

# Dieter Braun

## List of Publications by Year in descending order

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101  
papers

9,850  
citations

50170

46  
h-index

35952

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. <i>Nature Communications</i> , 2010, 1, 100.	5.8	907
2	Protein detection by optical shift of a resonant microcavity. <i>Applied Physics Letters</i> , 2002, 80, 4057-4059.	1.5	839
3	Why molecules move along a temperature gradient. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2006, 103, 19678-19682.	3.3	839
4	Molecular Interaction Studies Using Microscale Thermophoresis. <i>Assay and Drug Development Technologies</i> , 2011, 9, 342-353.	0.6	655
5	The Role of Metal Nanoparticles in Remote Release of Encapsulated Materials. <i>Nano Letters</i> , 2005, 5, 1371-1377.	4.5	533
6	Microscale thermophoresis quantifies biomolecular interactions under previously challenging conditions. <i>Methods</i> , 2013, 59, 301-315.	1.9	501
7	Trapping of DNA by Thermophoretic Depletion and Convection. <i>Physical Review Letters</i> , 2002, 89, 188103.	2.9	342
8	Extreme accumulation of nucleotides in simulated hydrothermal pore systems. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2007, 104, 9346-9351.	3.3	307
9	Multiplexed DNA Quantification by Spectroscopic Shift of Two Microsphere Cavities. <i>Biophysical Journal</i> , 2003, 85, 1974-1979.	0.2	264
10	Thermophoretic Depletion Follows Boltzmann Distribution. <i>Physical Review Letters</i> , 2006, 96, 168301.	2.9	219
11	Optical Thermophoresis for Quantifying the Buffer Dependence of Aptamer Binding. <i>Angewandte Chemie - International Edition</i> , 2010, 49, 2238-2241.	7.2	203
12	Size Determination of (Bio)conjugated Water-Soluble Colloidal Nanoparticles: A Comparison of Different Techniques. <i>Journal of Physical Chemistry C</i> , 2007, 111, 11552-11559.	1.5	164
13	Fluorescence Interferometry of Neuronal Cell Adhesion on Microstructured Silicon. <i>Physical Review Letters</i> , 1998, 81, 5241-5244.	2.9	156
14	Heat flux across an open pore enables the continuous replication and selection of oligonucleotides towards increasing length. <i>Nature Chemistry</i> , 2015, 7, 203-208.	6.6	151
15	Label-Free Microscale Thermophoresis Discriminates Sites and Affinity of Protein-Ligand Binding. <i>Angewandte Chemie - International Edition</i> , 2012, 51, 10656-10659.	7.2	150
16	Why Charged Molecules Move Across a Temperature Gradient: The Role of Electric Fields. <i>Physical Review Letters</i> , 2014, 112, 198101.	2.9	145
17	Thermodiffusion of Charged Colloids: A Single-Particle Diffusion. <i>Langmuir</i> , 2007, 23, 1674-1683.	1.6	140
18	Escalation of polymerization in a thermal gradient. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013, 110, 8030-8035.	3.3	133

