, 2013, 117, 25343-25351.	3.1	61

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19	Effects of temperature dependent properties in electromagnetic heating. International Journal of Heat and Mass Transfer, 2012, 55, 3412-3422.	4.8	60
20	Electrokinetic flow control in microfluidic chips using a field-effect transistor. Lab on A Chip, 2006, 6, 714.	6.0	51
21	Joule-heating effects in mixed electroosmotic and pressure-driven microflows under constant wall heat flux. Journal of Engineering Mathematics, 2006, 54, 159-180.	1.2	51
22	Modeling and simulation of IEF in 2-D microgeometries. Electrophoresis, 2007, 28, 572-586.	2.4	51
23	Efficiency and Flow Regime of a Highway Stormwater Detention Pond in Washington, USA. Water, Air, and Soil Pollution, 2005, 164, 79-89.	2.4	45
24	Modeling of volume change phenomena in a Liâ€“air battery. Journal of Power Sources, 2014, 258, 340-350.	7.8	44
25	A non-sampling mixing index for multicomponent mixtures. Powder Technology, 2017, 319, 434-444.	4.2	43
26	Effects of reactant crossover and electrode dimensions on the performance of a microfluidic based laminar flow fuel cell. Electrochimica Acta, 2010, 55, 8579-8589.	5.2	42
27	Isotachophoresis of proteins in a networked microfluidic chip: Experiment and 2-D simulation. Electrophoresis, 2007, 28, 1138-1145.	2.4	41
28	Chemically modified solid state nanopores for high throughput nanoparticle separation. Journal of Physics Condensed Matter, 2010, 22, 454107.	1.8	41
29	Iron transport kinetics through blood-brain barrier endothelial cells. Biochimica Et Biophysica Acta - General Subjects, 2018, 1862, 1168-1179.	2.4	41
30	Modeling and simulation of nanoparticle separation through a solidâ€state nanopore. Electrophoresis, 2012, 33, 325-333.	2.4	38
31	Mechanical characterization of HIVâ€1 with a solidâ€state nanopore sensor. Electrophoresis, 2019, 40, 776-783.	2.4	38
32	Effects of ampholyte concentration on protein behavior in onâ€chip isoelectric focusing. Electrophoresis, 2008, 29, 1026-1035.	2.4	36
33	10â€‰000â€fold concentration increase in proteins in a cascade microchip using anionic ITP by a 3â€D numerical simulation with experimental results. Electrophoresis, 2011, 32, 550-562.	2.4	34
34	Preconcentration and detection of the phosphorylated forms of cardiac troponin I in a cascade microchip by cationic isotachophoresis. Lab on A Chip, 2011, 11, 3793.	6.0	30
35	Modeling of Diffuse Charge Effects in a Microfluidic Based Laminar Flow Fuel Cell. Numerical Heat Transfer; Part A: Applications, 2011, 59, 1-27.	2.1	28
36	Hybrid immersed interface-immersed boundary methods for AC dielectrophoresis. Journal of Computational Physics, 2014, 270, 640-659.	3.8	28

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37	Effects of Operating Temperature on the Electrical Performance of a Li-air Battery operated with Ionic Liquid Electrolyte. Electrochimica Acta, 2016, 194, 317-329.	5.2	28
38	Stochastic modeling of nanoparticle internalization and expulsion through receptor-mediated transcytosis. Nanoscale, 2019, 11, 11227-11235.	5.6	27
39	Finite-Volume Methods for Isotachophoretic Separation in Microchannels. Numerical Heat Transfer; Part A: Applications, 2007, 52, 441-461.	2.1	26
40	Synthetic Polymer Nanoparticles Functionalized with Different Ligands for Receptor-Mediated Transcytosis across the Bloodâ€“Brain Barrier. ACS Applied Bio Materials, 2018, 1, 1687-1694.	4.6	26
