

# Nicholas T Ouellette

## List of Publications by Citations

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114  
papers

2,765  
citations

30  
h-index

48  
g-index

127  
ext. papers

3,334  
ext. citations

4.9  
avg, IF

5.68  
L-index

| #   | Paper  | IF   | Citations |
|-----|--|------|-----------|
| 114 | A quantitative study of three-dimensional Lagrangian particle tracking algorithms. <i>Experiments in Fluids</i> , <b>2006</b> , 40, 301-313  | 2.5  | 288       |
| 113 | The role of pair dispersion in turbulent flow. <i>Science</i> , <b>2006</b> , 311, 835-8   | 33.3 | 156       |
| 112 | Universal intermittent properties of particle trajectories in highly turbulent flows. <i>Physical Review Letters</i> , <b>2008</b> , 100, 254504   | 7.4  | 123       |
| 111 | Direct observation of Kelvin waves excited by quantized vortex reconnection. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2014</b> , 111 Suppl 1, 4707-10 | 11.5 | 109       |
| 110 | Emergent dynamics of laboratory insect swarms. <i>Scientific Reports</i> , <b>2013</b> , 3, 1073   | 4.9  | 90        |
| 109 | Small-scale anisotropy in Lagrangian turbulence. <i>New Journal of Physics</i> , <b>2006</b> , 8, 102-102  | 2.9  | 72        |
| 108 | An experimental study of turbulent relative dispersion models. <i>New Journal of Physics</i> , <b>2006</b> , 8, 109-109  | 2.9  | 69        |
| 107 | High order Lagrangian velocity statistics in turbulence. <i>Physical Review Letters</i> , <b>2006</b> , 96, 024503   | 7.4  | 67        |
| 106 | Alignment of vorticity and rods with Lagrangian fluid stretching in turbulence. <i>Journal of Fluid Mechanics</i> , <b>2014</b> , 743,   | 3.7  | 64        |
| 105 | Lagrangian structure functions in turbulence: A quantitative comparison between experiment and direct numerical simulation. <i>Physics of Fluids</i> , <b>2008</b> , 20, 065103                          | 4.4  | 60        |
| 104 | Transport of finite-sized particles in chaotic flow. <i>Physical Review Letters</i> , <b>2008</b> , 101, 174504  | 7.4  | 59        |
| 103 | Searching for effective forces in laboratory insect swarms. <i>Scientific Reports</i> , <b>2014</b> , 4, 4766  | 4.9  | 56        |
| 102 | Using particle tracking to measure flow instabilities in an undergraduate laboratory experiment. <i>American Journal of Physics</i> , <b>2011</b> , 79, 267-273  | 0.7  | 55        |
| 101 | Rotation and alignment of rods in two-dimensional chaotic flow. <i>Physics of Fluids</i> , <b>2011</b> , 23, 043302  | 4.4  | 52        |
| 100 | Measurements of the coupling between the tumbling of rods and the velocity gradient tensor in turbulence. <i>Journal of Fluid Mechanics</i> , <b>2015</b> , 766, 202-225                                 | 3.7  | 47        |
| 99  | Curvature of lagrangian trajectories in turbulence. <i>Physical Review Letters</i> , <b>2007</b> , 98, 050201  | 7.4  | 46        |
| 98  | Onset of three-dimensionality in electromagnetically driven thin-layer flows. <i>Physics of Fluids</i> , <b>2011</b> , 23, 045103  | 4.4  | 43        |

