Nicholas T Ouellette

List of Publications by Year
in descending order

125 papers	3,747 citations	126858 33 h-index	155592 55 g-index
127 all docs	127 docs citations	127 times ranked	2580 citing authors

#	Article	IF	Citations
1	A quantitative study of three-dimensional Lagrangian particle tracking algorithms. Experiments in Fluids, 2006, 40, 301-313.	1.1	360
2	The Role of Pair Dispersion in Turbulent Flow. Science, 2006, 311, 835-838.	6.0	175
3	Universal Intermittent Properties of Particle Trajectories in Highly Turbulent Flows. Physical Review Letters, 2008, 100, 254504.	2.9	145
4	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.	3.3	125
5	Emergent dynamics of laboratory insect swarms. Scientific Reports, 2013, 3, 1073.	1.6	116
6	Alignment of vorticity and rods with Lagrangian fluid stretching in turbulence. Journal of Fluid Mechanics, 2014, 743, .	1.4	85
7	Small-scale anisotropy in Lagrangian turbulence. New Journal of Physics, 2006, 8, 102-102.	1.2	82
8	An experimental study of turbulent relative dispersion models. New Journal of Physics, 2006, 8, 109-109.	1.2	81
9	High Order Lagrangian Velocity Statistics in Turbulence. Physical Review Letters, 2006, 96, 024503.	2.9	79
10	Using particle tracking to measure flow instabilities in an undergraduate laboratory experiment. American Journal of Physics, 2011, 79, 267-273.	0.3	77
11	Lagrangian structure functions in turbulence: A quantitative comparison between experiment and direct numerical simulation. Physics of Fluids, 2008, 20, .	1.6	74
12	Transport of Finite-Sized Particles in Chaotic Flow. Physical Review Letters, 2008, 101, 174504.	2.9	73
13	Searching for effective forces in laboratory insect swarms. Scientific Reports, 2014, 4, 4766.	1.6	69
14	Costs and benefits of social relationships in the collective motion of bird flocks. Nature Ecology and Evolution, 2019, 3, 943-948.	3.4	63
15	Rotation and alignment of rods in two-dimensional chaotic flow. Physics of Fluids, 2011, 23, .	1.6	62
16	Measurements of the coupling between the tumbling of rods and the velocity gradient tensorÂinÂturbulence. Journal of Fluid Mechanics, 2015, 766, 202-225.	1.4	61
17	Generalized Lagrangian coherent structures. Physica D: Nonlinear Phenomena, 2018, 372, 31-51.	1.3	58
18	Reduced Transport of Swimming Particles in Chaotic Flow due to Hydrodynamic Trapping. Physical Review Letters, 2011, 106, 198104.	2.9	57

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19	Curvature of Lagrangian Trajectories in Turbulence. Physical Review Letters, 2007, 98, 050201.	2.9	54
20	Long-range acoustic interactions in insect swarms: an adaptive gravity model. New Journal of Physics, 2016, 18, 073042.	1.2	52
21	Onset of three-dimensionality in electromagnetically driven thin-layer flows. Physics of Fluids, 2011, 23, .	1.6	51
22	Curvature Fields, Topology, and the Dynamics of Spatiotemporal Chaos. Physical Review Letters, 2007, 99, 194502.	2.9	49
23	Bulk turbulence in dilute polymer solutions. Journal of Fluid Mechanics, 2009, 629, 375-385.	1.4	49
24	Behavioural plasticity and the transition to order in jackdaw flocks. Nature Communications, 2019, 10, 5174.	5.8	47
25	Phase Coexistence in Insect Swarms. Physical Review Letters, 2017, 119, 178003.	2.9	46
26	Determining asymptotically large population sizes in insect swarms. Journal of the Royal Society Interface, 2014, 11, 20140710.	1.5	44
27	Transport of anisotropic particles under waves. Journal of Fluid Mechanics, 2018, 837, 320-340.	1.4	44
28	Time-Frequency Analysis Reveals Pairwise Interactions in Insect Swarms. Physical Review Letters, 2015, 114, 258103.	2.9	40
29	Evolution of geometric structures in intense turbulence. New Journal of Physics, 2008, 10, 013012.	1.2	39
30	Separating stretching from folding in fluid mixing. Nature Physics, 2011, 7, 477-480.	6.5	39
31	Intrinsic Fluctuations and Driven Response of Insect Swarms. Physical Review Letters, 2015, 115, 118104.	2.9	39
32	Local interactions and their group-level consequences in flocking jackdaws. Proceedings of the Royal Society B: Biological Sciences, 2019, 286, 20190865.	1.2	39
33	Spatiotemporal persistence of spectral fluxes in two-dimensional weak turbulence. Physics of Fluids, 2011, 23, .	1.6	36
34	Spatial structure of spectral transport in two-dimensional flow. Journal of Fluid Mechanics, 2013, 725, 281-298.	1.4	34
35	Quantifying stretching and rearrangement in epithelial sheet migration. New Journal of Physics, 2013, 15, 025036.	1.2	34
36	On the tensile strength of insect swarms. Physical Biology, 2016, 13, 045002.	0.8	34