41	Numerical and Experimental Investigation of Performance Characteristics of Lithium/Sulfur Cells. Electrochimica Acta, 2016, 213, 174-185.	5.2	25
42	Experiment and simulation of mixed flows in a trapezoidal microchannel. Microfluidics and Nanofluidics, 2007, 3, 347-358.	2.2	24
43	Quantification of kinetic rate constants for transcytosis of polymeric nanoparticle through blood-brain barrier. Biochimica Et Biophysica Acta - General Subjects, 2018, 1862, 2779-2787.	2.4	24
44	Mechanical characterization of vesicles and cells: A review. Electrophoresis, 2020, 41, 449-470.	2.4	24
45	A density functional theory based study of the electron transfer reaction at the cathodeâ€“electrolyte interface in lithiumâ€“air batteries. Physical Chemistry Chemical Physics, 2015, 17, 11740-11751.	2.8	23
46	Electrochemical Model for Ionic Liquid Electrolytes in Lithium Batteries. Electrochimica Acta, 2015, 176, 301-310.	5.2	21
47	Combined AC electroosmosis and dielectrophoresis for controlled rotation of microparticles. Biomicrofluidics, 2016, 10, 024101.	2.4	21
48	Role of the diffuse layer in acidic and alkaline fuel cells. Electrochimica Acta, 2011, 56, 4518-4525.	5.2	20
49	A Microfluidic Mixer Utilizing Electrokinetic Relay Switching and Asymmetric Flow Geometries. Journal of Fluids Engineering, Transactions of the ASME, 2007, 129, 395-403.	1.5	19
50	Electroosmosis with step changes in zeta potential in microchannels. AICHE Journal, 2007, 53, 2521-2533.	3.6	19
51	Heat Transfer Characteristics of Mixed Electroosmotic and Pressure Driven Micro-Flows. JSME International Journal Series B, 2006, 49, 812-819.	0.3	18
52	Stochastic simulations of nanoparticle internalization through transferrin receptor dependent clathrin-mediated endocytosis. Biochimica Et Biophysica Acta - General Subjects, 2018, 1862, 2104-2111.	2.4	18
53	Adeno-associated virus characterization for cargo discrimination through nanopore responsiveness. Nanoscale, 2020, 12, 23721-23731.	5.6	18
54	Eyeball-Like Yolkâ€“Shell Bimetallic Nanoparticles for Synergistic Photodynamicâ€“Photothermal Therapy. ACS Applied Bio Materials, 2020, 3, 5922-5929.	4.6	18

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55	A new design for efficient dielectrophoretic separation of cells in a microdevice. Electrophoresis, 2013, 34, 643-650.	2.4	17
56	Density Functional Theory Based Study of the Electron Transfer Reaction at the Lithium Metal Anode in a Lithiumâ€“Air Battery with Ionic Liquid Electrolytes. Journal of Physical Chemistry C, 2014, 118, 27183-27192.	3.1	17
57	A Review of Lithium-Air Battery Modeling Studies. Energies, 2017, 10, 1748.	3.1	17
58	Effect of charged membrane on the particle motion through a nanopore. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2009, 341, 1-12.	4.7	16
59	Enhanced Fluorescence Anisotropy Assay for Human Cardiac Troponin I and T Detection. Journal of Fluorescence, 2011, 21, 2101-2110.	2.5	16
60	Entry modes of ellipsoidal nanoparticles on a membrane during clathrin-mediated endocytosis. Soft Matter, 2019, 15, 5128-5137.	2.7	16
61	Electrodeformation of vesicles suspended in a liquid medium. Physical Review Fluids, 2018, 3, .	2.5	15
62	Dispersion of protein bands in a horseshoe microchannel during IEF. Electrophoresis, 2009, 30, 723-731.	2.4	14
63	Efficient algorithm for simulation of isoelectric focusing. Electrophoresis, 2014, 35, 638-645.	2.4	14
