

David G Grier

List of Publications by Year in Descending Order

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The third column is the impact factor (IF) of the journal, and the fourth column is the number of citations of the article.

146
papers

18,076
citations

56
h-index

134
g-index

175
ext. papers

21,089
ext. citations

6.1
avg, IF

7.19
L-index

#	Paper	IF	Citations
146	Microchemomechanical devices using DNA hybridization. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2021 , 118,	11.5	4
145	Holographic characterization and tracking of colloidal dimers in the effective-sphere approximation. <i>Soft Matter</i> , 2021 , 17, 2695-2703	3.6	3
144	Quantitative Differentiation of Protein Aggregates From Other Subvisible Particles in Viscous Mixtures Through Holographic Characterization. <i>Journal of Pharmaceutical Sciences</i> , 2020 , 109, 2405-2412	3.9	3
143	Holographic molecular binding assays. <i>Scientific Reports</i> , 2020 , 10, 1932	4.9	6
142	CATCH: Characterizing and Tracking Colloids Holographically Using Deep Neural Networks. <i>Journal of Physical Chemistry B</i> , 2020 , 124, 1602-1610	3.4	15
141	Acoustokinetics: Crafting force landscapes from sound waves. <i>Physical Review Research</i> , 2020 , 2,	3.9	6
140	Interpreting holographic molecular binding assays with effective medium theory. <i>Biomedical Optics Express</i> , 2020 , 11, 5225-5236	3.5	3
139	The role of the medium in the effective-sphere interpretation of holographic particle characterization data. <i>Soft Matter</i> , 2020 , 16, 891-898	3.6	7
138	Holographic immunoassays: direct detection of antibodies binding to colloidal spheres. <i>Soft Matter</i> , 2020 , 16, 10180-10186	3.6	1
137	Optimizing the Synthesis of Monodisperse Colloidal Spheres Using Holographic Particle Characterization. <i>Langmuir</i> , 2019 , 35, 6602-6609	4	7
136	Above and beyond: holographic tracking of axial displacements in holographic optical tweezers. <i>Optics Express</i> , 2019 , 27, 25375-25383	3.3	5
135	Projecting non-diffracting waves with intermediate-plane holography. <i>Optics Express</i> , 2018 , 26, 3926-3931	3.3	5
134	Machine-learning techniques for fast and accurate feature localization in holograms of colloidal particles. <i>Optics Express</i> , 2018 , 26, 15221-15231	3.3	37
133	Flexible wide-field high-resolution scanning camera for continuous-wave acoustic holography. <i>Review of Scientific Instruments</i> , 2018 , 89, 114901	1.7	1
132	Classically accelerating solenoidal wave packets in two dimensions. <i>Physical Review A</i> , 2018 , 98,	2.6	2
131	Photokinetic analysis of the forces and torques exerted by optical tweezers carrying angular momentum. <i>Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences</i> , 2017 , 375,	3	9
130	Holographic characterization of contaminants in water: Differentiation of suspended particles in heterogeneous dispersions. <i>Water Research</i> , 2017 , 122, 431-439	12.5	21

129	Holographic characterization of colloidal particles in turbid media. <i>Applied Physics Letters</i> , 2017 , 111, 153702	3.4	18
128	Solute-mediated interactions between active droplets. <i>Physical Review E</i> , 2017 , 96, 032607	2.4	32
127	Charge renormalization in nominally apolar colloidal dispersions. <i>Physical Review E</i> , 2016 , 93, 042612	2.4	3
126	Tractor beams in the Rayleigh limit. <i>Physical Review A</i> , 2016 , 93,	2.6	14
125	Trochoidal trajectories of self-propelled Janus particles in a diverging laser beam. <i>Soft Matter</i> , 2016 , 12, 6357-64	3.6	33
124	Tractor beams for optical micromanipulation 2016 ,		1
123	Holographic Characterization of Protein Aggregates. <i>Journal of Pharmaceutical Sciences</i> , 2016 , 105, 1074-85	3.5	36
122	Holographic characterization of colloidal fractal aggregates. <i>Soft Matter</i> , 2016 , 12, 8774-8780	3.6	22
121	Celebrating Soft Matter's 10th Anniversary: monitoring colloidal growth with holographic microscopy. <i>Soft Matter</i> , 2015 , 11, 1062-6	3.6	13
120	Charged hydrophobic colloids at an oil-aqueous phase interface. <i>Physical Review E</i> , 2015 , 92, 062306	2.4	32
119	Perturbative theory for Brownian vortexes. <i>Physical Review E</i> , 2015 , 91, 062144	2.4	11
118	Holographic characterization of imperfect colloidal spheres. <i>Applied Physics Letters</i> , 2015 , 107, 141905	3.4	16
117	Stimulus-responsive colloidal sensors with fast holographic readout. <i>Applied Physics Letters</i> , 2015 , 107, 051903	3.4	8
116	Universal, strong and long-ranged trapping by optical conveyors. <i>Optics Express</i> , 2014 , 22, 26834-43	3.3	17
115	Digital colloids: reconfigurable clusters as high information density elements. <i>Soft Matter</i> , 2014 , 10, 7468-79	3.7	43
114	Measuring Boltzmann's constant through holographic video microscopy of a single colloidal sphere. <i>American Journal of Physics</i> , 2014 , 82, 23-31	0.7	33
113	Machine-learning approach to holographic particle characterization. <i>Optics Express</i> , 2014 , 22, 26884-90	3.3	41
112	Fast feature identification for holographic tracking: the orientation alignment transform. <i>Optics Express</i> , 2014 , 22, 12773-8	3.3	19