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19	Thermophoresis of DNA determined by microfluidic fluorescence. <i>European Physical Journal E</i> , 2004, 15, 277-286.	0.7	123
20	Exponential DNA Replication by Laminar Convection. <i>Physical Review Letters</i> , 2003, 91, 158103.	2.9	122
21	Thermal Trap for DNA Replication. <i>Physical Review Letters</i> , 2010, 104, 188102.	2.9	122
22	Toward Self-Assembly of Nanoparticles on Polymeric Microshells: Near-IR Release and Permeability. <i>ACS Nano</i> , 2008, 2, 1807-1816.	7.3	110
23	Peptide surfactants for cell-free production of functional G protein-coupled receptors. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2011, 108, 9049-9054.	3.3	104
24	Nanorods as Wavelength-Selective Absorption Centers in the Visible and Near-Infrared Regions of the Electromagnetic Spectrum. <i>Advanced Materials</i> , 2008, 20, 506-510.	11.1	95
25	Nanoparticles Distribution Control by Polymers: Aggregates versus Nonaggregates. <i>Journal of Physical Chemistry C</i> , 2007, 111, 555-564.	1.5	94
26	Optothermal Molecule Trapping by Opposing Fluid Flow with Thermophoretic Drift. <i>Physical Review Letters</i> , 2006, 97, 038103.	2.9	93
27	Hybridization kinetics is different inside cells. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2009, 106, 21649-21654.	3.3	92
28	Two-dimensional colloidal crystals formed by thermophoresis and convection. <i>Applied Physics Letters</i> , 2005, 86, 131921.	1.5	87
29	Observation of Slip Flow in Thermophoresis. <i>Physical Review Letters</i> , 2008, 101, 168301.	2.9	84
30	CO <sub>2</sub> reduction driven by a pH gradient. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2020, 117, 22873-22879.	3.3	84
31	Thermophoresis of single stranded DNA. <i>Electrophoresis</i> , 2010, 31, 279-286.	1.3	82
32	Thermal force approach to molecular evolution. <i>Physical Biology</i> , 2004, 1, P1-P8.	0.8	80
33	Direct Detection of Antibody Concentration and Affinity in Human Serum Using Microscale Thermophoresis. <i>Analytical Chemistry</i> , 2012, 84, 3523-3530.	3.2	77
34	No correlation of focal contacts and close adhesion by comparing GFP-vinculin and fluorescence interference of Dil. <i>European Biophysics Journal</i> , 2001, 30, 17-26.	1.2	69
35	Heated gas bubbles enrich, crystallize, dry, phosphorylate and encapsulate prebiotic molecules. <i>Nature Chemistry</i> , 2019, 11, 779-788.	6.6	66
36	Imaging Neuronal Seal Resistance on Silicon Chip using Fluorescent Voltage-Sensitive Dye. <i>Biophysical Journal</i> , 2004, 87, 1351-1359.	0.2	62

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37	Thermophoretic melting curves quantify the conformation and stability of RNA and DNA. <i>Nucleic Acids Research</i> , 2011, 39, e52-e52.	6.5	62
38	Steep pH Gradients and Directed Colloid Transport in a Microfluidic Alkaline Hydrothermal Pore. <i>Angewandte Chemie - International Edition</i> , 2017, 56, 2340-2344.	7.2	61
39	Dry Polymerization of 3'-5'-Cyclic GMP to Long Strands of RNA. <i>ChemBioChem</i> , 2014, 15, 879-883.	1.3	60
40	Optically driven fluid flow along arbitrary microscale patterns using thermoviscous expansion. <i>Journal of Applied Physics</i> , 2008, 104, 104701.	1.1	59
41	Microscale Fluid Flow Induced by Thermoviscous Expansion Along a Traveling Wave. <i>Physical Review Letters</i> , 2008, 100, 164501.	2.9	52
42	Designer Lipid-Like Peptides: A Class of Detergents for Studying Functional Olfactory Receptors Using Commercial Cell-Free Systems. <i>PLoS ONE</i> , 2011, 6, e25067.	1.1	52
43	A Robust and Rapid Method of Producing Soluble, Stable, and Functional G-Protein Coupled Receptors. <i>PLoS ONE</i> , 2011, 6, e23036.	1.1	48
44	Quantitative thermophoretic study of disease-related protein aggregates. <i>Scientific Reports</i> , 2016, 6, 22829.	1.6	48
45	Steep pH Gradients and Directed Colloid Transport in a Microfluidic Alkaline Hydrothermal Pore. <i>Angewandte Chemie</i> , 2017, 129, 2380-2384.	1.6	48
46	PCR BY THERMAL CONVECTION. <i>Modern Physics Letters B</i> , 2004, 18, 775-784.	1.0	47
47	Common coding variant in <i>SERPINA1</i> increases the risk for large artery stroke. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 3613-3618.	3.3	46
48	Non-equilibrium conditions inside rock pores drive fission, maintenance and selection of coacervate protocells. <i>Nature Chemistry</i> , 2022, 14, 32-39.	6.6	45
49	Single-Molecule Imaging in Living <i>Drosophila</i> Embryos with Reflected Light-Sheet Microscopy. <i>Biophysical Journal</i> , 2016, 110, 939-946.	0.2	44
50	Adhesion proteins for a tight neuron-electrode contact. <i>Journal of Neuroscience Methods</i> , 2001, 104, 133-141.	1.3	39
51	Convective polymerase chain reaction around micro immersion heater. <i>Applied Physics Letters</i> , 2005, 87, 183901.	1.5	35
52	Melting curve analysis in a snapshot. <i>Applied Physics Letters</i> , 2007, 91, .	1.5	34
53	Thermal Habitat for RNA Amplification and Accumulation. <i>Physical Review Letters</i> , 2020, 125, 048104.	2.9	34
54	An Optical Conveyor for Molecules. <i>Nano Letters</i> , 2009, 9, 4264-4267.	4.5	33

