Dieter Braun

List of Publications by Year
in descending order

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101 papers	9,850 citations	50276 46 h-index	36028 97 g-index
113 all docs	113 docs citations	113 times ranked	10780 citing authors

#	Article	IF	Citations
1	Protein-binding assays in biological liquids using microscale thermophoresis. Nature Communications, 2010, 1, 100.	12.8	907
2	Protein detection by optical shift of a resonant microcavity. Applied Physics Letters, 2002, 80, 4057-4059.	3.3	839
3	Why molecules move along a temperature gradient. Proceedings of the National Academy of Sciences of the United States of America, 2006, 103, 19678-19682.	7.1	839
4	Molecular Interaction Studies Using Microscale Thermophoresis. Assay and Drug Development Technologies, 2011, 9, 342-353.	1.2	655
5	The Role of Metal Nanoparticles in Remote Release of Encapsulated Materials. Nano Letters, 2005, 5, 1371-1377.	9.1	533
6	Microscale thermophoresis quantifies biomolecular interactions under previously challenging conditions. Methods, 2013, 59, 301-315.	3.8	501
7	Trapping of DNA by Thermophoretic Depletion and Convection. Physical Review Letters, 2002, 89, 188103.	7.8	342
8	Extreme accumulation of nucleotides in simulated hydrothermal pore systems. Proceedings of the National Academy of Sciences of the United States of America, 2007, 104, 9346-9351.	7.1	307
9	Multiplexed DNA Quantification by Spectroscopic Shift of Two Microsphere Cavities. Biophysical Journal, 2003, 85, 1974-1979.	0.5	264
10	Thermophoretic Depletion Follows Boltzmann Distribution. Physical Review Letters, 2006, 96, 168301.	7.8	219
11	Optical Thermophoresis for Quantifying the Buffer Dependence of Aptamer Binding. Angewandte Chemie - International Edition, 2010, 49, 2238-2241.	13.8	203
12	Size Determination of (Bio)conjugated Water-Soluble Colloidal Nanoparticles:â€‰ A Comparison of Different Techniques. Journal of Physical Chemistry C, 2007, 111, 11552-11559.	3.1	164
13	Fluorescence Interferometry of Neuronal Cell Adhesion on Microstructured Silicon. Physical Review Letters, 1998, 81, 5241-5244.	7.8	156
14	Heat flux across an open pore enables the continuous replication and selection of oligonucleotides towards increasing length. Nature Chemistry, 2015, 7, 203-208.	13.6	151
15	Labelâ€Free Microscale Thermophoresis Discriminates Sites and Affinity of Proteinâ€“Ligand Binding. Angewandte Chemie - International Edition, 2012, 51, 10656-10659.	13.8	150
16	Why Charged Molecules Move Across a Temperature Gradient: The Role of Electric Fields. Physical Review Letters, 2014, 112, 198101.	7.8	145
17	Thermodiffusion of Charged Colloids:Â Single-Particle Diffusion. Langmuir, 2007, 23, 1674-1683.	3.5	140
18	Escalation of polymerization in a thermal gradient. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 8030-8035.	7.1	133

