Nicholas T Ouellette

List of Publications by Year
in descending order

125 papers	3,747 citations	126907 33 h-index	155660 55 g-index
127 all docs	127 docs citations	127 times ranked	2580 citing authors

#	Article	IF	Citations
1	A physics perspective on collective animal behavior. Physical Biology, 2022, 19, 021004.	1.8	18
2	Directional strengthening and weakening in hydrodynamically sheared granular beds. Physical Review Fluids, 2022, 7, .	2.5	1
3	Formation and dissolution of midge swarms. Physical Review E, 2022, 105, 034601.	2.1	2
4	On the interaction between oncoming internal waves and a dense gravity current in a two-layer stratification. Journal of Fluid Mechanics, 2022, 932, .	3.4	0
5	Stochastic modelling of bird flocks: accounting for the cohesiveness of collective motion. Journal of the Royal Society Interface, 2022, 19, 20210745.	3.4	10
6	Automated identification of urban substructure for comparative analysis. PLoS ONE, 2021, 16, e0245067.	2.5	1
7	Shear response of granular packings compressed above jamming onset. Physical Review E, 2021, 103, 022902.	2.1	10
8	An equation of state for insect swarms. Scientific Reports, 2021, 11, 3773.	3.3	14
9	Assessing the information content of complex flows. Physical Review E, 2021, 103, 023301.	2.1	1
10	Secondary generation of breaking internal waves in confined basins by gravity currents. Journal of Fluid Mechanics, 2021, 917, .	3.4	2
11	Goals and Limitations of Modeling Collective Behavior in Biological Systems. Frontiers in Physics, 2021, 9, .	2.1	18
12	Extending the reach of Lagrangian analysis in turbulence. Journal of Fluid Mechanics, 2021, 924, .	3.4	0
13	Onset of grain motion in eroding subaqueous bimodal granular beds. Physical Review Fluids, 2021, 6, .	2.5	1
14	Spectral condensation in laboratory two-dimensional turbulence. Physical Review Fluids, 2021, 6, .	2.5	4
15	On the surface expression of bottom features in free-surface flow. Journal of Fluid Mechanics, 2020, 900, .	3.4	5
16	Pair formation in insect swarms driven by adaptive long-range interactions. Journal of the Royal Society Interface, 2020, 17, 20200367.	3.4	2
17	Synergistic interactions among growing stressors increase risk to an Arctic ecosystem. Nature Communications, 2020, 11, 6255.	12.8	22
18	Environmental perturbations induce correlations in midge swarms. Journal of the Royal Society Interface, 2020, 17, 20200018.	3.4	25

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19	Interaction between an inclined gravity current and a pycnocline in a two-layer stratification. Journal of Fluid Mechanics, 2020, 887, .	3.4	9
20	Geometric constraints on energy transfer in the turbulent cascade. Physical Review Fluids, 2020, 5, .	2.5	3
21	Temporal dynamics of the alignment of the turbulent stress and strain rate. Physical Review Fluids, 2020, 5, .	2.5	7
22	Settling of inertial nonspherical particles in wavy flow. Physical Review Fluids, 2020, 5, .	2.5	11
23	Similarities between insect swarms and isothermal globular clusters. Physical Review Research, 2020, 2, .	3.6	6
24	Disentangling resolution, precision, and inherent stochasticity in nonlinear systems. Physical Review Research, 2020, 2, .	3.6	3
25	Vorticity gradient stretching in the direct enstrophy transfer process of two-dimensional turbulence. Physical Review Fluids, 2020, 5, .	2.5	4
26	Detection of evolving Lagrangian coherent structures: A multiple object tracking approach. Physical Review Fluids, 2020, 5, .	2.5	3
27	Mechanical spectroscopy of insect swarms. Science Advances, 2019, 5, eaaw9305.	10.3	33
28	Interaction of a downslope gravity current with an internal wave. Journal of Fluid Mechanics, 2019, 873, 889-913.	3.4	4
29	Local interactions and their group-level consequences in flocking jackdaws. Proceedings of the Royal Society B: Biological Sciences, 2019, 286, 20190865.	2.6	39
30	Collective turns in jackdaw flocks: kinematics and information transfer. Journal of the Royal Society Interface, 2019, 16, 20190450.	3.4	26
31	Nonlinear dynamics captures brain states at different levels of consciousness in patients anesthetized with propofol. PLoS ONE, 2019, 14, e0223921.	2.5	16
32	Behavioural plasticity and the transition to order in jackdaw flocks. Nature Communications, 2019, 10, 5174.	12.8	47
33	Comparison of shear and compression jammed packings of frictional disks. Granular Matter, 2019, 21, 1.	2.2	8
34	The Most Active Matter of All. Matter, 2019, 1, 297-299.	10.0	14
35	Costs and benefits of social relationships in the collective motion of bird flocks. Nature Ecology and Evolution, 2019, 3, 943-948.	7.8	63
36	Response of insect swarms to dynamic illumination perturbations. Journal of the Royal Society Interface, 2019, 16, 20180739.	3.4	20