64	Bayesian inference for parameter estimation in lactoferrin-mediated iron transport across blood-brain barrier. Biochimica Et Biophysica Acta - General Subjects, 2020, 1864, 129459.	2.4	14
65	Rapid detection of dysfunctional highâ€density lipoproteins using isoelectric focusingâ€based microfluidic device to diagnose senescenceâ€related disease. Electrophoresis, 2011, 32, 3415-3423.	2.4	13
66	Automated Electric Valve for Electrokinetic Separation in a Networked Microfluidic Chip. Analytical Chemistry, 2007, 79, 1456-1465.	6.5	12
67	Coarse-grained simulations of conformational changes in the multidrug efflux transporter AcrB. Molecular BioSystems, 2017, 13, 2006-2014.	2.9	12
68	A Fast Algorithm to Predict Cell Trajectories in Microdevices Using Dielectrophoresis. Numerical Heat Transfer; Part A: Applications, 2013, 64, 107-131.	2.1	10
69	Effect of Joule heating on isoelectric focusing of proteins in a microchannel. Biomicrofluidics, 2014, 8, 064125.	2.4	10
70	Self-assembled peptides for coating of active sulfur nanoparticles in lithiumâ€“sulfur battery. Journal of Nanoparticle Research, 2016, 18, 1.	1.9	10
71	Hypoxic behavior in cells under controlled microfluidic environment. Biochimica Et Biophysica Acta - General Subjects, 2017, 1861, 759-771.	2.4	10
72	Electrophoretic transport and dynamic deformation of bioâ€vesicles. Electrophoresis, 2019, 40, 2584-2591.	2.4	10

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73	Substrateâ€dependent transport mechanism in AcrB of multidrug resistant bacteria. Proteins: Structure, Function and Bioinformatics, 2020, 88, 853-864.	2.6	10
74	A conductivity-based interface tracking method for microfluidic application. Journal of Micromechanics and Microengineering, 2006, 16, 920-928.	2.6	9
75	Thermal analysis of microwave assisted bonding of poly(methyl methacrylate) substrates in microfluidic devices. International Journal of Heat and Mass Transfer, 2013, 58, 229-239.	4.8	9
76	Improved kinetics from ion advection through overlapping electric double layers in nano-porous electrodes. Electrochimica Acta, 2013, 91, 20-29.	5.2	9
77	A comprehensive numerical investigation of DC dielectrophoretic particleâ¿¿particle interactions and assembly. Colloids and Surfaces A: Physicochemical and Engineering Aspects, 2016, 506, 127-137.	4.7	9
78	Bayesian Method for Parameter Estimation in Transient Heat Transfer Problem. International Journal of Heat and Mass Transfer, 2021, 166, 120746.	4.8	9
79	A turbulence dissipation model for particle laden flow. AICHE Journal, 2009, 55, 1416-1425.	3.6	8
80	Mathematical and numerical model to study two-dimensional free flow isoelectric focusing. Biomicrofluidics, 2014, 8, 034111.	2.4	8
81	Analytical Solution of Time-Periodic Electroosmotic Flow through Cylindrical Microchannel with Non-Uniform Surface Potential. Micromachines, 2019, 10, 498.	2.9	8
82	Comparison of Bloodâ€“Brain Barrier Models for in Vitro Biological Analysis: One-Cell Type vs Three-Cell Type. ACS Applied Bio Materials, 2019, 2, 1050-1055.	4.6	8
83	On electrophoresis of a pHâ€regulated nanogel with ion partitioning effects. Electrophoresis, 2019, 40, 699-709.	2.4	8
84	A pK determination method for proteins from titration curves using principle component analysis. AICHE Journal, 2008, 54, 2238-2249.	3.6	7
85	Joule Heating Effect in Constant Voltage Mode Isotachophoresis in a Microchannel. International Journal of Nonlinear Sciences and Numerical Simulation, 2012, 13, 333-344.	1.0	7