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37	Swarm dynamics may give rise to LÃ©vy flights. Scientific Reports, 2016, 6, 30515.	1.6	34
38	Onset and cessation of motion in hydrodynamically sheared granular beds. Physical Review E, 2015, 92, 042202.	0.8	33
39	Optimal directional volatile transport in retronasal olfaction. Proceedings of the National Academy of Sciences of the United States of America, 2015, 112, 14700-14704.	3.3	33
40	Mechanical spectroscopy of insect swarms. Science Advances, 2019, 5, eaaw9305.	4.7	33
41	Dynamic topology in spatiotemporal chaos. Physics of Fluids, 2008, 20, .	1.6	32
42	Critical scaling near the yielding transition in granular media. Physical Review E, 2018, 97, 062901.	0.8	32
43	Inference of Causal Information Flow in Collective Animal Behavior. IEEE Transactions on Molecular, Biological, and Multi-Scale Communications, 2016, 2, 107-116.	1.4	31
44	Acceleration Correlations and Pressure Structure Functions in High-Reynolds Number Turbulence. Physical Review Letters, 2007, 99, 204501.	2.9	30
45	Lagrangian coherent structures separate dynamically distinct regions in fluid flows. Physical Review E, 2013, 88, 013017.	0.8	28
46	Velocity correlations in laboratory insect swarms. European Physical Journal: Special Topics, 2015, 224, 3271-3277.	1.2	27
47	Are midge swarms bound together by an effective velocity-dependent gravity?. European Physical Journal E, 2017, 40, 46.	0.7	27
48	Tensor geometry in the turbulent cascade. Journal of Fluid Mechanics, 2018, 835, 1048-1064.	1.4	27
49	Collective turns in jackdaw flocks: kinematics and information transfer. Journal of the Royal Society Interface, 2019, 16, 20190450.	1.5	26
50	Environmental perturbations induce correlations in midge swarms. Journal of the Royal Society Interface, 2020, 17, 20200018.	1.5	25
51	Three-dimensional time-resolved trajectories from laboratory insect swarms. Scientific Data, 2019, 6, .	2.4	25
52	Multifractal Dimension of Lagrangian Turbulence. Physical Review Letters, 2006, 96, 114503.	2.9	24
53	Interactions between active particles and dynamical structures in chaotic flow. Physics of Fluids, 2012, 24, .	1.6	23
54	Role of grain dynamics in determining the onset of sediment transport. Physical Review Fluids, 2017, 2, .	1.0	23