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55	Thermophoretic Manipulation of Molecules inside Living Cells. <i>Journal of the American Chemical Society</i> , 2014, 136, 15955-15960.	6.6	31
56	Biologically mediated silicification of marine cyanobacteria and implications for the Proterozoic fossil record. <i>Geology</i> , 2020, 48, 862-866.	2.0	31
57	Fast Voltage Transients in Capacitive Silicon-to-Cell Stimulation Detected with a Luminescent Molecular Electronic Probe. <i>Physical Review Letters</i> , 2001, 86, 2905-2908.	2.9	26
58	Periodic Melting of Oligonucleotides by Oscillating Salt Concentrations Triggered by Microscale Water Cycles Inside Heated Rock Pores. <i>Angewandte Chemie - International Edition</i> , 2019, 58, 13155-13160.	7.2	26
59	Continuous nonenzymatic cross-replication of DNA strands with <i>in situ</i> activated DNA oligonucleotides. <i>Chemical Science</i> , 2019, 10, 5807-5814.	3.7	26
60	Kinetic Microscale Thermophoresis for Simultaneous Measurement of Binding Affinity and Kinetics. <i>Angewandte Chemie - International Edition</i> , 2021, 60, 13988-13995.	7.2	26
61	Computer-based photon-counting lock-in for phase detection at the shot-noise limit. <i>Optics Letters</i> , 2002, 27, 1418.	1.7	25
62	Light driven microflow in ice. <i>Applied Physics Letters</i> , 2009, 94, 113901.	1.5	25
63	Optical fluid and biomolecule transport with thermal fields. <i>Physical Chemistry Chemical Physics</i> , 2011, 13, 9918.	1.3	25
64	Emergence of Information Transmission in a Prebiotic RNA Reactor. <i>Physical Review Letters</i> , 2011, 107, 018101.	2.9	24
65	Structured sequences emerge from random pool when replicated by templated ligation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021, 118, .	3.3	24
66	Transfer potentials shape and equilibrate monetary systems. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2003, 321, 605-618.	1.2	21
67	A Monoclonal Antibody (MCPR3-7) Interfering with the Activity of Proteinase 3 by an Allosteric Mechanism. <i>Journal of Biological Chemistry</i> , 2013, 288, 26635-26648.	1.6	21
68	Thermophoresis in Nanoliter Droplets to Quantify Aptamer Binding. <i>Angewandte Chemie - International Edition</i> , 2014, 53, 7948-7951.	7.2	20
69	Water cycles in a Hadean CO <sub>2</sub> atmosphere drive the evolution of long DNA. <i>Nature Physics</i> , 2022, 18, 579-585.	6.5	20
70	Nontrivial bookkeeping: a mechanical perspective. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2003, 324, 266-271.	1.2	18
71	Periodic Melting of Oligonucleotides by Oscillating Salt Concentrations Triggered by Microscale Water Cycles Inside Heated Rock Pores. <i>Angewandte Chemie</i> , 2019, 131, 13289-13294.	1.6	18
72	Lock-in by molecular multiplication. <i>Applied Physics Letters</i> , 2003, 83, 5554-5556.	1.5	17

