Giovanni Volpe

List of Publications by Year
in descending order

163 papers	9,564 citations	41344 49 h-index	40979 93 g-index
184 all docs	184 docs citations	184 times ranked	7442 citing authors

#	Article	IF	Citations
1	Active Particles in Complex and Crowded Environments. Reviews of Modern Physics, 2016, 88, .	45.6	1,875
2	Optical trapping and manipulation of nanostructures. Nature Nanotechnology, 2013, 8, 807-819.	31.5	829
3	Microswimmers in patterned environments. Soft Matter, 2011, 7, 8810.	2.7	441
4	Circular Motion of Asymmetric Self-Propelling Particles. Physical Review Letters, 2013, 110, 198302.	7.8	333
5	Surface Plasmon Radiation Forces. Physical Review Letters, 2006, 96, 238101.	7.8	259
6	Active Brownian motion tunable by light. Journal of Physics Condensed Matter, 2012, 24, 284129.	1.8	251
7	Surface Plasmon Optical Tweezers: Tunable Optical Manipulation in the Femtonewton Range. Physical Review Letters, 2008, 100, 186804.	7.8	235
8	Simulation of a Brownian particle in an optical trap. American Journal of Physics, 2013, 81, 224-230.	0.7	201
9	BRAPH: A graph theory software for the analysis of brain connectivity. PLoS ONE, 2017, 12, e0178798.	2.5	187
10	Generation of cylindrical vector beams with few-mode fibers excited by Laguerreâ€"Gaussian beams. Optics Communications, 2004, 237, 89-95.	2.1	180
11	Machine learning for active matter. Nature Machine Intelligence, 2020, 2, 94-103.	16.0	164
12	Sorting of chiral microswimmers. Soft Matter, 2013, 9, 6376.	2.7	150
13	Optical tweezers and their applications. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 218, 131-150.	2.3	150
14	Simulation of the active Brownian motion of a microswimmer. American Journal of Physics, 2014, 82, 659-664.	0.7	147
15	Optical tweezers â€" from calibration to applications: a tutorial. Advances in Optics and Photonics, 2021, 13, 74.	25.5	127
16	Influence of Noise on Force Measurements. Physical Review Letters, 2010, 104, 170602.	7.8	118
17	Disrupted Network Topology in Patients with Stable and Progressive Mild Cognitive Impairment and Alzheimer's Disease. Cerebral Cortex, 2016, 26, 3476-3493.	2.9	110
18	Objective comparison of methods to decode anomalous diffusion. Nature Communications, 2021, 12, 6253.	12.8	109

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19	Torque Detection using Brownian Fluctuations. Physical Review Letters, 2006, 97, 210603.	7.8	94
20	Fractal plasmonics: subdiffraction focusing and broadband spectral response by a Sierpinski nanocarpet. Optics Express, 2011, 19, 3612.	3.4	87
21	Aberrant cerebral network topology and mild cognitive impairment in early Parkinson's disease. Human Brain Mapping, 2015, 36, 2980-2995.	3.6	87
22	Computational toolbox for optical tweezers in geometrical optics. Journal of the Optical Society of America B: Optical Physics, 2015, 32, B11.	2.1	86
23	Light-controlled assembly of active colloidal molecules. Journal of Chemical Physics, 2019, 150, 094905.	3.0	83
24	Real-Time Detection of Hyperosmotic Stress Response in Optically Trapped Single Yeast Cells Using Raman Microspectroscopy. Analytical Chemistry, 2005, 77, 2564-2568.	6.5	80
25	Brownian Motion in a Speckle Light Field: Tunable Anomalous Diffusion and Selective Optical Manipulation. Scientific Reports, 2014, 4, 3936.	3.3	79
26	Speckle optical tweezers: micromanipulation with random light fields. Optics Express, 2014, 22, 18159.	3.4	75
27	Raman imaging of floating cells. Optics Express, 2005, 13, 6105.	3.4	73
28	Formation, compression and surface melting of colloidal clusters by active particles. Soft Matter, 2015, 11, 6187-6191.	2.7	68
29	The topography of the environment alters the optimal search strategy for active particles. Proceedings of the National Academy of Sciences of the United States of America, 2017, 114, 11350-11355.	7.1	66
30	Measurement of anomalous diffusion using recurrent neural networks. Physical Review E, 2019, 100, 010102.	2.1	65
31	The lag phase and G1 phase of a single yeast cell monitored by Raman microspectroscopy. Journal of Raman Spectroscopy, 2006, 37, 858-864.	2.5	64
32	Brownian motion in a nonhomogeneous force field and photonic force microscope. Physical Review E, 2007, 76, 061118.	2.1	64
33	Step-by-step guide to the realization of advanced optical tweezers. Journal of the Optical Society of America B: Optical Physics, 2015, 32, B84.	2.1	64
34	Disorder-mediated crowd control in an active matter system. Nature Communications, 2016, 7, 10907.	12.8	64
35	Experimental realization of a minimal microscopic heat engine. Physical Review E, 2017, 96, 052106.	2.1	64
36	Nonadditivity of critical Casimir forces. Nature Communications, 2016, 7, 11403.	12.8	62