86	Coarse-grained simulations of proton-dependent conformational changes in lactose permease. Proteins: Structure, Function and Bioinformatics, 2016, 84, 1067-1074.	2.6	6
87	Time-Periodic Electro-Osmotic Flow With Nonuniform Surface Charges. Journal of Fluids Engineering, Transactions of the ASME, 2019, 141, .	1.5	6
88	A Review of Nanofluidic Patents. Recent Patents on Nanotechnology, 2008, 2, 150-159.	1.3	5
89	Steadyâ€state protein focusing in carrier ampholyte based isoelectric focusing: Part Iâ€”Analytical solution. Electrophoresis, 2017, 38, 659-666.	2.4	5
90	Effect of Calcium ion on synaptotagmin-like protein during pre-fusion of vesicle for exocytosis in blood-brain barrier. Biochemistry and Biophysics Reports, 2020, 24, 100845.	1.3	5

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91	Steadyâ€state protein focusing in carrier ampholyteâ€based isoelectric focusing: Part IIâ€”validation and case studies. Electrophoresis, 2017, 38, 667-676.	2.4	4
92	Mathematical Model for Tissue-Level Hypoxic Response in Microfluidic Environment. Journal of Biomechanical Engineering, 2018, 140, .	1.3	4
93	Mathematical modeling and numerical simulation of the TGF-Î²/Smad signaling pathway in tumor microenvironments. Applied Numerical Mathematics, 2018, 133, 41-51.	2.1	4
94	Electrokinetic actuation of an uncharged polarizable dielectric droplet in charged hydrogel medium. Electrophoresis, 2021, 42, 920-931.	2.4	4
95	Effects of ampholyte dissociation constants on protein separation in on-chip isoelectric focusing. Journal of Nanoscience and Nanotechnology, 2008, 8, 3719-28.	0.9	3
96	Exploration of conformational changes in lactose permease upon sugar binding and proton transfer through coarseâ€grained simulations. Proteins: Structure, Function and Bioinformatics, 2017, 85, 1856-1865.	2.6	2
97	Cover Image, Volume 84, Issue 8. Proteins: Structure, Function and Bioinformatics, 2016, 84, C1-C1.	2.6	1
98	Work in Progress: Assessing Engineering Students' Motivation and Learning Strategies - A Psychometric Analysis of the Motivated Strategies for Learning Questionnaire. , 0, , .		1
99	Development of Bloomâ€™s-level Graduated Instrument for Assessing Transport Concepts in Hands-on Learning. , 0, , .		1
100	A First-year Progress Report on "Collaborative Research Using Low-cost Desktop Learning Modules to Educate Diverse Undergraduate Communities in Engineering". , 0, , .		1
101	Multi-Disciplinary Project-Based Paradigm that Uses Hands-on Desktop Learning Modules and Modern Learning Pedagogies. , 0, , .		1
102	A High Throughput Microfluidic Bioparticle Sensor. , 2007, , .		0
103	Modeling and simulation of electric field guided cell deformation. AIP Conference Proceedings, 2018, , .	0.4	0
104	Fine-tuning-based Transfer Learning for Characterization of Adeno-Associated Virus. Journal of Signal Processing Systems, 0, , 1.	2.1	0
105	Board 131: Nationwide Dissemination and Critical Assessment of Low-cost Desktop Learning Modules for Engineering: A Systematic, Supported Approach. , 0, , .		0
106	Design Philosophy and System Integrity for Propagation of Hands-on Desktop Learning Modules for Fluid Mechanics and Heat Transfer. , 0, , .		0
107	Faculty Feedback on Hub-based Approach to National Dissemination of Low-cost Desktop Learning Modules. , 0, , .		0
108	Effect of Slp4-a on Membrane Bending during Prefusion of Vesicles in Blood-Brain Barrier. Journal of Biomechanical Engineering, 2022, , .	1.3	0