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55	Neutrally buoyant particle dynamics in fluid flows: Comparison of experiments with Lagrangian stochastic models. Physics of Fluids, 2011, 23, .	1.6	22
56	Do Complexity Measures of Frontal EEG Distinguish Loss of Consciousness in Geriatric Patients Under Anesthesia?. Frontiers in Neuroscience, 2018, 12, 645.	1.4	22
57	Simultaneous measurements of three-dimensional trajectories and wingbeat frequencies of birds in the field. Journal of the Royal Society Interface, 2018, 15, 20180653.	1.5	22
58	Synergistic interactions among growing stressors increase risk to an Arctic ecosystem. Nature Communications, 2020, 11, 6255.	5.8	22
59	On the dynamical role of coherent structures in turbulence. Comptes Rendus Physique, 2012, 13, 866-877.	0.3	20
60	Hyperbolic neighbourhoods as organizers of finite-time exponential stretching. Journal of Fluid Mechanics, 2016, 807, 509-545.	1.4	20
61	Advection and the Efficiency of Spectral Energy Transfer in Two-Dimensional Turbulence. Physical Review Letters, 2016, 117, 104501.	2.9	20
62	Response of insect swarms to dynamic illumination perturbations. Journal of the Royal Society Interface, 2019, 16, 20180739.	1.5	20
63	Goals and Limitations of Modeling Collective Behavior in Biological Systems. Frontiers in Physics, 2021, 9, .	1.0	18
64	A physics perspective on collective animal behavior. Physical Biology, 2022, 19, 021004.	0.8	18
65	Geometry of scale-to-scale energy and enstrophy transport in two-dimensional flow. Physics of Fluids, 2014, 26, .	1.6	17
66	Preferential orientation of spheroidal particles in wavy flow. Journal of Fluid Mechanics, 2018, 856, 850-869.	1.4	17
67	Effects of forcing geometry on two-dimensional weak turbulence. Physical Review E, 2012, 86, 036306.	0.8	16
68	Nonlinear dynamics captures brain states at different levels of consciousness in patients anesthetized with propofol. PLoS ONE, 2019, 14, e0223921.	1.1	16
69	Stability of model flocks in turbulent-like flow. New Journal of Physics, 2013, 15, 095015.	1.2	15
70	Multiple stages of decay in two-dimensional turbulence. Physics of Fluids, 2017, 29, .	1.6	15
71	Orientation dynamics of nonspherical particles under surface gravity waves. Physical Review Fluids, 2019, 4, .	1.0	15
72	Scale-Dependent Statistical Geometry in Two-Dimensional Flow. Physical Review Letters, 2010, 104, 254501.	2.9	14

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73	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.	1.5	14
74	The Most Active Matter of All. Matter, 2019, 1, 297-299.	5.0	14
75	An equation of state for insect swarms. Scientific Reports, 2021, 11, 3773.	1.6	14
76	Extracting turbulent spectral transfer from under-resolved velocity fields. Physics of Fluids, 2014, 26, .	1.6	12
77	Characterizing free-surface expressions of flow instabilities by tracking submerged features. Experiments in Fluids, 2017, 58, 1.	1.1	12
78	Flowing crowds. Science, 2019, 363, 27-28.	6.0	12
79	Determining the onset of hydrodynamic erosion in turbulent flow. Physical Review Fluids, 2017, 2, .	1.0	12
80	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.	1.0	11
81	Settling of inertial nonspherical particles in wavy flow. Physical Review Fluids, 2020, 5, .	1.0	11
82	Turbulence in two dimensions. Physics Today, 2012, 65, 68-69.	0.3	10
83	Generation of Lagrangian intermittency in turbulence by a self-similar mechanism. New Journal of Physics, 2013, 15, 055015.	1.2	10
84	Shear response of granular packings compressed above jamming onset. Physical Review E, 2021, 103, 022902.	0.8	10
85	Stochastic modelling of bird flocks: accounting for the cohesiveness of collective motion. Journal of the Royal Society Interface, 2022, 19, 20210745.	1.5	10
86	Stretching and folding in finite time. Chaos, 2016, 26, 023112.	1.0	9
87	Interaction between an inclined gravity current and a pycnocline in a two-layer stratification. Journal of Fluid Mechanics, 2020, 887, .	1.4	9
88	Empirical questions for collective-behaviour modelling. Pramana - Journal of Physics, 2015, 84, 353-363.	0.9	8
89	Correlating Lagrangian structures with forcing in two-dimensional flow. Physics of Fluids, 2016, 28, .	1.6	8
90	Comparison of shear and compression jammed packings of frictional disks. Granular Matter, 2019, 21, 1.	1.1	8