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|----|--|------|----|
| 97 | Curvature fields, topology, and the dynamics of spatiotemporal chaos. <i>Physical Review Letters</i> , <b>2007</b> , 99, 194502                    | 7.4  | 43 |
| 96 | Bulk turbulence in dilute polymer solutions. <i>Journal of Fluid Mechanics</i> , <b>2009</b> , 629, 375-385  | 3.7  | 42 |
| 95 | Reduced transport of swimming particles in chaotic flow due to hydrodynamic trapping. <i>Physical Review Letters</i> , <b>2011</b> , 106, 198104   | 7.4  | 41 |
| 94 | Determining asymptotically large population sizes in insect swarms. <i>Journal of the Royal Society Interface</i> , <b>2014</b> , 11,              | 4.1  | 37 |
| 93 | Long-range acoustic interactions in insect swarms: an adaptive gravity model. <i>New Journal of Physics</i> , <b>2016</b> , 18, 073042             | 2.9  | 35 |
| 92 | Intrinsic fluctuations and driven response of insect swarms. <i>Physical Review Letters</i> , <b>2015</b> , 115, 118104                            | 7.4  | 34 |
| 91 | Separating stretching from folding in fluid mixing. <i>Nature Physics</i> , <b>2011</b> , 7, 477-480   | 16.2 | 34 |
| 90 | Evolution of geometric structures in intense turbulence. <i>New Journal of Physics</i> , <b>2008</b> , 10, 013012                                  | 2.9  | 34 |
| 89 | Generalized Lagrangian coherent structures. <i>Physica D: Nonlinear Phenomena</i> , <b>2018</b> , 372, 31-51                                       | 3.3  | 32 |
| 88 | Time-Frequency Analysis Reveals Pairwise Interactions in Insect Swarms. <i>Physical Review Letters</i> , <b>2015</b> , 114, 258103                 | 7.4  | 32 |
| 87 | Costs and benefits of social relationships in the collective motion of bird flocks. <i>Nature Ecology and Evolution</i> , <b>2019</b> , 3, 943-948 | 12.3 | 31 |
| 86 | Spatiotemporal persistence of spectral fluxes in two-dimensional weak turbulence. <i>Physics of Fluids</i> , <b>2011</b> , 23, 115101              | 4.4  | 30 |
| 85 | Dynamic topology in spatiotemporal chaos. <i>Physics of Fluids</i> , <b>2008</b> , 20, 064104  | 4.4  | 30 |
| 84 | Onset and cessation of motion in hydrodynamically sheared granular beds. <i>Physical Review E</i> , <b>2015</b> , 92, 042202                       | 2.4  | 29 |
| 83 | Phase Coexistence in Insect Swarms. <i>Physical Review Letters</i> , <b>2017</b> , 119, 178003   | 7.4  | 28 |
| 82 | Behavioural plasticity and the transition to order in jackdaw flocks. <i>Nature Communications</i> , <b>2019</b> , 10, 5174                        | 17.4 | 28 |
| 81 | Quantifying stretching and rearrangement in epithelial sheet migration. <i>New Journal of Physics</i> , <b>2013</b> , 15,                          | 2.9  | 28 |
| 80 | Swarm dynamics may give rise to L $\infty$ flights. <i>Scientific Reports</i> , <b>2016</b> , 6, 30515   | 4.9  | 26 |