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37	Effective drifts in dynamical systems with multiplicative noise: a review of recent progress. Reports on Progress in Physics, 2016, 79, 053901.	20.1	62
38	Force measurement in the presence of Brownian noise: Equilibrium-distribution method versus drift method. Physical Review E, 2011, 83, 041113.	2.1	61
39	The Smoluchowski-Kramers Limit of Stochastic Differential Equations with Arbitrary State-Dependent Friction. Communications in Mathematical Physics, 2015, 336, 1259-1283.	2.2	61
40	Non-Boltzmann stationary distributions and nonequilibrium relations in active baths. Physical Review E, 2016, 94, 062150.	2.1	61
41	Quantitative digital microscopy with deep learning. Applied Physics Reviews, 2021, 8, .	11.3	60
42	Dynamic Control of Particle Deposition in Evaporating Droplets by an External Point Source of Vapor. Journal of Physical Chemistry Letters, 2018, 9, 659-664.	4.6	58
43	Optical tweezers: theory and practice. European Physical Journal Plus, 2020, 135, 1.	2.6	57
44	Feedback-controlled active brownian colloids with space-dependent rotational dynamics. Nature Communications, 2020, 11, 4223.	12.8	55
45	Quantitative assessment of non-conservative radiation forces in an optical trap. Europhysics Letters, 2009, 86, 38002.	2.0	54
46	Two-dimensional nature of the active Brownian motion of catalytic microswimmers at solid and liquid interfaces. New Journal of Physics, 2017, 19, 065008.	2.9	53
47	Digital video microscopy enhanced by deep learning. Optica, 2019, 6, 506.	9.3	53
48	Microscopic Engine Powered by Critical Demixing. Physical Review Letters, 2018, 120, 068004.	7.8	52
49	Subtypes of Alzheimer's Disease Display Distinct Network Abnormalities Extending Beyond Their Pattern of Brain Atrophy. Frontiers in Neurology, 2019, 10, 524.	2.4	52
50	Mie scattering distinguishes the topological charge of an optical vortex: a homage to Gustav Mie. New Journal of Physics, 2009, 11, 013046.	2.9	49
51	Engineering Sensorial Delay to Control Phototaxis and Emergent Collective Behaviors. Physical Review X, 2016, 6, .	8.9	49
52	Noise-Induced Drift in Stochastic Differential Equations with Arbitrary Friction and Diffusion in the Smoluchowski-Kramers Limit. Journal of Statistical Physics, 2012, 146, 762-773.	1.2	47
53	Microscopic metavehicles powered and steered by embedded optical metasurfaces. Nature Nanotechnology, 2021, 16, 970-974.	31.5	44
54	Backscattering position detection for photonic force microscopy. Journal of Applied Physics, 2007, 102, 084701.	2.5	42