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73	Fission of Lipid-Vesicles by Membrane Phase Transitions in Thermal Convection. Scientific Reports, 2019, 9, 18808.	1.6	16
74	A new model for silicification of cyanobacteria in Proterozoic tidal flats. Geobiology, 2021, 19, 438-449.	1.1	16
75	Heat flows in rock cracks naturally optimize salt compositions for ribozymes. Nature Chemistry, 2021, 13, 1038-1045.	6.6	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.	1.2	15
77	Probing of molecular replication and accumulation in shallow heat gradients through numerical simulations. Physical Chemistry Chemical Physics, 2016, 18, 20153-20159.	1.3	14
78	Thermal, Autonomous Replicator Made from Transfer RNA. Physical Review Letters, 2012, 108, 238104.	2.9	13
79	Understanding the similarity in thermophoresis between single- and double-stranded DNA or RNA. Physical Review E, 2015, 91, 062709.	0.8	13
80	Detection of Thermoresponsive Polymer Phase Transition in Dilute Low-Volume Format by Microscale Thermophoretic Depletion. Analytical Chemistry, 2014, 86, 6797-6803.	3.2	12
81	Heat-Driven Oligonucleotide Gelation Separates Single-Base Differences. Angewandte Chemie - International Edition, 2016, 55, 6676-6679.	7.2	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.	6.6	11
84	Acid-Catalyzed RNA-Oligomerization from 3 <sup>â€™</sup> ,5 <sup>â€™</sup> -cGMP. Chemistry - A European Journal, 2021, 27, 17581-17585.	1.1	11
85	Thermooptical molecule sieve on the microscale. Applied Physics Letters, 2015, 106, 073508.	1.5	10
86	Nonequilibrium thermodynamics of wealth condensation. Physica A: Statistical Mechanics and Its Applications, 2006, 369, 714-722.	1.2	9
87	Cooperative Ligation Breaks Sequence Symmetry and Stabilizes Early Molecular Replication. Physical Review X, 2019, 9, .	2.8	9
88	THERMAL SOLUTIONS FOR MOLECULAR EVOLUTION. International Journal of Modern Physics B, 2012, 26, 1230017.	1.0	7
89	Reversible Switching of Cooperating Replicators. Physical Review Letters, 2017, 118, 078102.	2.9	7
90	tRNA sequences can assemble into a replicator. ELife, 2021, 10, .	2.8	7

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91	Nonenzymatic, Template-Free Polymerization of 3'-phosphoadenosine 5'-phosphate Cyclic Guanosine Monophosphate on Mineral Surfaces. <i>ChemSystemsChem</i> , 2021, 3, .	1.1	7
92	Boron-content dependence of Fano resonances in p-type silicon. <i>Journal of Physics Condensed Matter</i> , 2003, 15, 2923-2931.	0.7	6
93	Emergence of Life from Trapped Nucleotides? Non-Equilibrium Behavior of Oligonucleotides in Thermal Gradients. <i>Synlett</i> , 2016, 28, 56-63.	1.0	6
94	Kinetic Microscale Thermophoresis for Simultaneous Measurement of Binding Affinity and Kinetics. <i>Angewandte Chemie</i> , 2021, 133, 14107-14114.	1.6	5
95	Self-Assembly of Informational Polymers by Templated Ligation. <i>Physical Review X</i> , 2021, 11, .	2.8	5
96	Heat-Flow-Driven Oligonucleotide Gelation Separates Single-Base Differences. <i>Angewandte Chemie</i> , 2016, 128, 6788-6791.	1.6	3
97	Probing the Cooperativity of Binding Networks with High-Throughput Thermophoresis. <i>Analytical Chemistry</i> , 2017, 89, 2592-2597.	3.2	3
98	Stability of a time-homogeneous system of money and antimoney in an agent-based random economy. <i>Physica A: Statistical Mechanics and Its Applications</i> , 2019, 520, 232-249.	1.2	3
99	Light driven Microfluidics. , 2009, , .		1
100	Optochemical disequilibrium to measure biomolecule charge. <i>Physical Review E</i> , 2018, 98, .	0.8	1
101	Heat-Flow-Driven Oligonucleotide Gelation Separates Single-Base Differences (Angew.) <i>Tj ETQq</i> 1 1 0.784314 rg	1.6	0