111	Dislocation reactions, grain boundaries, and irreversibility in two-dimensional lattices using topological tweezers. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2013 , 110, 15544-8	11.5	40
110	Light-driven three-dimensional rotational motion of dandelion-shaped microparticles. <i>Applied Physics Letters</i> , 2013 , 102, 071103	3.4	12
109	Robustness of Lorenz-Mie microscopy against defects in illumination. <i>Optics Express</i> , 2013 , 21, 5968-73	3.3	13
108	Comment on "Scattering forces from the curl of the spin angular momentum of a light field". <i>Physical Review Letters</i> , 2013 , 111, 059301	7.4	31
107	Optical forces and torques in nonuniform beams of light. <i>Physical Review Letters</i> , 2012 , 108, 173602	7.4	71
106	Holographic microrefractometer. <i>Applied Physics Letters</i> , 2012 , 101, 091102	3.4	24
105	Optical conveyors: a class of active tractor beams. <i>Physical Review Letters</i> , 2012 , 109, 163903	7.4	165
104	Colloidal electroconvection in a thin horizontal cell. III. Interfacial and transient patterns on electrodes. <i>Journal of Chemical Physics</i> , 2012 , 137, 014504	3.9	3
103	Holographic particle-streak velocimetry. <i>Optics Express</i> , 2011 , 19, 4393-8	3.3	21
102	Extended and knotted optical traps in three dimensions. <i>Optics Express</i> , 2011 , 19, 5833-8	3.3	49
101	Holographic deconvolution microscopy for high-resolution particle tracking. <i>Optics Express</i> , 2011 , 19, 16410-7	3.3	57
100	Holographic characterization of individual colloidal spheres porosities. <i>Soft Matter</i> , 2011 , 7, 6816	3.6	34
99	Hydrodynamic pair attractions between driven colloidal particles. <i>Physical Review Letters</i> , 2011 , 107, 158302	7.4	38
98	Three-dimensional Nanorod Tracking with Holographic Video Microscopy 2011 ,		1
97	Two-dimensional optical thermal ratchets based on Fibonacci spirals. <i>Physical Review E</i> , 2011 , 84, 011131	2.4	8
96	Multidimensional optical fractionation of colloidal particles with holographic verification. <i>Physical Review Letters</i> , 2010 , 104, 028302	7.4	51
95	Sorting colloidal particles into multiple channels with optical forces: prismatic optical fractionation. <i>Physical Review E</i> , 2010 , 82, 051407	2.4	32
94	Minimal model for Brownian vortexes. <i>Physical Review E</i> , 2010 , 82, 021123	2.4	12