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19	Thermophoresis of DNA determined by microfluidic fluorescence. European Physical Journal E, 2004, 15, 277-286.	1.6	123
20	Exponential DNA Replication by Laminar Convection. Physical Review Letters, 2003, 91, 158103.	7.8	122
21	Thermal Trap for DNA Replication. Physical Review Letters, 2010, 104, 188102.	7.8	122
22	Toward Self-Assembly of Nanoparticles on Polymeric Microshells: Near-IR Release and Permeability. ACS Nano, 2008, 2, 1807-1816.	14.6	110
23	Peptide surfactants for cell-free production of functional G protein-coupled receptors. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 9049-9054.	7.1	104
24	Nanorods as Wavelengthâ€Selective Absorption Centers in the Visible and Nearâ€Infrared Regions of the Electromagnetic Spectrum. Advanced Materials, 2008, 20, 506-510.	21.0	95
25	Nanoparticles Distribution Control by Polymers:â€‰ Aggregates versus Nonaggregates. Journal of Physical Chemistry C, 2007, 111, 555-564.	3.1	94
26	Optothermal Molecule Trapping by Opposing Fluid Flow with Thermophoretic Drift. Physical Review Letters, 2006, 97, 038103.	7.8	93
27	Hybridization kinetics is different inside cells. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 21649-21654.	7.1	92
28	Two-dimensional colloidal crystals formed by thermophoresis and convection. Applied Physics Letters, 2005, 86, 131921.	3.3	87
29	Observation of Slip Flow in Thermophoresis. Physical Review Letters, 2008, 101, 168301.	7.8	84
30	CO ₂ reduction driven by a pH gradient. Proceedings of the National Academy of Sciences of the United States of America, 2020, 117, 22873-22879.	7.1	84
31	Thermophoresis of single stranded DNA. Electrophoresis, 2010, 31, 279-286.	2.4	82
32	Thermal force approach to molecular evolution. Physical Biology, 2004, 1, P1-P8.	1.8	80
33	Direct Detection of Antibody Concentration and Affinity in Human Serum Using Microscale Thermophoresis. Analytical Chemistry, 2012, 84, 3523-3530.	6.5	77
34	No correlation of focal contacts and close adhesion by comparing GFP-vinculin and fluorescence interference of DiI. European Biophysics Journal, 2001, 30, 17-26.	2.2	69
35	Heated gas bubbles enrich, crystallize, dry, phosphorylate and encapsulate prebiotic molecules. Nature Chemistry, 2019, 11, 779-788.	13.6	66
36	Imaging Neuronal Seal Resistance on Silicon Chip using Fluorescent Voltage-Sensitive Dye. Biophysical Journal, 2004, 87, 1351-1359.	0.5	62

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37	Thermophoretic melting curves quantify the conformation and stability of RNA and DNA. Nucleic Acids Research, 2011, 39, e52-e52.	14.5	62
38	Steep pH Gradients and Directed Colloid Transport in a Microfluidic Alkaline Hydrothermal Pore. Angewandte Chemie - International Edition, 2017, 56, 2340-2344.	13.8	61
39	Dry Polymerization of 3â€²,5â€²â€Cyclic GMP to Long Strands of RNA. ChemBioChem, 2014, 15, 879-883.	2.6	60
40	Optically driven fluid flow along arbitrary microscale patterns using thermoviscous expansion. Journal of Applied Physics, 2008, 104, 104701.	2.5	59
41	Microscale Fluid Flow Induced by Thermoviscous Expansion Along a Traveling Wave. Physical Review Letters, 2008, 100, 164501.	7.8	52
42	Designer Lipid-Like Peptides: A Class of Detergents for Studying Functional Olfactory Receptors Using Commercial Cell-Free Systems. PLoS ONE, 2011, 6, e25067.	2.5	52
43	A Robust and Rapid Method of Producing Soluble, Stable, and Functional G-Protein Coupled Receptors. PLoS ONE, 2011, 6, e23036.	2.5	48
44	Quantitative thermophoretic study of disease-related protein aggregates. Scientific Reports, 2016, 6, 22829.	3.3	48
45	Steep pH Gradients and Directed Colloid Transport in a Microfluidic Alkaline Hydrothermal Pore. Angewandte Chemie, 2017, 129, 2380-2384.	2.0	48
46	PCR BY THERMAL CONVECTION. Modern Physics Letters B, 2004, 18, 775-784.	1.9	47
47	Common coding variant in SERPINA1 increases the risk for large artery stroke. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 3613-3618.	7.1	46
48	Non-equilibrium conditions inside rock pores drive fission, maintenance and selection of coacervate protocells. Nature Chemistry, 2022, 14, 32-39.	13.6	45
49	Single-Molecule Imaging in Living Drosophila Embryos with Reflected Light-Sheet Microscopy. Biophysical Journal, 2016, 110, 939-946.	0.5	44
50	Adhesion proteins for a tight neuronâ€“electrode contact. Journal of Neuroscience Methods, 2001, 104, 133-141.	2.5	39
51	Convective polymerase chain reaction around micro immersion heater. Applied Physics Letters, 2005, 87, 183901.	3.3	35
52	Melting curve analysis in a snapshot. Applied Physics Letters, 2007, 91, .	3.3	34
53	Thermal Habitat for RNA Amplification and Accumulation. Physical Review Letters, 2020, 125, 048104.	7.8	34
54	An Optical Conveyor for Molecules. Nano Letters, 2009, 9, 4264-4267.	9.1	33