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37	Computational and Structural Advantages of Pairwise Flocking. , 2019, , .		0
38	Flowing crowds. Science, 2019, 363, 27-28.	12.6	12
39	Three-dimensional time-resolved trajectories from laboratory insect swarms. Scientific Data, 2019, 6, .	5.3	25
40	Local linearity, coherent structures, and scale-to-scale coupling in turbulent flow. Physical Review Fluids, 2019, 4, .	2.5	7
41	Orientation dynamics of nonspherical particles under surface gravity waves. Physical Review Fluids, 2019, 4, .	2.5	15
42	Transport across a bathymetric interface in quasi-two-dimensional flow. Physical Review Fluids, 2019, 4, .	2.5	1
43	Influence of lateral boundaries on transport in quasi-two-dimensional flow. Chaos, 2018, 28, 023113.	2.5	5
44	Generalized Lagrangian coherent structures. Physica D: Nonlinear Phenomena, 2018, 372, 31-51.	2.8	58
45	Transport of anisotropic particles under waves. Journal of Fluid Mechanics, 2018, 837, 320-340.	3.4	44
46	Tensor geometry in the turbulent cascade. Journal of Fluid Mechanics, 2018, 835, 1048-1064.	3.4	27
47	Shoaling internal waves may reduce gravity current transport. Environmental Fluid Mechanics, 2018, 18, 383-394.	1.6	6
48	Do Complexity Measures of Frontal EEG Distinguish Loss of Consciousness in Geriatric Patients Under Anesthesia?. Frontiers in Neuroscience, 2018, 12, 645.	2.8	22
49	Simultaneous measurements of three-dimensional trajectories and wingbeat frequencies of birds in the field. Journal of the Royal Society Interface, 2018, 15, 20180653.	3.4	22
50	Preferential orientation of spheroidal particles in wavy flow. Journal of Fluid Mechanics, 2018, 856, 850-869.	3.4	17
51	Remifentanil and Nitrous Oxide Anesthesia Produces a Unique Pattern of EEG Activity During Loss and Recovery of Response. Frontiers in Human Neuroscience, 2018, 12, 173.	2.0	11
52	Critical scaling near the yielding transition in granular media. Physical Review E, 2018, 97, 062901.	2.1	32
53	Probing the strain-rotation balance in non-Newtonian turbulence with inertial particles. Physical Review Fluids, 2018, 3, .	2.5	2
54	Are midge swarms bound together by an effective velocity-dependent gravity?. European Physical Journal E, 2017, 40, 46.	1.6	27

