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	Directed Brain Connectivity Identifies Widespread Functional Network Abnormalities in Parkinsonâ€™s Disease. Cerebral Cortex, 2022, 32, 593-607.	2.9	8
2	Multiplex connectome changes across the alzheimerâ€™s disease spectrum using gray matter and amyloid data. Cerebral Cortex, 2022, 32, 3501-3515.	2.9	10
3	Raman tweezers for tire and road wear micro- and nanoparticles analysis. Environmental Science: Nano, 2022, 9, 145-161.	4.3	14
4	Label-free nanofluidic scattering microscopy of size and mass of single diffusing molecules and nanoparticles. Nature Methods, 2022, 19, 751-758.	19.0	30
5	Neural network training with highly incomplete medical datasets. Machine Learning: Science and Technology, 2022, 3, 035001.	5.0	4
6	Deep learning in lightâ€“matter interactions. Nanophotonics, 2022, 11, 3189-3214.	6.0	10
7	Fast and Accurate Nanoparticle Characterization Using Deep-Learning-Enhanced Off-Axis Holography. ACS Nano, 2021, 15, 2240-2250.	14.6	28
8	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
9	Optical trapping and critical Casimir forces. European Physical Journal Plus, 2021, 136, 1.	2.6	8
10	Non-equilibrium properties of an active nanoparticle in a harmonic potential. Nature Communications, 2021, 12, 1902.	12.8	15
11	Quantitative digital microscopy with deep learning. Applied Physics Reviews, 2021, 8, .	11.3	60
12	Optical tweezers â€” from calibration to applications: a tutorial. Advances in Optics and Photonics, 2021, 13, 74.	25.5	127
13	Improving epidemic testing and containment strategies using machine learning. Machine Learning: Science and Technology, 2021, 2, 035007.	5.0	4
14	Dendritic spines are lost in clusters in Alzheimerâ€™s disease. Scientific Reports, 2021, 11, 12350.	3.3	18
15	Classification, inference and segmentation of anomalous diffusion with recurrent neural networks. Journal of Physics A: Mathematical and Theoretical, 2021, 54, 294003.	2.1	25
16	Microscopic metavehicles powered and steered by embedded optical metasurfaces. Nature Nanotechnology, 2021, 16, 970-974.	31.5	44
17	Clustering of Janus particles in an optical potential driven by hydrodynamic fluxes. , 2021, , .		0
18	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

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19	The Cognitive Connectome in Healthy Aging. Frontiers in Aging Neuroscience, 2021, 13, 694254.	3.4	9
20	Age-related differences in network structure and dynamic synchrony of cognitive control. NeuroImage, 2021, 236, 118070.	4.2	13
21	The environment topography alters the way to multicellularity in <i>Myxococcus xanthus</i>. Science Advances, 2021, 7, .	10.3	5
22	Extracting quantitative biological information from bright-field cell images using deep learning. Biophysics Reviews, 2021, 2, .	2.7	18
23	Deep learning from MRI-derived labels enables automatic brain tissue classification on human brain CT. NeuroImage, 2021, 244, 118606.	4.2	13
24	Active droploids. Nature Communications, 2021, 12, 6005.	12.8	15
25	Objective comparison of methods to decode anomalous diffusion. Nature Communications, 2021, 12, 6253.	12.8	109
26	Dynamics of an Active Nanoparticle in an Optical Trap. , 2021, , .		0
27	FORMA and BEFORE: expanding applications of optical tweezers. , 2021, , .		0
28	Machine learning to enhance the calculation of optical forces in the geometrical optics approximation. , 2021, , .		1
29	Raman Tweezers for single nanoplastic particles analysis in liquid environment. , 2021, , .		0
30	Clustering of Janus particles under the effect of optical forces driven by hydrodynamic fluxes. , 2021, , .		0
31	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
32	Enhanced force-field calibration via machine learning. Applied Physics Reviews, 2020, 7, .	11.3	13
33	Feedback-controlled active brownian colloids with space-dependent rotational dynamics. Nature Communications, 2020, 11, 4223.	12.8	55
34	Optical tweezers: theory and practice. European Physical Journal Plus, 2020, 135, 1.	2.6	57
35	Anisotropic dynamics of a self-assembled colloidal chain in an active bath. Soft Matter, 2020, 16, 5609-5614.	2.7	16
36	Delayed correlations improve the reconstruction of the brain connectome. PLoS ONE, 2020, 15, e0228334.	2.5	8