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55	Thermophoretic Manipulation of Molecules inside Living Cells. Journal of the American Chemical Society, 2014, 136, 15955-15960.	13.7	31
56	Biologically mediated silicification of marine cyanobacteria and implications for the Proterozoic fossil record. Geology, 2020, 48, 862-866.	4.4	31
57	Fast Voltage Transients in Capacitive Silicon-to-Cell Stimulation Detected with a Luminescent Molecular Electronic Probe. Physical Review Letters, 2001, 86, 2905-2908.	7.8	26
58	Periodic Melting of Oligonucleotides by Oscillating Salt Concentrations Triggered by Microscale Water Cycles Inside Heated Rock Pores. Angewandte Chemie - International Edition, 2019, 58, 13155-13160.	13.8	26
59	Continuous nonenzymatic cross-replication of DNA strands with in situ activated DNA oligonucleotides. Chemical Science, 2019, 10, 5807-5814.	7.4	26
60	Kinetic Microscale Thermophoresis for Simultaneous Measurement of Binding Affinity and Kinetics. Angewandte Chemie - International Edition, 2021, 60, 13988-13995.	13.8	26
61	Computer-based photon-counting lock-in for phase detection at the shot-noise limit. Optics Letters, 2002, 27, 1418.	3.3	25
62	Light driven microflow in ice. Applied Physics Letters, 2009, 94, 113901.	3.3	25
63	Optical fluid and biomolecule transport with thermal fields. Physical Chemistry Chemical Physics, 2011, 13, 9918.	2.8	25
64	Emergence of Information Transmission in a Prebiotic RNA Reactor. Physical Review Letters, 2011, 107, 018101.	7.8	24
65	Structured sequences emerge from random pool when replicated by templated ligation. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	24
66	Transfer potentials shape and equilibrate monetary systems. Physica A: Statistical Mechanics and Its Applications, 2003, 321, 605-618.	2.6	21
67	A Monoclonal Antibody (MCPR3-7) Interfering with the Activity of Proteinase 3 by an Allosteric Mechanism. Journal of Biological Chemistry, 2013, 288, 26635-26648.	3.4	21
68	Thermophoresis in Nanoliter Droplets to Quantify Aptamer Binding. Angewandte Chemie - International Edition, 2014, 53, 7948-7951.	13.8	20
69	Water cycles in a Hadean CO2 atmosphere drive the evolution of long DNA. Nature Physics, 2022, 18, 579-585.	16.7	20
70	Nontrivial bookkeeping: a mechanical perspective. Physica A: Statistical Mechanics and Its Applications, 2003, 324, 266-271.	2.6	18
71	Periodic Melting of Oligonucleotides by Oscillating Salt Concentrations Triggered by Microscale Water Cycles Inside Heated Rock Pores. Angewandte Chemie, 2019, 131, 13289-13294.	2.0	18
72	Lock-in by molecular multiplication. Applied Physics Letters, 2003, 83, 5554-5556.	3.3	17