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55	Characterizing free-surface expressions of flow instabilities by tracking submerged features. Experiments in Fluids, 2017, 58, 1.	2.4	12
56	Phase Coexistence in Insect Swarms. Physical Review Letters, 2017, 119, 178003.	7.8	46
57	Multiple stages of decay in two-dimensional turbulence. Physics of Fluids, 2017, 29, .	4.0	15
58	Role of grain dynamics in determining the onset of sediment transport. Physical Review Fluids, 2017, 2, .	2.5	23
59	Determining the onset of hydrodynamic erosion in turbulent flow. Physical Review Fluids, 2017, 2, .	2.5	12
60	Stretching and folding in finite time. Chaos, 2016, 26, 023112.	2.5	9
61	Correlating Lagrangian structures with forcing in two-dimensional flow. Physics of Fluids, 2016, 28, .	4.0	8
62	Inference of Causal Information Flow in Collective Animal Behavior. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications, 2016, 2, 107-116.	2.1	31
63	Long-range acoustic interactions in insect swarms: an adaptive gravity model. New Journal of Physics, 2016, 18, 073042.	2.9	52
64	Hyperbolic neighbourhoods as organizers of finite-time exponential stretching. Journal of Fluid Mechanics, 2016, 807, 509-545.	3.4	20
65	Advection and the Efficiency of Spectral Energy Transfer in Two-Dimensional Turbulence. Physical Review Letters, 2016, 117, 104501.	7.8	20
66	On the tensile strength of insect swarms. Physical Biology, 2016, 13, 045002.	1.8	34
67	Concentration effects on turbulence in dilute polymer solutions far from walls. Physical Review E, 2016, 93, 063116.	2.1	7
68	Swarm dynamics may give rise to LÃ©vy flights. Scientific Reports, 2016, 6, 30515.	3.3	34
69	Mixing and sink effects of air purifiers on indoor PM2.5 concentrations: A pilot study of eight residential homes in Fresno, California. Aerosol Science and Technology, 2016, 50, 835-845.	3.1	14
70	Correlations between the instantaneous velocity gradient and the evolution of scale-to-scale fluxes in two-dimensional flow. Physical Review E, 2015, 92, 033017.	2.1	2
71	Onset and cessation of motion in hydrodynamically sheared granular beds. Physical Review E, 2015, 92, 042202.	2.1	33
72	Intrinsic Fluctuations and Driven Response of Insect Swarms. Physical Review Letters, 2015, 115, 118104.	7.8	39

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73	Long-range ordering of turbulent stresses in two-dimensional flow. Physical Review E, 2015, 91, 063004.	2.1	7
74	Time-Frequency Analysis Reveals Pairwise Interactions in Insect Swarms. Physical Review Letters, 2015, 114, 258103.	7.8	40
75	Velocity correlations in laboratory insect swarms. European Physical Journal: Special Topics, 2015, 224, 3271-3277.	2.6	27
76	Empirical questions for collective-behaviour modelling. Pramana - Journal of Physics, 2015, 84, 353-363.	1.8	8
77	Measurements of the coupling between the tumbling of rods and the velocity gradient tensorÂinÂturbulence. Journal of Fluid Mechanics, 2015, 766, 202-225.	3.4	61
78	Optimal directional volatile transport in retronasal olfaction. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 14700-14704.	7.1	33
79	Extracting turbulent spectral transfer from under-resolved velocity fields. Physics of Fluids, 2014, 26, .	4.0	12
80	Alignment of vorticity and rods with Lagrangian fluid stretching in turbulence. Journal of Fluid Mechanics, 2014, 743, .	3.4	85
81	Direct observation of Kelvin waves excited by quantized vortex reconnection. Proceedings of the National Academy of Sciences of the United States of America, 2014, 111, 4707-4710.	7.1	125
82	Geometry of scale-to-scale energy and enstrophy transport in two-dimensional flow. Physics of Fluids, 2014, 26, .	4.0	17
83	Determining asymptotically large population sizes in insect swarms. Journal of the Royal Society Interface, 2014, 11, 20140710.	3.4	44
84	Impact fragmentation of model flocks. Physical Review E, 2014, 89, 042806.	2.1	4
85	Searching for effective forces in laboratory insect swarms. Scientific Reports, 2014, 4, 4766.	3.3	69
86	Lagrangian coherent structures separate dynamically distinct regions in fluid flows. Physical Review E, 2013, 88, 013017.	2.1	28
87	Generation of Lagrangian intermittency in turbulence by a self-similar mechanism. New Journal of Physics, 2013, 15, 055015.	2.9	10
88	Stability of model flocks in turbulent-like flow. New Journal of Physics, 2013, 15, 095015.	2.9	15
89	Spatial structure of spectral transport in two-dimensional flow. Journal of Fluid Mechanics, 2013, 725, 281-298.	3.4	34
90	Quantifying stretching and rearrangement in epithelial sheet migration. New Journal of Physics, 2013, 15, 025036.	2.9	34