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37	Machine learning for active matter. Nature Machine Intelligence, 2020, 2, 94-103.	16.0	164
38	Virtual genetic diagnosis for familial hypercholesterolemia powered by machine learning. European Journal of Preventive Cardiology, 2020, 27, 1639-1646.	1.8	37
39	Ordering of binary colloidal crystals by random potentials. Soft Matter, 2020, 16, 4267-4273.	2.7	8
40	Gain-Assisted Optomechanical Position Locking of Metal/Dielectric Nanoshells in Optical Potentials. ACS Photonics, 2020, 7, 1262-1270.	6.6	15
41	Machine learning reveals complex behaviours in optically trapped particles. Machine Learning: Science and Technology, 2020, 1, 045009.	5.0	17
42	Quantitative digital microscopy with deep learning. , 2020, , .		1
43	Influence of sensorial delay on clustering and swarming. Physical Review E, 2019, 100, 012607.	2.1	20
44	Measurement of anomalous diffusion using recurrent neural networks. Physical Review E, 2019, 100, 010102.	2.1	65
45	Active matter alters the growth dynamics of coffee rings. Soft Matter, 2019, 15, 1488-1496.	2.7	33
46	Controlling the dynamics of colloidal particles by critical Casimir forces. Soft Matter, 2019, 15, 2152-2162.	2.7	21
47	Intracavity optical trapping of microscopic particles in a ring-cavity fiber laser. Nature Communications, 2019, 10, 2683.	12.8	21
48	Clustering of Janus particles in an optical potential driven by hydrodynamic fluxes. Soft Matter, 2019, 15, 5748-5759.	2.7	20
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	Light-controlled assembly of active colloidal molecules. Journal of Chemical Physics, 2019, 150, 094905.	3.0	83
51	Numerical Simulations of Active Brownian Particles. Soft and Biological Matter, 2019, , 211-238.	0.3	6
52	Digital video microscopy enhanced by deep learning. Optica, 2019, 6, 506.	9.3	53
53	Dynamics of optically trapped particles tuned by critical Casimir forces and torques. , 2019, , .		0
54	Light-driven Assembly and Optical Manipulation of Active Colloidal Molecules. , 2019, , .		0

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55	Statistics of Brownian particles held in non-harmonic potentials in an active bath. , 2019, , .		0
56	Computational toolbox for optical tweezers in the geometrical optics regime. , 2019, , .		1
57	Beam Displacement due to Thermal Blooming in Optical Tweezers. , 2019, , .		0
58	Experimental investigation of active Brownian dynamics in 3D optical potentials using light-sheet microscopy. , 2019, , .		0
59	Microscopic Engine Powered by Critical Demixing. Physical Review Letters, 2018, 120, 068004.	7.8	52
60	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
61	Altered structural network organization in cognitively normal individuals with amyloid pathology. Neurobiology of Aging, 2018, 64, 15-24.	3.1	30
62	Amyloid Network Topology Characterizes the Progression of Alzheimerâ€™s Disease During the Predementia Stages. Cerebral Cortex, 2018, 28, 340-349.	2.9	28
63	Abnormal Structural Brain Connectome in Individuals with Preclinical Alzheimerâ€™s Disease. Cerebral Cortex, 2018, 28, 3638-3649.	2.9	29
64	High-performance reconstruction of microscopic force fields from Brownian trajectories. Nature Communications, 2018, 9, 5166.	12.8	41
65	Tuning phototactic robots with sensorial delays. Physical Review E, 2018, 98, .	2.1	28
66	Active Atoms and Interstitials in Two-Dimensional Colloidal Crystals. Physical Review Letters, 2018, 120, 268004.	7.8	36
67	Biophotonics feature: introduction. Biomedical Optics Express, 2018, 9, 1229.	2.9	2
68	Optical tweezers and their applications. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 218, 131-150.	2.3	150
69	Stability of graph theoretical measures in structural brain networks in Alzheimerâ€™s disease. Scientific Reports, 2018, 8, 11592.	3.3	41
70	A Critical Microscopic Engine in an Optical Tweezers. , 2018, , .		0
71	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
72	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