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73	Fission of Lipid-Vesicles by Membrane Phase Transitions in Thermal Convection. Scientific Reports, 2019, 9, 18808.	3.3	16
74	A new model for silicification of cyanobacteria in Proterozoic tidal flats. Geobiology, 2021, 19, 438-449.	2.4	16
75	Heat flows in rock cracks naturally optimize salt compositions for ribozymes. Nature Chemistry, 2021, 13, 1038-1045.	13.6	16
76	Assets and liabilities are the momentum of particles and antiparticles displayed in Feynman-graphs. Physica A: Statistical Mechanics and Its Applications, 2001, 290, 491-500.	2.6	15
77	Probing of molecular replication and accumulation in shallow heat gradients through numerical simulations. Physical Chemistry Chemical Physics, 2016, 18, 20153-20159.	2.8	14
78	Thermal, Autonomous Replicator Made from Transfer RNA. Physical Review Letters, 2012, 108, 238104.	7.8	13
79	Understanding the similarity in thermophoresis between single- and double-stranded DNA or RNA. Physical Review E, 2015, 91, 062709.	2.1	13
80	Detection of Thermoresponsive Polymer Phase Transition in Dilute Low-Volume Format by Microscale Thermophoretic Depletion. Analytical Chemistry, 2014, 86, 6797-6803.	6.5	12
81	Heatâ€Flowâ€Driven Oligonucleotide Gelation Separates Singleâ€Base Differences. Angewandte Chemie - International Edition, 2016, 55, 6676-6679.	13.8	12
82	Insertion of T4-lysozyme (T4L) can be a useful tool for studying olfactory-related GPCRs. Molecular BioSystems, 2012, 8, 1750.	2.9	11
83	Photochemical Microscale Electrophoresis Allows Fast Quantification of Biomolecule Binding. Journal of the American Chemical Society, 2016, 138, 5363-5370.	13.7	11
84	Acidâ€Catalyzed RNAâ€Oligomerization from 3â€™,5â€™â€cGMP. Chemistry - A European Journal, 2021, 27, 17581-17585.	3.3	11
85	Thermooptical molecule sieve on the microscale. Applied Physics Letters, 2015, 106, 073508.	3.3	10
86	Nonequilibrium thermodynamics of wealth condensation. Physica A: Statistical Mechanics and Its Applications, 2006, 369, 714-722.	2.6	9
87	Cooperative Ligation Breaks Sequence Symmetry and Stabilizes Early Molecular Replication. Physical Review X, 2019, 9, .	8.9	9
88	THERMAL SOLUTIONS FOR MOLECULAR EVOLUTION. International Journal of Modern Physics B, 2012, 26, 1230017.	2.0	7
89	Reversible Switching of Cooperating Replicators. Physical Review Letters, 2017, 118, 078102.	7.8	7
90	tRNA sequences can assemble into a replicator. ELife, 2021, 10, .	6.0	7

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91	Nonenzymatic, Templateâ€Free Polymerization of 3â€™,5â€™ Cyclic Guanosine Monophosphate on Mineral Surfaces. ChemSystemsChem, 2021, 3, .	2.6	7
92	Boron-content dependence of Fano resonances in p-type silicon. Journal of Physics Condensed Matter, 2003, 15, 2923-2931.	1.8	6
93	Emergence of Life from Trapped Nucleotides? Non-Equilibrium ÂBehavior of Oligonucleotides in Thermal Gradients. Synlett, 2016, 28, 56-63.	1.8	6
94	Kinetic Microscale Thermophoresis for Simultaneous Measurement of Binding Affinity and Kinetics. Angewandte Chemie, 2021, 133, 14107-14114.	2.0	5
95	Self-Assembly of Informational Polymers by Templated Ligation. Physical Review X, 2021, 11, .	8.9	5
96	Heatâ€Flowâ€Driven Oligonucleotide Gelation Separates Singleâ€Base Differences. Angewandte Chemie, 2016, 128, 6788-6791.	2.0	3
97	Probing the Cooperativity of Binding Networks with High-Throughput Thermophoresis. Analytical Chemistry, 2017, 89, 2592-2597.	6.5	3
98	Stability of a time-homogeneous system of money and antimoney in an agent-based random economy. Physica A: Statistical Mechanics and Its Applications, 2019, 520, 232-249.	2.6	3
99	Light driven Microfluidics. , 2009, , .		1
100	Optochemical disequilibrium to measure biomolecule charge. Physical Review E, 2018, 98, .	2.1	1
101	RÃ¼cktitelbild: Heatâ€Flowâ€Driven Oligonucleotide Gelation Separates Singleâ€Base Differences (Angew.) Tj ETQq1 1 0.784314 rgBT	2.0	0