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|----|---|------|----|
| 79 | Spatial structure of spectral transport in two-dimensional flow. <i>Journal of Fluid Mechanics</i> , <b>2013</b> , 725, 281-298   | 3.7  | 26 |
| 78 | Acceleration correlations and pressure structure functions in high-reynolds number turbulence. <i>Physical Review Letters</i> , <b>2007</b> , 99, 204501                            | 7.4  | 25 |
| 77 | Inference of Causal Information Flow in Collective Animal Behavior. <i>IEEE Transactions on Molecular, Biological, and Multi-Scale Communications</i> , <b>2016</b> , 2, 107-116    | 2.3  | 25 |
| 76 | Critical scaling near the yielding transition in granular media. <i>Physical Review E</i> , <b>2018</b> , 97, 062901  | 2.4  | 23 |
| 75 | Lagrangian coherent structures separate dynamically distinct regions in fluid flows. <i>Physical Review E</i> , <b>2013</b> , 88, 013017  | 2.4  | 22 |
| 74 | On the tensile strength of insect swarms. <i>Physical Biology</i> , <b>2016</b> , 13, 045002  | 3    | 22 |
| 73 | Multifractal dimension of Lagrangian turbulence. <i>Physical Review Letters</i> , <b>2006</b> , 96, 114503  | 7.4  | 21 |
| 72 | Transport of anisotropic particles under waves. <i>Journal of Fluid Mechanics</i> , <b>2018</b> , 837, 320-340  | 3.7  | 20 |
| 71 | Mechanical spectroscopy of insect swarms. <i>Science Advances</i> , <b>2019</b> , 5, eaaw9305   | 14.3 | 20 |
| 70 | Optimal directional volatile transport in retronasal olfaction. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , <b>2015</b> , 112, 14700-4 | 11.5 | 19 |
| 69 | On the dynamical role of coherent structures in turbulence. <i>Comptes Rendus Physique</i> , <b>2012</b> , 13, 866-877  | 1.4  | 19 |
| 68 | Are midge swarms bound together by an effective velocity-dependent gravity?. <i>European Physical Journal E</i> , <b>2017</b> , 40, 46  | 1.5  | 18 |
| 67 | Neutrally buoyant particle dynamics in fluid flows: Comparison of experiments with Lagrangian stochastic models. <i>Physics of Fluids</i> , <b>2011</b> , 23, 093304                | 4.4  | 18 |
| 66 | Local interactions and their group-level consequences in flocking jackdaws. <i>Proceedings of the Royal Society B: Biological Sciences</i> , <b>2019</b> , 286, 20190865            | 4.4  | 17 |
| 65 | Role of grain dynamics in determining the onset of sediment transport. <i>Physical Review Fluids</i> , <b>2017</b> , 2,   | 2.8  | 17 |
| 64 | Response of insect swarms to dynamic illumination perturbations. <i>Journal of the Royal Society Interface</i> , <b>2019</b> , 16, 20180739   | 4.1  | 16 |
| 63 | Velocity correlations in laboratory insect swarms. <i>European Physical Journal: Special Topics</i> , <b>2015</b> , 224, 3271-3277  | 2.3  | 16 |
| 62 | Hyperbolic neighbourhoods as organizers of finite-time exponential stretching. <i>Journal of Fluid Mechanics</i> , <b>2016</b> , 807, 509-545                                       | 3.7  | 16 |

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|----|--|------|----|
| 61 | Interactions between active particles and dynamical structures in chaotic flow. <i>Physics of Fluids</i> , <b>2012</b> , 24, 091902  | 4.4  | 15 |
| 60 | Collective turns in jackdaw flocks: kinematics and information transfer. <i>Journal of the Royal Society Interface</i> , <b>2019</b> , 16, 20190450  | 4.1  | 14 |
| 59 | Geometry of scale-to-scale energy and enstrophy transport in two-dimensional flow. <i>Physics of Fluids</i> , <b>2014</b> , 26, 045103   | 4.4  | 14 |
| 58 | Stability of model flocks in turbulent-like flow. <i>New Journal of Physics</i> , <b>2013</b> , 15, 095015   | 2.9  | 14 |
| 57 | Simultaneous measurements of three-dimensional trajectories and wingbeat frequencies of birds in the field. <i>Journal of the Royal Society Interface</i> , <b>2018</b> , 15,                              | 4.1  | 14 |
| 56 | Three-dimensional time-resolved trajectories from laboratory insect swarms. <i>Scientific Data</i> , <b>2019</b> , 6,  | 8.2  | 13 |
| 55 | Tensor geometry in the turbulent cascade. <i>Journal of Fluid Mechanics</i> , <b>2018</b> , 835, 1048-1064   | 3.7  | 13 |
| 54 | Do Complexity Measures of Frontal EEG Distinguish Loss of Consciousness in Geriatric Patients Under Anesthesia?. <i>Frontiers in Neuroscience</i> , <b>2018</b> , 12, 645                                  | 5.1  | 13 |
| 53 | Mixing and sink effects of air purifiers on indoor PM2.5 concentrations: A pilot study of eight residential homes in Fresno, California. <i>Aerosol Science and Technology</i> , <b>2016</b> , 50, 835-845 | 3.4  | 12 |
| 52 | Advection and the Efficiency of Spectral Energy Transfer in Two-Dimensional Turbulence. <i>Physical Review Letters</i> , <b>2016</b> , 117, 104501   | 7.4  | 12 |
| 51 | Environmental perturbations induce correlations in midge swarms. <i>Journal of the Royal Society Interface</i> , <b>2020</b> , 17, 20200018  | 4.1  | 11 |
| 50 | Effects of forcing geometry on two-dimensional weak turbulence. <i>Physical Review E</i> , <b>2012</b> , 86, 036306  | 2.4  | 11 |
| 49 | Scale-dependent statistical geometry in two-dimensional flow. <i>Physical Review Letters</i> , <b>2010</b> , 104, 254501   | 7.4  | 11 |
| 48 | The Most Active Matter of All. <i>Matter</i> , <b>2019</b> , 1, 297-299  | 12.7 | 9  |
| 47 | Generation of Lagrangian intermittency in turbulence by a self-similar mechanism. <i>New Journal of Physics</i> , <b>2013</b> , 15, 055015   | 2.9  | 9  |
| 46 | Turbulence in two dimensions. <i>Physics Today</i> , <b>2012</b> , 65, 68-69   | 0.9  | 9  |
| 45 | Nonlinear dynamics captures brain states at different levels of consciousness in patients anesthetized with propofol. <i>PLoS ONE</i> , <b>2019</b> , 14, e0223921   | 3.7  | 8  |
| 44 | Extracting turbulent spectral transfer from under-resolved velocity fields. <i>Physics of Fluids</i> , <b>2014</b> , 26, 105107  | 4.4  | 8  |