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73	Metastable clusters and channels formed by active particles with aligning interactions. New Journal of Physics, 2017, 19, 115008.	2.9	10
74	Experimental realization of a minimal microscopic heat engine. Physical Review E, 2017, 96, 052106.	2.1	64
75	Small Mass Limit of a Langevin Equation on a Manifold. Annales Henri Poincare, 2017, 18, 707-755.	1.7	18
76	Experimental investigation of critical Casimir forces in binary liquid mixtures by blinking optical tweezers. , 2017, , .		0
77	BRAPH: A graph theory software for the analysis of brain connectivity. PLoS ONE, 2017, 12, e0178798.	2.5	187
78	Controlling Active Brownian Particles in Complex Settings. , 2017, , .		0
79	Nonadditivity of critical Casimir forces. , 2017, , .		0
80	Motion of Bio-hybrid Microswimmers in Optical Potentials. , 2017, , .		0
81	Brownian Gyrator: An Experimental Realization. , 2017, , .		0
82	Nonadditivity of critical Casimir forces. Nature Communications, 2016, 7, 11403.	12.8	62
83	Non-Boltzmann stationary distributions and nonequilibrium relations in active baths. Physical Review E, 2016, 94, 062150.	2.1	61
84	Disorder-mediated crowd control in an active matter system. Nature Communications, 2016, 7, 10907.	12.8	64
85	Better Stability with Measurement Errors. Journal of Statistical Physics, 2016, 163, 1477-1485.	1.2	1
86	Effective drifts in dynamical systems with multiplicative noise: a review of recent progress. Reports on Progress in Physics, 2016, 79, 053901.	20.1	62
87	Active Particles in Complex and Crowded Environments. Reviews of Modern Physics, 2016, 88, .	45.6	1,875
88	Engineering Sensorial Delay to Control Phototaxis and Emergent Collective Behaviors. Physical Review X, 2016, 6, .	8.9	49
89	The Small-Mass Limit for Langevin Dynamics with Unbounded Coefficients and Positive Friction. Journal of Statistical Physics, 2016, 163, 659-673.	1.2	21
90	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

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91	Photonic forcemicroscope. , 2015, , 296-318.		1
92	Polar POLICRYPS diffractive structures generate cylindrical vector beams. Applied Physics Letters, 2015, 107, .	3.3	5
93	Optical trapping and control of a dielectric nanowire by a nanoaperture. Optics Letters, 2015, 40, 4807.	3.3	8
94	Formation, compression and surface melting of colloidal clusters by active particles. Soft Matter, 2015, 11, 6187-6191.	2.7	68
95	The Smoluchowski-Kramers Limit of Stochastic Differential Equations with Arbitrary State-Dependent Friction. Communications in Mathematical Physics, 2015, 336, 1259-1283.	2.2	61
96	Aberrant cerebral network topology and mild cognitive impairment in early Parkinson's disease. Human Brain Mapping, 2015, 36, 2980-2995.	3.6	87
97	Optical Manipulation with Random Light Fields: From Fundamental Physics to Applications. , 2015, , .		0
98	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
99	Computational toolbox for optical tweezers in geometrical optics. Journal of the Optical Society of America B: Optical Physics, 2015, 32, B11.	2.1	86
100	An Introduction to Practical Laboratory Optics, by J. F. James. Contemporary Physics, 2015, 56, 493-495.	1.8	0
101	Computational toolbox for optical tweezers in geometrical optics. Journal of the Optical Society of America B: Optical Physics, 2015, 32, B6.	2.1	7
102	Pick it up with light! An advanced summer program for secondary school students. Proceedings of SPIE, 2014, , .	0.8	0
103	Speckle optical tweezers: micromanipulation with random light fields. Optics Express, 2014, 22, 18159.	3.4	75
104	KÃ¼mmel<i>etÂal.</i>Reply:. Physical Review Letters, 2014, 113, 029802.	7.8	16
105	Long-term influence of fluid inertia on the diffusion of a Brownian particle. Physical Review E, 2014, 90, 042309.	2.1	12
106	Engineering particle trajectories in microfluidic flows using speckle light fields. , 2014, , .		1
107	Numerical simulation of optically trapped particles. , 2014, , .		1
108	Simulation of active Brownian particles in optical potentials. Proceedings of SPIE, 2014, , .	0.8	0

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109	Simulation of the active Brownian motion of a microswimmer. American Journal of Physics, 2014, 82, 659-664.	0.7	147
110	Brownian Motion in a Speckle Light Field: Tunable Anomalous Diffusion and Selective Optical Manipulation. Scientific Reports, 2014, 4, 3936.	3.3	79
111	Optical trapping and manipulation of nanostructures. Nature Nanotechnology, 2013, 8, 807-819.	31.5	829
112	Stratonovich-to-ItÃ´ transition in noisy systems with multiplicative feedback. Nature Communications, 2013, 4, 2733.	12.8	36
113	Sorting of chiral microswimmers. Soft Matter, 2013, 9, 6376.	2.7	150
114	Numerical simulation of Brownian particles in optical force fields. , 2013, , .		0
115	Simulation of a Brownian particle in an optical trap. American Journal of Physics, 2013, 81, 224-230.	0.7	201
116	Circular Motion of Asymmetric Self-Propelling Particles. Physical Review Letters, 2013, 110, 198302.	7.8	333
117	Intracavity optical trapping with Ytterbium doped fiber ring laser. , 2013, , .		1
118	Spatial measurement of spurious forces with optical tweezers. , 2013, , .		0
119	Forces and torques on the nanoscale: from measurement to applications. Proceedings of SPIE, 2012, , .	0.8	0
120	Thermophoresis of Brownian particles driven by coloured noise. Europhysics Letters, 2012, 99, 60002.	2.0	23
121	Active Brownian motion tunable by light. Journal of Physics Condensed Matter, 2012, 24, 284129.	1.8	251
122	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
123	Optical Feedback Radiation Forces: Intracavity Optical Trapping with Feedback-locked Diode Lasers. , 2012, , .		1
124	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
125	Microswimmers in patterned environments. Soft Matter, 2011, 7, 8810.	2.7	441
126	Volpe<i>etÂal.</i>Reply:. Physical Review Letters, 2011, 107, .	7.8	14