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55	High-performance reconstruction of microscopic force fields from Brownian trajectories. Nature Communications, 2018, 9, 5166.	12.8	41
56	Stability of graph theoretical measures in structural brain networks in Alzheimerâ€™s disease. Scientific Reports, 2018, 8, 11592.	3.3	41
57	Optical tweezers with cylindrical vector beams produced by optical fibers. , 2004, , .		39
58	Novel perspectives for the application of total internal reflection microscopy. Optics Express, 2009, 17, 23975.	3.4	38
59	Virtual genetic diagnosis for familial hypercholesterolemia powered by machine learning. European Journal of Preventive Cardiology, 2020, 27, 1639-1646.	1.8	37
60	Stratonovich-to-ItÃ´ transition in noisy systems with multiplicative feedback. Nature Communications, 2013, 4, 2733.	12.8	36
61	Active Atoms and Interstitials in Two-Dimensional Colloidal Crystals. Physical Review Letters, 2018, 120, 268004.	7.8	36
62	Active matter alters the growth dynamics of coffee rings. Soft Matter, 2019, 15, 1488-1496.	2.7	33
63	Altered structural network organization in cognitively normal individuals with amyloid pathology. Neurobiology of Aging, 2018, 64, 15-24.	3.1	30
64	Label-free nanofluidic scattering microscopy of size and mass of single diffusing molecules and nanoparticles. Nature Methods, 2022, 19, 751-758.	19.0	30
65	Abnormal Structural Brain Connectome in Individuals with Preclinical Alzheimerâ€™s Disease. Cerebral Cortex, 2018, 28, 3638-3649.	2.9	29
66	Amyloid Network Topology Characterizes the Progression of Alzheimerâ€™s Disease During the Predementia Stages. Cerebral Cortex, 2018, 28, 340-349.	2.9	28
67	Tuning phototactic robots with sensorial delays. Physical Review E, 2018, 98, .	2.1	28
68	Fast and Accurate Nanoparticle Characterization Using Deep-Learning-Enhanced Off-Axis Holography. ACS Nano, 2021, 15, 2240-2250.	14.6	28
69	Dynamics of a growing cell in an optical trap. Applied Physics Letters, 2006, 88, 231106.	3.3	27
70	Classification, inference and segmentation of anomalous diffusion with recurrent neural networks. Journal of Physics A: Mathematical and Theoretical, 2021, 54, 294003.	2.1	25
71	Stochastic resonant damping in a noisy monostable system: Theory and experiment. Physical Review E, 2008, 77, 051107.	2.1	23
72	Thermophoresis of Brownian particles driven by coloured noise. Europhysics Letters, 2012, 99, 60002.	2.0	23

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73	The Small-Mass Limit for Langevin Dynamics with Unbounded Coefficients and Positive Friction. Journal of Statistical Physics, 2016, 163, 659-673.	1.2	21
74	Controlling the dynamics of colloidal particles by critical Casimir forces. Soft Matter, 2019, 15, 2152-2162.	2.7	21
75	Intracavity optical trapping of microscopic particles in a ring-cavity fiber laser. Nature Communications, 2019, 10, 2683.	12.8	21
76	Influence of sensorial delay on clustering and swarming. Physical Review E, 2019, 100, 012607.	2.1	20
77	Clustering of Janus particles in an optical potential driven by hydrodynamic fluxes. Soft Matter, 2019, 15, 5748-5759.	2.7	20
78	10-fold detection range increase in quadrant-photodiode position sensing for photonic force microscope. Review of Scientific Instruments, 2008, 79, 106101.	1.3	18
79	Small Mass Limit of a Langevin Equation on a Manifold. Annales Henri Poincare, 2017, 18, 707-755.	1.7	18
80	Dendritic spines are lost in clusters in Alzheimerâ€™s disease. Scientific Reports, 2021, 11, 12350.	3.3	18
81	Extracting quantitative biological information from bright-field cell images using deep learning. Biophysics Reviews, 2021, 2, .	2.7	18
82	Machine learning reveals complex behaviours in optically trapped particles. Machine Learning: Science and Technology, 2020, 1, 045009.	5.0	17
83	Singular-point characterization in microscopic flows. Physical Review E, 2008, 77, 037301.	2.1	16
84	KÃ¼mmel<i>etÂal.</i>Reply:. Physical Review Letters, 2014, 113, 029802.	7.8	16
85	Anisotropic dynamics of a self-assembled colloidal chain in an active bath. Soft Matter, 2020, 16, 5609-5614.	2.7	16
86	Gain-Assisted Optomechanical Position Locking of Metal/Dielectric Nanoshells in Optical Potentials. ACS Photonics, 2020, 7, 1262-1270.	6.6	15
87	Non-equilibrium properties of an active nanoparticle in a harmonic potential. Nature Communications, 2021, 12, 1902.	12.8	15
88	Active droploids. Nature Communications, 2021, 12, 6005.	12.8	15
89	Real-time actin-cytoskeleton depolymerization detection in a single cell using optical tweezers. Optics Express, 2007, 15, 7922.	3.4	14
90	Volpe<i>etÂal.</i>Reply:. Physical Review Letters, 2011, 107, .	7.8	14