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|----|--|------|---|
| 43 | Empirical questions for collective-behaviour modelling <b>2015</b> , 84, 353-363   |      | 7 |
| 42 | Remifentanyl and Nitrous Oxide Anesthesia Produces a Unique Pattern of EEG Activity During Loss and Recovery of Response. <i>Frontiers in Human Neuroscience</i> , <b>2018</b> , 12, 173 | 3.3  | 7 |
| 41 | Multiple stages of decay in two-dimensional turbulence. <i>Physics of Fluids</i> , <b>2017</b> , 29, 111105  | 4.4  | 7 |
| 40 | Long-range ordering of turbulent stresses in two-dimensional flow. <i>Physical Review E</i> , <b>2015</b> , 91, 063004   | 2.4  | 7 |
| 39 | Determining the onset of hydrodynamic erosion in turbulent flow. <i>Physical Review Fluids</i> , <b>2017</b> , 2,  | 2.8  | 7 |
| 38 | Orientation dynamics of nonspherical particles under surface gravity waves. <i>Physical Review Fluids</i> , <b>2019</b> , 4,   | 2.8  | 7 |
| 37 | Stretching and folding in finite time. <i>Chaos</i> , <b>2016</b> , 26, 023112   | 3.3  | 7 |
| 36 | Flowing crowds. <i>Science</i> , <b>2019</b> , 363, 27-28  | 33.3 | 7 |
| 35 | Synergistic interactions among growing stressors increase risk to an Arctic ecosystem. <i>Nature Communications</i> , <b>2020</b> , 11, 6255   | 17.4 | 6 |
| 34 | Preferential orientation of spheroidal particles in wavy flow. <i>Journal of Fluid Mechanics</i> , <b>2018</b> , 856, 850-869  | 5.6  | 6 |
| 33 | Characterizing free-surface expressions of flow instabilities by tracking submerged features. <i>Experiments in Fluids</i> , <b>2017</b> , 58, 1   | 2.5  | 5 |
| 32 | Mechanisms driving shape distortion in two-dimensional flow. <i>Europhysics Letters</i> , <b>2011</b> , 94, 64006  | 1.6  | 5 |
| 31 | Similarities between insect swarms and isothermal globular clusters. <i>Physical Review Research</i> , <b>2020</b> , 2,  | 3.9  | 5 |
| 30 | Goals and Limitations of Modeling Collective Behavior in Biological Systems. <i>Frontiers in Physics</i> , <b>2021</b> , 9,  | 3.9  | 5 |
| 29 | Correlating Lagrangian structures with forcing in two-dimensional flow. <i>Physics of Fluids</i> , <b>2016</b> , 28, 015105  | 4.4  | 5 |
| 28 | Shoaling internal waves may reduce gravity current transport. <i>Environmental Fluid Mechanics</i> , <b>2018</b> , 18, 383-394   | 2.2  | 5 |
| 27 | Comparison of shear and compression jammed packings of frictional disks. <i>Granular Matter</i> , <b>2019</b> , 21, 1  | 2.6  | 4 |
| 26 | Concentration effects on turbulence in dilute polymer solutions far from walls. <i>Physical Review E</i> , <b>2016</b> , 93, 063116  | 2.4  | 4 |

