# Michael P Brenner

List of Publications by Year
in descending order



| 78 | 3,936 | 159358 | 128067 |
|---|---|---|---|
| papers | citations | 30 h-index | 60 g-index |

| 80 | 80 | 80 | 4907 |
|---|---|---|---|
| all docs | docs citations | times ranked | citing authors |

| # | Article | IF | Citations |
|---|---|---|---|
| 1 | Correlation Tracking: Using simulations to interpolate highly correlated particle tracks. Physical Review E, 2022, 105, 044608. | 0.8 | 0 |
| 2 | Revealing lineage-related signals in single-cell gene expression using random matrix theory. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 8 |
| 3 | Designing self-assembling kinetics with differentiable statistical physics models. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 26 |
| 4 | Revealing the state space of turbulence using machine learning. Physical Review Fluids, 2021, 6, . | 1.0 | 16 |
| 5 | Machine learningâ€“accelerated computational fluid dynamics. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 354 |
| 6 | Learned discretizations for passive scalar advection in a two-dimensional turbulent flow. Physical Review Fluids, 2021, 6, . | 1.0 | 26 |
| 7 | Cascades and reconnection in interacting vortex filaments. Physical Review Fluids, 2021, 6, . | 1.0 | 10 |
| 8 | Microscopic origins of the crystallographically preferred growth in evaporation-induced colloidal crystals. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 17 |
| 9 | Programming cell growth into different cluster shapes using diffusible signals. PLoS Computational Biology, 2021, 17, e1009576. | 1.5 | 4 |
| 10 | Phase separation in fluids with many interacting components. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, . | 3.3 | 27 |
| 11 | Identifying Cell Type-Specific Chemokine Correlates with Hierarchical Signal Extraction from Single-Cell Transcriptomes. , 2021, , . | | 0 |
| 12 | Self-assemblyâ€“based posttranslational protein oscillators. Science Advances, 2020, 6, . | 4.7 | 2 |
| 13 | Turbulence generation through an iterative cascade of the elliptical instability. Science Advances, 2020, 6, eaaz2717. | 4.7 | 43 |
| 14 | Tracing cell trajectories in a biofilm. Science, 2020, 369, 30-31. | 6.0 | 3 |
| 15 | Learning data-driven discretizations for partial differential equations. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 15344-15349. | 3.3 | 247 |
| 16 | A Polymer Physics Framework for the Entropy of Arbitrary Pseudoknots. Biophysical Journal, 2019, 117, 520-532. | 0.2 | 12 |
| 17 | Using attribution to decode binding mechanism in neural network models for chemistry. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 11624-11629. | 3.3 | 53 |
| 18 | Magnetic handshake materials as a scale-invariant platform for programmed self-assembly. Proceedings of the National Academy of Sciences of the United States of America, 2019, 116, 24402-24407. | 3.3 | 28 |

| # | Article | IF | Citations |
|---|---|---|---|
| 19 | Robust Increase in Supply by Vessel Dilation in Globally Coupled Microvasculature. Physical Review Letters, 2019, 123, 228103. | 2.9 | 13 |
| 20 | Collagen-Inspired Self-Assembly of Twisted Filaments. Physical Review Letters, 2019, 123, 238102. | 2.9 | 3 |
| 21 | Twirling, whirling, and tensioning: Plectoneme formation and suppression in flexible filaments. Physical Review Research, 2019, 1, . | 1.3 | 3 |
| 22 | Physical and geometric constraints shape the labyrinth-like nasal cavity. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 2936-2941. | 3.3 | 15 |
| 23 | Controlling Polyelectrolyte Adsorption onto Carbon Nanotubes by Tuning Ionâ€“Image Interactions. Journal of Physical Chemistry B, 2018, 122, 1545-1550. | 1.2 | 4 |
| 24 | Local growth rules can maintain metabolically efficient spatial structure throughout growth. Proceedings of the National Academy of Sciences of the United States of America, 2018, 115, 3593-3598. | 3.3 | 2 |
| 25 | Enhanced diffusion by binding to the crosslinks of a polymer gel. Nature Communications, 2018, 9, 4348. | 5.8 | 45 |
| 26 | A universal growth limit for circular lichens. Journal of the Royal Society Interface, 2018, 15, 20180063. | 1.5 | 9 |
| 27 | Cascade leading to the emergence of small structures in vortex ring collisions. Physical Review Fluids, 2018, 3, . | 1.0 | 29 |
| 28 | Emergence of small scales in vortex ring collisions. Physical Review Fluids, 2018, 3, . | 1.0 | 3 |
| 29 | Spontaneous emergence of catalytic cycles with colloidal spheres. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 4342-4347. | 3.3 | 18 |
| 30 | Mechanism of signal propagation in Physarum polycephalum. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 5136-5141. | 3.3 | 73 |
| 31 | Using active colloids as machines to weave and braid on the micrometer scale. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 257-262. | 3.3 | 19 |
| 32 | Local Pore Size Correlations Determine Flow Distributions in Porous Media. Physical Review Letters, 2017, 119, 144501. | 2.9 | 65 |
| 33 | Optimal Design of Experiments by Combining Coarse and Fine Measurements. Physical Review Letters, 2017, 119, 208101. | 2.9 | 5 |
| 34 | Mutation at Expanding Front of Self-Replicating Colloidal Clusters. Physical Review Letters, 2016, 117, 238004. | 2.9 | 8 |
| 35 | Receptor arrays optimized for natural odor statistics. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5570-5575. | 3.3 | 36 |
| 36 | Information capacity of specific interactions. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 5841-5846. | 3.3 | 23 |