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91	Emergent dynamics of laboratory insect swarms. Scientific Reports, 2013, 3, 1073.	3.3	116
92	Interactions between active particles and dynamical structures in chaotic flow. Physics of Fluids, 2012, 24, .	4.0	23
93	Effects of forcing geometry on two-dimensional weak turbulence. Physical Review E, 2012, 86, 036306.	2.1	16
94	On the dynamical role of coherent structures in turbulence. Comptes Rendus Physique, 2012, 13, 866-877.	0.9	20
95	Turbulence in two dimensions. Physics Today, 2012, 65, 68-69.	0.3	10
96	Neutrally buoyant particle dynamics in fluid flows: Comparison of experiments with Lagrangian stochastic models. Physics of Fluids, 2011, 23, .	4.0	22
97	Spatiotemporal persistence of spectral fluxes in two-dimensional weak turbulence. Physics of Fluids, 2011, 23, .	4.0	36
98	Mechanisms driving shape distortion in two-dimensional flow. Europhysics Letters, 2011, 94, 64006.	2.0	5
99	Separating stretching from folding in fluid mixing. Nature Physics, 2011, 7, 477-480.	16.7	39
100	Path Lengths in Turbulence. Journal of Statistical Physics, 2011, 145, 93-101.	1.2	1
101	Using particle tracking to measure flow instabilities in an undergraduate laboratory experiment. American Journal of Physics, 2011, 79, 267-273.	0.7	77
102	Reduced Transport of Swimming Particles in Chaotic Flow due to Hydrodynamic Trapping. Physical Review Letters, 2011, 106, 198104.	7.8	57
103	Onset of three-dimensionality in electromagnetically driven thin-layer flows. Physics of Fluids, 2011, 23, .	4.0	51
104	Rotation and alignment of rods in two-dimensional chaotic flow. Physics of Fluids, 2011, 23, .	4.0	62
105	Scale-local velocity fields from particle-tracking data. Chaos, 2010, 20, 041106.	2.5	0
106	Scale-Dependent Statistical Geometry in Two-Dimensional Flow. Physical Review Letters, 2010, 104, 254501.	7.8	14
107	Bulk turbulence in dilute polymer solutions. Journal of Fluid Mechanics, 2009, 629, 375-385.	3.4	49
108	Dynamic topology in spatiotemporal chaos. Physics of Fluids, 2008, 20, .	4.0	32

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109	Lagrangian structure functions in turbulence: A quantitative comparison between experiment and direct numerical simulation. Physics of Fluids, 2008, 20, .	4.0	74
110	Evolution of geometric structures in intense turbulence. New Journal of Physics, 2008, 10, 013012.	2.9	39
111	Transport of Finite-Sized Particles in Chaotic Flow. Physical Review Letters, 2008, 101, 174504.	7.8	73
112	Universal Intermittent Properties of Particle Trajectories in Highly Turbulent Flows. Physical Review Letters, 2008, 100, 254504.	7.8	145
113	Detecting topological features of chaotic fluid flow. Chaos, 2008, 18, 041102.	2.5	0
114	Acceleration Correlations and Pressure Structure Functions in High-Reynolds Number Turbulence. Physical Review Letters, 2007, 99, 204501.	7.8	30
115	Lagrangian particle tracking in high Reynolds number turbulence. , 2007, , 299-311.		0
116	Curvature Fields, Topology, and the Dynamics of Spatiotemporal Chaos. Physical Review Letters, 2007, 99, 194502.	7.8	49
117	Curvature of Lagrangian Trajectories in Turbulence. Physical Review Letters, 2007, 98, 050201.	7.8	54
118	Experimental Measurements of Lagrangian Statistics in Intense Turbulence. , 2007, , 1-10.		2
119	A quantitative study of three-dimensional Lagrangian particle tracking algorithms. Experiments in Fluids, 2006, 40, 301-313.	2.4	360
120	Small-scale anisotropy in Lagrangian turbulence. New Journal of Physics, 2006, 8, 102-102.	2.9	82
121	High Order Lagrangian Velocity Statistics in Turbulence. Physical Review Letters, 2006, 96, 024503.	7.8	79
122	Multifractal Dimension of Lagrangian Turbulence. Physical Review Letters, 2006, 96, 114503.	7.8	24
123	The Role of Pair Dispersion in Turbulent Flow. Science, 2006, 311, 835-838.	12.6	175
124	An experimental study of turbulent relative dispersion models. New Journal of Physics, 2006, 8, 109-109.	2.9	81
125	Particle-based measurement techniques for soft matter. , 0, , 180-208.		1