93	Rotational and translational diffusion of copper oxide nanorods measured with holographic video microscopy. <i>Optics Express</i> , 2010 , 18, 6555-62	3.3	60
92	Optical solenoid beams. <i>Optics Express</i> , 2010 , 18, 6988-93	3.3	132
91	Strategies for three-dimensional particle tracking with holographic video microscopy. <i>Optics Express</i> , 2010 , 18, 13563-73	3.3	145
90	Optical forces arising from phase gradients 2009 ,		1
89	Holographic microrheology of polysaccharides from <i>Streptococcus mutans</i> biofilms. <i>Rheologica Acta</i> , 2009 , 48, 109-115	2.3	40
88	Switchable self-protected attractions in DNA-functionalized colloids. <i>Nature Materials</i> , 2009 , 8, 590-5	27	128
87	Brownian vortexes. <i>Physical Review E</i> , 2009 , 80, 010401	2.4	40
86	The effect of Mie resonances on trapping in optical tweezers: comment. <i>Optics Express</i> , 2009 , 17, 2658-60; discussion 2661-2	3.3	4
85	Flow visualization and flow cytometry with holographic video microscopy. <i>Optics Express</i> , 2009 , 17, 13071-9	3.3	108
84	Theory of holographic optical trapping. <i>Optics Express</i> , 2008 , 16, 15765-76	3.3	48
83	Optical forces arising from phase gradients. <i>Physical Review Letters</i> , 2008 , 100, 013602	7.4	160
82	Influence of nonconservative optical forces on the dynamics of optically trapped colloidal spheres: the fountain of probability. <i>Physical Review Letters</i> , 2008 , 101, 128301	7.4	103
81	Autocalibrated colloidal interaction measurements with extended optical traps. <i>Physical Review E</i> , 2008 , 77, 051401	2.4	22
80	Anomalous collective dynamics in optically driven colloidal rings. <i>Physical Review E</i> , 2007 , 75, 020401	2.4	34
79	Colloidal electrostatic interactions near a conducting surface. <i>Physical Review E</i> , 2007 , 76, 041406	2.4	55
78	Colloidal transport through optical tweezer arrays. <i>Physical Review E</i> , 2007 , 75, 011407	2.4	45
77	Assembling mesoscopic systems with holographic optical traps 2007 , 6483, 113		1
76	Holographic microscopy of holographically trapped three-dimensional structures. <i>Optics Express</i> , 2007 , 15, 1505-12	3.3	128

75	Characterizing and tracking single colloidal particles with video holographic microscopy. <i>Optics Express</i> , 2007 , 15, 18275-82	3.3	216
74	Three-dimensional holographic ring traps 2007 ,		22
73	Colloidal electroconvection in a thin horizontal cell. II. Bulk electroconvection of water during parallel-plate electrolysis. <i>Journal of Chemical Physics</i> , 2006 , 125, 144707	3.9	10
72	Giant colloidal diffusivity on corrugated optical vortices. <i>Physical Review Letters</i> , 2006 , 96, 190601	7.4	89
71	Anomalous vibrational dispersion in holographically trapped colloidal arrays. <i>Physical Review Letters</i> , 2006 , 96, 088101	7.4	60
70	Projecting extended optical traps with shape-phase holography. <i>Optics Letters</i> , 2006 , 31, 1675-7	3	46
69	Volumetric imaging of holographic optical traps. <i>Optics Express</i> , 2006 , 14, 10907-12	3.3	29
68	Holographic optical trapping. <i>Applied Optics</i> , 2006 , 45, 880-7	1.7	155
67	Optical traps with geometric aberrations. <i>Applied Optics</i> , 2006 , 45, 3425-9	1.7	68
66	Observation of flux reversal in a symmetric optical thermal ratchet. <i>Physical Review Letters</i> , 2005 , 94, 110601	7.4	82
65	Flux reversal in a two-state symmetric optical thermal ratchet. <i>Physical Review E</i> , 2005 , 71, 060102	2.4	20
64	Holographic assembly of quasicrystalline photonic heterostructures. <i>Optics Express</i> , 2005 , 13, 5434-9	3.3	89
63	Optimized holographic optical traps. <i>Optics Express</i> , 2005 , 13, 5831-45	3.3	147
62	Robustness of holographic optical traps against phase scaling errors. <i>Optics Express</i> , 2005 , 13, 7458-65	3.3	23
61	Manipulation and assembly of nanowires with holographic optical traps. <i>Optics Express</i> , 2005 , 13, 8906-13	3.3	211
60	Structure and scaling of helical modes of light. <i>Optics Letters</i> , 2005 , 30, 477-9	3	40
59	One-dimensional optical thermal ratchets. <i>Journal of Physics Condensed Matter</i> , 2005 , 17, S3685-95	1.8	21
58	Colloidal electroconvection in a thin horizontal cell. I. Microscopic cooperative patterns at low voltage. <i>Journal of Chemical Physics</i> , 2005 , 122, 164701	3.9	17