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|---|---|---|---|
| 37 | Designing steep, sharp patterns on uniformly ion-bombarded surfaces. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 11425-11430. | 3.3 | 8 |
| 38 | A Dialogue between Online and On-Campus Versions of the Same Course: Lessons from Harvardâ€™s Science and Cooking Course. ACS Symposium Series, 2016, , 89-107. | 0.5 | 2 |
| 39 | Predicting proteinâ€“ligand affinity with a random matrix framework. Proceedings of the National Academy of Sciences of the United States of America, 2016, 113, 13564-13569. | 3.3 | 24 |
| 40 | Pruning to Increase Taylor Dispersion inPhysarum polycephalumNetworks. Physical Review Letters, 2016, 117, 178103. | 2.9 | 37 |
| 41 | Probing phenotypic growth in expanding Bacillus subtilis biofilms. Applied Microbiology and Biotechnology, 2016, 100, 4607-4615. | 1.7 | 40 |
| 42 | Potential singularity mechanism for the Euler equations. Physical Review Fluids, 2016, 1, . | 1.0 | 40 |
| 43 | Two-Dimensional Clusters of Colloidal Spheres: Ground States, Excited States, and Structural Rearrangements. Physical Review Letters, 2015, 114, 228301. | 2.9 | 43 |
| 44 | Undesired usage and the robust self-assembly of heterogeneous structures. Nature Communications, 2015, 6, 6203. | 5.8 | 49 |
| 45 | Multifarious assembly mixtures: Systems allowing retrieval of diverse stored structures. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 54-59. | 3.3 | 52 |
| 46 | Biophysics of Molecular Gastronomy. Cell, 2015, 161, 5-8. | 13.5 | 12 |
| 47 | Femtosecond-laser hyperdoping silicon in an SF<sub>6</sub> atmosphere: Dopant incorporation mechanism. Journal of Applied Physics, 2015, 117, 125301. | 1.1 | 24 |
| 48 | Creating femtosecond-laser-hyperdoped silicon with a homogeneous doping profile. Applied Physics Letters, 2015, 106, . | 1.5 | 19 |
| 49 | Production of amorphous nanoparticles by supersonic spray-drying with a microfluidic nebulator. Science, 2015, 349, 956-960. | 6.0 | 110 |
| 50 | Conservation Weighting Functions Enable Covariance Analyses to Detect Functionally Important Amino Acids. PLoS ONE, 2014, 9, e107723. | 1.1 | 10 |
| 51 | Fluid mechanical responses to nutrient depletion in fungi and biofilms. Physics of Fluids, 2014, 26, . | 1.6 | 5 |
| 52 | Feynman-Hellmann Theorem and Signal Identification from Sample Covariance Matrices. Physical Review X, 2014, 4, . | 2.8 | 2 |
| 53 | Characterization of Patterns Formed by Shadows of Spheres. Physical Review Letters, 2014, 112, 235502. | 2.9 | 6 |
| 54 | Shared developmental programme strongly constrains beak shape diversity in songbirds. Nature Communications, 2014, 5, 3700. | 5.8 | 46 |