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91	Raman tweezers for tire and road wear micro- and nanoparticles analysis. Environmental Science: Nano, 2022, 9, 145-161.	4.3	14
92	Enhanced force-field calibration via machine learning. Applied Physics Reviews, 2020, 7, .	11.3	13
93	Age-related differences in network structure and dynamic synchrony of cognitive control. NeuroImage, 2021, 236, 118070.	4.2	13
94	Deep learning from MRI-derived labels enables automatic brain tissue classification on human brain CT. NeuroImage, 2021, 244, 118606.	4.2	13
95	Long-term influence of fluid inertia on the diffusion of a Brownian particle. Physical Review E, 2014, 90, 042309.	2.1	12
96	Intercellular communication induces glycolytic synchronization waves between individually oscillating cells. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, e2010075118.	7.1	12
97	Metastable clusters and channels formed by active particles with aligning interactions. New Journal of Physics, 2017, 19, 115008.	2.9	10
98	Multiplex connectome changes across the alzheimerâ€™s disease spectrum using gray matter and amyloid data. Cerebral Cortex, 2022, 32, 3501-3515.	2.9	10
99	Deep learning in lightâ€“matter interactions. Nanophotonics, 2022, 11, 3189-3214.	6.0	10
100	The Cognitive Connectome in Healthy Aging. Frontiers in Aging Neuroscience, 2021, 13, 694254.	3.4	9
101	Comparison of Two-Dimensional- and Three-Dimensional-Based U-Net Architectures for Brain Tissue Classification in One-Dimensional Brain CT. Frontiers in Computational Neuroscience, 2021, 15, 785244.	2.1	9
102	Optical trapping and control of a dielectric nanowire by a nanoaperture. Optics Letters, 2015, 40, 4807.	3.3	8
103	Delayed correlations improve the reconstruction of the brain connectome. PLoS ONE, 2020, 15, e0228334.	2.5	8
104	Ordering of binary colloidal crystals by random potentials. Soft Matter, 2020, 16, 4267-4273.	2.7	8
105	Optical trapping and critical Casimir forces. European Physical Journal Plus, 2021, 136, 1.	2.6	8
106	Directed Brain Connectivity Identifies Widespread Functional Network Abnormalities in Parkinsonâ€™s Disease. Cerebral Cortex, 2022, 32, 593-607.	2.9	8
107	Computational toolbox for optical tweezers in geometrical optics. Journal of the Optical Society of America B: Optical Physics, 2015, 32, B6.	2.1	7
108	Numerical Simulations of Active Brownian Particles. Soft and Biological Matter, 2019, , 211-238.	0.3	6

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109	Polar POLICRYPS diffractive structures generate cylindrical vector beams. Applied Physics Letters, 2015, 107, .	3.3	5
110	The environment topography alters the way to multicellularity in <i>Myxococcus xanthus</i>. Science Advances, 2021, 7, .	10.3	5
111	Raman spectroscopy of a single living cell in environmentally stressed conditions. , 2005, 5930, 42.		4
112	Biophotonics. Optics and Photonics News, 2005, 16, 18.	0.5	4
113	Thermal noise suppression: how much does it cost?. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 095005.	2.1	4
114	Influence of rotational force fields on the determination of the work done on a driven Brownian particle. Journal of Optics (United Kingdom), 2011, 13, 044006.	2.2	4
115	Improving epidemic testing and containment strategies using machine learning. Machine Learning: Science and Technology, 2021, 2, 035007.	5.0	4
116	Neural network training with highly incomplete medical datasets. Machine Learning: Science and Technology, 2022, 3, 035001.	5.0	4
117	Mie scattering of a Laguerre-Gaussian beam for position detection of microbubbles. , 2008, , .		3
118	Biophotonics feature: introduction. Biomedical Optics Express, 2018, 9, 1229.	2.9	2
119	Enhanced prediction of atrial fibrillation and mortality among patients with congenital heart disease using nationwide register-based medical hospital data and neural networks. European Heart Journal Digital Health, 2021, 2, 568-575.	1.7	2
120	Intracavity optical trapping with Ytterbium doped fiber ring laser. , 2013, , .		1
121	Engineering particle trajectories in microfluidic flows using speckle light fields. , 2014, , .		1
122	Numerical simulation of optically trapped particles. , 2014, , .		1
123	Photonic forcemicroscope. , 2015, , 296-318.		1
124	Better Stability with Measurement Errors. Journal of Statistical Physics, 2016, 163, 1477-1485.	1.2	1
125	Quantitative digital microscopy with deep learning. , 2020, , .		1
126	Total Internal Reflection Microscopy: Calibration of the Intensity-Position Relation. , 2010, , .		1