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91	Long-range ordering of turbulent stresses in two-dimensional flow. Physical Review E, 2015, 91, 063004.	0.8	7
92	Concentration effects on turbulence in dilute polymer solutions far from walls. Physical Review E, 2016, 93, 063116.	0.8	7
93	Local linearity, coherent structures, and scale-to-scale coupling in turbulent flow. Physical Review Fluids, 2019, 4, .	1.0	7
94	Temporal dynamics of the alignment of the turbulent stress and strain rate. Physical Review Fluids, 2020, 5, .	1.0	7
95	Shoaling internal waves may reduce gravity current transport. Environmental Fluid Mechanics, 2018, 18, 383-394.	0.7	6
96	Similarities between insect swarms and isothermal globular clusters. Physical Review Research, 2020, 2, .	1.3	6
97	Mechanisms driving shape distortion in two-dimensional flow. Europhysics Letters, 2011, 94, 64006.	0.7	5
98	Influence of lateral boundaries on transport in quasi-two-dimensional flow. Chaos, 2018, 28, 023113.	1.0	5
99	On the surface expression of bottom features in free-surface flow. Journal of Fluid Mechanics, 2020, 900, .	1.4	5
100	Impact fragmentation of model flocks. Physical Review E, 2014, 89, 042806.	0.8	4
101	Interaction of a downslope gravity current with an internal wave. Journal of Fluid Mechanics, 2019, 873, 889-913.	1.4	4
102	Spectral condensation in laboratory two-dimensional turbulence. Physical Review Fluids, 2021, 6, .	1.0	4
103	Vorticity gradient stretching in the direct enstrophy transfer process of two-dimensional turbulence. Physical Review Fluids, 2020, 5, .	1.0	4
104	Geometric constraints on energy transfer in the turbulent cascade. Physical Review Fluids, 2020, 5, .	1.0	3
105	Disentangling resolution, precision, and inherent stochasticity in nonlinear systems. Physical Review Research, 2020, 2, .	1.3	3
106	Detection of evolving Lagrangian coherent structures: A multiple object tracking approach. Physical Review Fluids, 2020, 5, .	1.0	3
107	Correlations between the instantaneous velocity gradient and the evolution of scale-to-scale fluxes in two-dimensional flow. Physical Review E, 2015, 92, 033017.	0.8	2
108	Pair formation in insect swarms driven by adaptive long-range interactions. Journal of the Royal Society Interface, 2020, 17, 20200367.	1.5	2

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109	Secondary generation of breaking internal waves in confined basins by gravity currents. Journal of Fluid Mechanics, 2021, 917, .	1.4	2
110	Experimental Measurements of Lagrangian Statistics in Intense Turbulence. , 2007, , 1-10.		2
111	Probing the strain-rotation balance in non-Newtonian turbulence with inertial particles. Physical Review Fluids, 2018, 3, .	1.0	2
112	Formation and dissolution of midge swarms. Physical Review E, 2022, 105, 034601.	0.8	2
113	Particle-based measurement techniques for soft matter. , 0, , 180-208.		1
114	Path Lengths in Turbulence. Journal of Statistical Physics, 2011, 145, 93-101.	0.5	1
115	Automated identification of urban substructure for comparative analysis. PLoS ONE, 2021, 16, e0245067.	1.1	1
116	Assessing the information content of complex flows. Physical Review E, 2021, 103, 023301.	0.8	1
117	Onset of grain motion in eroding subaqueous bimodal granular beds. Physical Review Fluids, 2021, 6, .	1.0	1
118	Transport across a bathymetric interface in quasi-two-dimensional flow. Physical Review Fluids, 2019, 4, .	1.0	1
119	Directional strengthening and weakening in hydrodynamically sheared granular beds. Physical Review Fluids, 2022, 7, .	1.0	1
120	Lagrangian particle tracking in high Reynolds number turbulence. , 2007, , 299-311.		0
121	Detecting topological features of chaotic fluid flow. Chaos, 2008, 18, 041102.	1.0	0
122	Scale-local velocity fields from particle-tracking data. Chaos, 2010, 20, 041106.	1.0	0
123	Computational and Structural Advantages of Pairwise Flocking. , 2019, , .		0
124	Extending the reach of Lagrangian analysis in turbulence. Journal of Fluid Mechanics, 2021, 924, .	1.4	0
125	On the interaction between oncoming internal waves and a dense gravity current in a two-layer stratification. Journal of Fluid Mechanics, 2022, 932, .	1.4	0