57	Configurational temperatures and interactions in charge-stabilized colloid. <i>Journal of Chemical Physics</i> , 2005 , 122, 064907	3.9	18
56	Characterizing quantum-dot blinking using noise power spectra. <i>Applied Physics Letters</i> , 2004 , 85, 819-824	3.4	100
55	Statistically locked-in transport through periodic potential landscapes. <i>Physical Review Letters</i> , 2004 , 92, 130602	7.4	56
54	Configurational temperature of charge-stabilized colloidal monolayers. <i>Physical Review Letters</i> , 2004 , 92, 148301	7.4	27
53	Transport and fractionation in periodic potential-energy landscapes. <i>Physical Review E</i> , 2004 , 70, 031108	2.4	78
52	Microoptomechanical pumps assembled and driven by holographic optical vortex arrays. <i>Optics Express</i> , 2004 , 12, 1144-9	3.3	281
51	Processing carbon nanotubes with holographic optical tweezers. <i>Optics Express</i> , 2004 , 12, 1978-81	3.3	85
50	A revolution in optical manipulation. <i>Nature</i> , 2003 , 424, 810-6	50.4	3478
49	Fluid dynamics: Vortex rings in a constant electric field. <i>Nature</i> , 2003 , 424, 267-8	50.4	125
48	Confinement-induced colloidal attractions in equilibrium. <i>Physical Review Letters</i> , 2003 , 91, 038302	7.4	92
47	Optical peristalsis. <i>Applied Physics Letters</i> , 2003 , 82, 3985-3987	3.4	37
46	Modulated optical vortices. <i>Optics Letters</i> , 2003 , 28, 872-4	3	140
45	Structure of optical vortices. <i>Physical Review Letters</i> , 2003 , 90, 133901	7.4	461
44	Dynamic holographic optical tweezers. <i>Optics Communications</i> , 2002 , 207, 169-175	2	1083
43	Kinetically locked-in colloidal transport in an array of optical tweezers. <i>Physical Review Letters</i> , 2002 , 89, 128301	7.4	257
42	Evolution of a colloidal critical state in an optical pinning potential landscape. <i>Physical Review B</i> , 2002 , 66,	3.3	72
41	Weak long-ranged Casimir attraction in colloidal crystals. <i>Europhysics Letters</i> , 2002 , 57, 451-457	1.6	10
40	Nanofabrication with holographic optical tweezers. <i>Review of Scientific Instruments</i> , 2002 , 73, 1956-1957	1.7	50

39	Brownian dynamics of a sphere between parallel walls. <i>Europhysics Letters</i> , 2001 , 53, 264-270	1.6	105
38	The charge of glass and silica surfaces. <i>Journal of Chemical Physics</i> , 2001 , 115, 6716-6721	3.9	670
37	Computer-generated holographic optical tweezer arrays. <i>Review of Scientific Instruments</i> , 2001 , 72, 1810-1817	1.7	313
36	Annealing thin colloidal crystals with optical gradient forces. <i>Journal of Chemical Physics</i> , 2001 , 114, 7570-7573	3.5	31
35	Pair interaction of charged colloidal spheres near a charged wall. <i>Physical Review E</i> , 2001 , 64, 050401	2.4	111
34	Interactions in Colloidal Suspensions 2001 , 87-116		4
33	When like charges attract: interactions and dynamics in charge-stabilized colloidal suspensions. <i>Journal of Physics Condensed Matter</i> , 2000 , 12, A85-A94	1.8	39
32	Comment on "Monte carlo study of structural ordering in charged colloids using a long-range attractive interaction". <i>Physical Review E</i> , 2000 , 61, 980-2	2.4	22
31	Hydrodynamic coupling of two brownian spheres to a planar surface. <i>Physical Review Letters</i> , 2000 , 85, 3317-20	7.4	188
30	Optical tweezer arrays and optical substrates created with diffractive optics. <i>Review of Scientific Instruments</i> , 1998 , 69, 1974-1977	1.7	376
29	Interactions, dynamics, and elasticity in charge-stabilized colloidal crystals. <i>Journal of Chemical Physics</i> , 1998 , 109, 8659-8666	3.9	47
28	Measurement of the Vortex Pair Interaction Potential in a Type-II Superconductor. <i>Physical Review Letters</i> , 1998 , 80, 2693-2696	7.4	32
27	Determining pair interactions from structural correlations. <i>Physical Review B</i> , 1998 , 58, 14588-14593	3.3	3
26	Interactions and Dynamics in Charge-Stabilized Colloids. <i>MRS Bulletin</i> , 1998 , 23, 24-31	3.2	59
25	Faithful Representation of Separable Distributions. <i>Neural Computation</i> , 1997 , 9, 1305-1320	2.9	54
24	Optical tweezers in colloid and interface science. <i>Current Opinion in Colloid and Interface Science</i> , 1997 , 2, 264-270	7.6	150
23	Like-charge attractions in metastable colloidal crystallites. <i>Nature</i> , 1997 , 385, 230-233	50.4	512
22	VIDEO MICROSCOPY OF MONODISPERSE COLLOIDAL SYSTEMS. <i>Annual Review of Physical Chemistry</i> , 1996 , 47, 421-462	15.7	106