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| 25 | Impact fragmentation of model flocks. <i>Physical Review E</i> , <b>2014</b> , 89, 042806  | 2.4 | 4 |
| 24 | Local linearity, coherent structures, and scale-to-scale coupling in turbulent flow. <i>Physical Review Fluids</i> , <b>2019</b> , 4,  | 2.8 | 4 |
| 23 | A physics perspective on collective animal behavior.. <i>Physical Biology</i> , <b>2022</b> ,  | 3   | 3 |
| 22 | Temporal dynamics of the alignment of the turbulent stress and strain rate. <i>Physical Review Fluids</i> , <b>2020</b> , 5,   | 2.8 | 3 |
| 21 | Disentangling resolution, precision, and inherent stochasticity in nonlinear systems. <i>Physical Review Research</i> , <b>2020</b> , 2,   | 3.9 | 3 |
| 20 | Shear response of granular packings compressed above jamming onset. <i>Physical Review E</i> , <b>2021</b> , 103, 022902   | 2.4 | 3 |
| 19 | An equation of state for insect swarms. <i>Scientific Reports</i> , <b>2021</b> , 11, 3773   | 4.9 | 3 |
| 18 | Interaction between an inclined gravity current and a pycnocline in a two-layer stratification. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 887,                           | 3.7 | 2 |
| 17 | Influence of lateral boundaries on transport in quasi-two-dimensional flow. <i>Chaos</i> , <b>2018</b> , 28, 023113  | 3.3 | 2 |
| 16 | Geometric constraints on energy transfer in the turbulent cascade. <i>Physical Review Fluids</i> , <b>2020</b> , 5,  | 2.8 | 2 |
| 15 | Settling of inertial nonspherical particles in wavy flow. <i>Physical Review Fluids</i> , <b>2020</b> , 5,   | 2.8 | 2 |
| 14 | Pair formation in insect swarms driven by adaptive long-range interactions. <i>Journal of the Royal Society Interface</i> , <b>2020</b> , 17, 20200367                           | 4.1 | 2 |
| 13 | Interaction of a downslope gravity current with an internal wave. <i>Journal of Fluid Mechanics</i> , <b>2019</b> , 873, 889-913   | 3.7 | 1 |
| 12 | Correlations between the instantaneous velocity gradient and the evolution of scale-to-scale fluxes in two-dimensional flow. <i>Physical Review E</i> , <b>2015</b> , 92, 033017 | 2.4 | 1 |
| 11 | Path Lengths in Turbulence. <i>Journal of Statistical Physics</i> , <b>2011</b> , 145, 93-101  | 1.5 | 1 |
| 10 | Experimental Measurements of Lagrangian Statistics in Intense Turbulence <b>2007</b> , 1-10  |     | 1 |
| 9  | On the surface expression of bottom features in free-surface flow. <i>Journal of Fluid Mechanics</i> , <b>2020</b> , 900,  | 3.7 | 1 |
| 8  | Automated identification of urban substructure for comparative analysis. <i>PLoS ONE</i> , <b>2021</b> , 16, e0245067  | 3.7 | 1 |

- 7 Particle-based measurement techniques for soft matter 180-208 ○
- 6 Assessing the information content of complex flows. *Physical Review E*, **2021**, 103, 023301 2.4 ○
- 5 Formation and dissolution of midge swarms.. *Physical Review E*, **2022**, 105, 034601 2.4 ○
- 4 Stochastic modelling of bird flocks: accounting for the cohesiveness of collective motion.. *Journal of the Royal Society Interface*, **2022**, 19, 20210745 4.1 ○
- 3 Scale-local velocity fields from particle-tracking data. *Chaos*, **2010**, 20, 041106 3.3
- 2 Detecting topological features of chaotic fluid flow. *Chaos*, **2008**, 18, 041102 3.3
- 1 Lagrangian particle tracking in high Reynolds number turbulence **2007**, 299-311