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127	Optical Feedback Radiation Forces: Intracavity Optical Trapping with Feedback-locked Diode Lasers. , 2012, , .		1
128	Computational toolbox for optical tweezers in the geometrical optics regime. , 2019, , .		1
129	Machine learning to enhance the calculation of optical forces in the geometrical optics approximation. , 2021, , .		1
130	Optical trapping dynamics for cell identification. , 2006, , .		0
131	Growth of single yeast cells in an optical trap monitored by Rayleigh and Raman scattering. , 2006, , .		0
132	Photonic force microscopy with back-scattered light. , 2007, , .		0
133	Insights into Statistical Physics by Optically Trapped Particles. , 2009, , .		0
134	Statistical physics in an optically manipulated colloidal particle. , 2010, , .		0
135	Forces and torques on the nanoscale: from measurement to applications. Proceedings of SPIE, 2012, , .	0.8	0
136	Numerical simulation of Brownian particles in optical force fields. , 2013, , .		0
137	Spatial measurement of spurious forces with optical tweezers. , 2013, , .		0
138	Pick it up with light! An advanced summer program for secondary school students. Proceedings of SPIE, 2014, , .	0.8	0
139	Simulation of active Brownian particles in optical potentials. Proceedings of SPIE, 2014, , .	0.8	0
140	Data acquisition and optical tweezers calibration. , 0, , 255-295.		0
141	Advanced techniques. , 0, , 345-368.		0
142	Optofluidics and lab-on-a-chip. , 0, , 409-421.		0
143	Statistical physics. , 0, , 448-461.		0
144	Plasmonics. , 0, , 470-483.		0

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145	Nanostructures. , 0, , 484-497.		0
146	Optical Manipulation with Random Light Fields: From Fundamental Physics to Applications. , 2015, , .		0
147	An Introduction to Practical Laboratory Optics, by J. F. James. Contemporary Physics, 2015, 56, 493-495.	1.8	0
148	Experimental investigation of critical Casimir forces in binary liquid mixtures by blinking optical tweezers. , 2017, , .		0
149	Clustering of Janus particles in an optical potential driven by hydrodynamic fluxes. , 2021, , .		0
150	Controlling Active Brownian Particles in Complex Settings. , 2017, , .		0
151	Nonadditivity of critical Casimir forces. , 2017, , .		0
152	Motion of Bio-hybrid Microswimmers in Optical Potentials. , 2017, , .		0
153	Brownian Gyrator: An Experimental Realization. , 2017, , .		0
154	A Critical Microscopic Engine in an Optical Tweezers. , 2018, , .		0
155	Dynamics of optically trapped particles tuned by critical Casimir forces and torques. , 2019, , .		0
156	Light-driven Assembly and Optical Manipulation of Active Colloidal Molecules. , 2019, , .		0
157	Statistics of Brownian particles held in non-harmonic potentials in an active bath. , 2019, , .		0
158	Beam Displacement due to Thermal Blooming in Optical Tweezers. , 2019, , .		0
159	Experimental investigation of active Brownian dynamics in 3D optical potentials using light-sheet microscopy. , 2019, , .		0
160	Dynamics of an Active Nanoparticle in an Optical Trap. , 2021, , .		0
161	FORMA and BEFORE: expanding applications of optical tweezers. , 2021, , .		0
162	Raman Tweezers for single nanoplastic particles analysis in liquid environment. , 2021, , .		0

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163	Clustering of Janus particles under the effect of optical forces driven by hydrodynamic fluxes. , 2021, , .		0