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127	Fractal plasmonics: subdiffraction focusing and broadband spectral response by a Sierpinski nanocarpet. Optics Express, 2011, 19, 3612.	3.4	87
128	Force measurement in the presence of Brownian noise: Equilibrium-distribution method versus drift method. Physical Review E, 2011, 83, 041113.	2.1	61
129	Influence of Noise on Force Measurements. Physical Review Letters, 2010, 104, 170602.	7.8	118
130	Statistical physics in an optically manipulated colloidal particle. , 2010, , .		0
131	Total Internal Reflection Microscopy: Calibration of the Intensity-Position Relation. , 2010, , .		1
132	Insights into Statistical Physics by Optically Trapped Particles. , 2009, , .		0
133	Thermal noise suppression: how much does it cost?. Journal of Physics A: Mathematical and Theoretical, 2009, 42, 095005.	2.1	4
134	Quantitative assessment of non-conservative radiation forces in an optical trap. Europhysics Letters, 2009, 86, 38002.	2.0	54
135	Novel perspectives for the application of total internal reflection microscopy. Optics Express, 2009, 17, 23975.	3.4	38
136	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
137	Stochastic resonant damping in a noisy monostable system: Theory and experiment. Physical Review E, 2008, 77, 051107.	2.1	23
138	Surface Plasmon Optical Tweezers: Tunable Optical Manipulation in the Femtonewton Range. Physical Review Letters, 2008, 100, 186804.	7.8	235
139	10-fold detection range increase in quadrant-photodiode position sensing for photonic force microscope. Review of Scientific Instruments, 2008, 79, 106101.	1.3	18
140	Singular-point characterization in microscopic flows. Physical Review E, 2008, 77, 037301.	2.1	16
141	Mie scattering of a Laguerre-Gaussian beam for position detection of microbubbles. , 2008, , .		3
142	Real-time actin-cytoskeleton depolymerization detection in a single cell using optical tweezers. Optics Express, 2007, 15, 7922.	3.4	14
143	Backscattering position detection for photonic force microscopy. Journal of Applied Physics, 2007, 102, 084701.	2.5	42
144	Photonic force microscopy with back-scattered light. , 2007, , .		0

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145	Brownian motion in a nonhomogeneous force field and photonic force microscope. Physical Review E, 2007, 76, 061118.	2.1	64
146	Surface Plasmon Radiation Forces. Physical Review Letters, 2006, 96, 238101.	7.8	259
147	Optical trapping dynamics for cell identification. , 2006, , .		0
148	Growth of single yeast cells in an optical trap monitored by Rayleigh and Raman scattering. , 2006, , .		0
149	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
150	Dynamics of a growing cell in an optical trap. Applied Physics Letters, 2006, 88, 231106.	3.3	27
151	Torque Detection using Brownian Fluctuations. Physical Review Letters, 2006, 97, 210603.	7.8	94
152	Raman spectroscopy of a single living cell in environmentally stressed conditions. , 2005, 5930, 42.		4
153	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
154	Raman imaging of floating cells. Optics Express, 2005, 13, 6105.	3.4	73
155	Biophotonics. Optics and Photonics News, 2005, 16, 18.	0.5	4
156	Optical tweezers with cylindrical vector beams produced by optical fibers. , 2004, , .		39
157	Generation of cylindrical vector beams with few-mode fibers excited by Laguerreâ€"Gaussian beams. Optics Communications, 2004, 237, 89-95.	2.1	180
158	Data acquisition and optical tweezers calibration. , 0, , 255-295.		0
159	Advanced techniques. , 0, , 345-368.		0
160	Optofluidics and lab-on-a-chip. , 0, , 409-421.		0
161	Statistical physics. , 0, , 448-461.		0
162	Plasmonics. , 0, , 470-483.		0

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163	Nanostructures. , 0, , 484-497.		0