21	Melting of metastable crystallites in charge-stabilized colloidal suspensions. <i>Physical Review Letters</i> , 1996 , 76, 3862-3865	7.4	108
20	Topological disorder and conductance fluctuations in thin films. <i>Physical Review B</i> , 1996 , 54, 2723-2727	3.3	13
19	When Like Charges Attract: The Effects of Geometrical Confinement on Long-Range Colloidal Interactions. <i>Physical Review Letters</i> , 1996 , 77, 1897-1900	7.4	387
18	Methods of Digital Video Microscopy for Colloidal Studies. <i>Journal of Colloid and Interface Science</i> , 1996 , 179, 298-310	9.3	2598
17	Stability of densely branched growth in dissipative diffusion-controlled systems. <i>Physical Review E</i> , 1996 , 54, 2690-2695	2.4	11
16	Origin of Stratification in Creaming Emulsions. <i>Physical Review Letters</i> , 1996 , 77, 578-581	7.4	28
15	Double layer relaxation at rough electrodes. <i>Physical Review E</i> , 1995 , 52, R2161-R2164	2.4	19
14	Martensitic transition in a confined colloidal suspension. <i>Journal of Chemical Physics</i> , 1995 , 103, 1180-1190	7.0	75
13	Topological Disorder and Conductance Fluctuations in Granular Thin Films. <i>Materials Research Society Symposia Proceedings</i> , 1995 , 407, 271		
12	SCALING IN THE FREQUENCY-DEPENDENT ADMITTANCE OF ELECTRODEPOSITED FRACTAL ELECTRODES. <i>Fractals</i> , 1994 , 02, 191-199	3.2	2
11	Microscopic measurement of the pair interaction potential of charge-stabilized colloid. <i>Physical Review Letters</i> , 1994 , 73, 352-355	7.4	428
10	The microscopic dynamics of freezing in supercooled colloidal fluids. <i>Journal of Chemical Physics</i> , 1994 , 100, 9088-9095	3.9	116
9	Dissipation, geometry, and the stability of the dense radial morphology. <i>Physical Review E</i> , 1993 , 48, 3841-3848	2.4	16
8	Translational and bond-orientational order in the vortex lattice of the high-T _c superconductor Bi ₂ .1Sr _{1.9} Ca _{0.9} Cu ₂ O _{8+delta} . <i>Physical Review Letters</i> , 1991 , 66, 2270-2273	7.4	110
7	Observation of a commensurate array of flux chains in tilted flux lattices in Bi-Sr-Ca-Cu-O single crystals. <i>Physical Review Letters</i> , 1991 , 66, 112-115	7.4	211
6	Superlattices and long-range order in electrodeposited dendrites. <i>Physical Review Letters</i> , 1990 , 64, 2152-2155	7.4	14
5	Fractals and Patterns in Electrodeposition 1989 , 229-237		1
4	Characterization of morphology transitions in diffusion-controlled systems. <i>Physical Review A</i> , 1988 , 38, 1370-1380	2.6	95

- 3 Stability of the dense radial morphology in diffusive pattern formation. *Physical Review Letters*, **1987**, 59, 2315-2318 7.4 101
- 2 Growth of fractal crystals in amorphous GeSe₂ films. *Physical Review A*, **1987**, 35, 4012-4015 2.6 67
- 1 Morphology and microstructure in electrochemical deposition of zinc. *Physical Review Letters*, **1986**, 56, 1264-1267 7.4 471