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|---|---|---|---|
| 55 | Size limits of self-assembled colloidal structures made using specific interactions. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 15918-15923. | 3.3 | 79 |
| 56 | Systems analysis of the CO2 concentrating mechanism in cyanobacteria. ELife, 2014, 3, e02043. | 2.8 | 77 |
| 57 | Liquid transport facilitated by channels in Bacillus subtilis biofilms. Proceedings of the National Academy of Sciences of the United States of America, 2013, 110, 848-852. | 3.3 | 278 |
| 58 | A natural O-ring optimizes the dispersal of fungal spores. Journal of the Royal Society Interface, 2013, 10, 20130187. | 1.5 | 18 |
| 59 | Osmotic spreading of Bacillus subtilis biofilms driven by an extracellular matrix. Proceedings of the National Academy of Sciences of the United States of America, 2012, 109, 1116-1121. | 3.3 | 246 |
| 60 | Endocytic Traffic: Vesicle Fusion Cascade in the Early Endosomes. Current Biology, 2012, 22, R597-R598. | 1.8 | 4 |
| 61 | Absence of singular stretching of interacting vortex filaments. Journal of Fluid Mechanics, 2012, 707, 191-204. | 1.4 | 15 |
| 62 | The mechanism of a splash on a dry solid surface. Journal of Fluid Mechanics, 2012, 690, 148-172. | 1.4 | 127 |
| 63 | Deriving Finite Sphere Packings. SIAM Journal on Discrete Mathematics, 2011, 25, 1860-1901. | 0.4 | 43 |
| 64 | Design principles for self-assembly with short-range interactions. Proceedings of the National Academy of Sciences of the United States of America, 2011, 108, 5193-5198. | 3.3 | 86 |
| 65 | Potential Flows of Viscous and Viscoelastic Fluids. By Daniel Joseph, Toshio Funada & Jing Wang. Cambridge University Press, New York, 2007. 516 pp. ISBN-13: 978 0 521 87337 6 $104.99.. Journal of Fluid Mechanics, 2010, 660, 538-539. | 1.4 | 0 |
| 66 | Events before droplet splashing on a solid surface. Journal of Fluid Mechanics, 2010, 647, 163-185. | 1.4 | 161 |
| 67 | Chemotactic patterns without chemotaxis. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 11653-11654. | 3.3 | 12 |
| 68 | Breakup of diminutive Rayleigh jets. Physics of Fluids, 2010, 22, . | 1.6 | 147 |
| 69 | Resolving intercontinental pollution plumes in global models of atmospheric transport. Journal of Geophysical Research, 2010, 115, . | 3.3 | 82 |
| 70 | Bacillus subtilis spreads by surfing on waves of surfactant. Proceedings of the National Academy of Sciences of the United States of America, 2009, 106, 18109-18113. | 3.3 | 158 |
| 71 | Cavitation in linear bubbles. Journal of Fluid Mechanics, 2009, 632, 1-4. | 1.4 | 5 |
| 72 | Dynamic Equilibrium Mechanism for Surface Nanobubble Stabilization. Physical Review Letters, 2008, 101, 214505. | 2.9 | 267 |

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|---|---|---|---|
| 73 | Explosively launched spores of ascomycete fungi have drag-minimizing shapes. Proceedings of the National Academy of Sciences of the United States of America, 2008, 105, 20583-20588. | 3.3 | 70 |
| 74 | Symmetry unbreaking in the shapes of perfect projectiles. Physics of Fluids, 2008, 20, . | 1.6 | 10 |
| 75 | A model for velocity fluctuations in sedimentation. Journal of Fluid Mechanics, 2004, 501, 71-104. | 1.4 | 118 |
| 76 | Thermal bending of liquid sheets and jets. Physics of Fluids, 2003, 15, 3568-3571. | 1.6 | 7 |
| 77 | Optimal design of a bistable switch. Proceedings of the National Academy of Sciences of the United States of America, 2003, 100, 9663-9667. | 3.3 | 26 |
| 78 | Pinching threads, singularities and the number 0.0304.... Physics of Fluids, 1996, 8, 2827-2836. | 1.6 | 121 |