James A Lock

List of Publications by Year
in descending order

90 papers	2,633 citations	201385 27 h-index	197535 49 g-index
90 all docs	90 docs citations	90 times ranked	765 citing authors

#	Article	IF	Citations
1	Rigorous justification of the localized approximation to the beam-shape coefficients in generalized Lorenzâ€"Mie theory I On-axis beams. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1994, 11, 2503.	0.8	200
2	Rigorous justification of the localized approximation to the beam-shape coefficients in generalized Lorenzâ€"Mie theory II Off-axis beams. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1994, 11, 2516.	0.8	172
3	Assessing the contributions of surface waves and complex rays to far-field Mie scattering by use of the Debye series. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1992, 9, 781.	0.8	148
4	Generalized Lorenzâ€"Mie theory and applications. Journal of Quantitative Spectroscopy and Radiative Transfer, 2009, 110, 800-807.	1.1	115
5	Improved Gaussian beam-scattering algorithm. Applied Optics, 1995, 34, 559.	2.1	103
6	Partial-wave representations of laser beams for use in light-scattering calculations. Applied Optics, 1995, 34, 2133.	2.1	101
7	Contribution of high-order rainbows to the scattering of a Gaussian laser beam by a spherical particle. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1993, 10, 693.	0.8	94
8	Calculation of the radiation trapping force for laser tweezers by use of generalized Lorenz-Mie theory II On-axis trapping force. Applied Optics, 2004, 43, 2545.	2.1	81
9	Calculation of the radiation trapping force for laser tweezers by use of generalized Lorenz-Mie theory I Localized model description of an on-axis tightly focused laser beam with spherical aberration. Applied Optics, 2004, 43, 2532.	2.1	75
10	Angular spectrum and localized model of Davis-type beam. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2013, 30, 489.	0.8	69
11	General description of circularly symmetric Bessel beams of arbitrary order. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 184, 218-232.	1.1	68
12	Cooperative effects among partial waves in Mie scattering. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1988, 5, 2032.	0.8	56
13	Debye-series analysis of the first-order rainbow produced in scattering of a diagonally incident plane wave by a circular cylinder. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1997, 14, 1316.	0.8	56
14	Rainbow scattering by a coated sphere. Applied Optics, 1994, 33, 4677.	2.1	54
15	List of problems for future research in generalized Lorenzâ€"Mie theories and related topics, review and prospectus [Invited]. Applied Optics, 2013, 52, 897.	0.9	54
16	Comments on localized and integral localized approximations in spherical coordinates. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 179, 132-136.	1.1	53
17	On the electromagnetic scattering of arbitrary shaped beams by arbitrary shaped particles: A review. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 31-49.	1.1	48
18	Ray scattering by an arbitrarily oriented spheroid II Transmission and cross-polarization effects. Applied Optics, 1996, 35, 515.	2.1	47

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19	Radiation torque exerted on a spheroid: Analytical solution. Physical Review A, 2008, 78, .	1.0	45
20	Debye series for light scattering by a spheroid. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2010, 27, 671.	0.8	45
21	General description of transverse mode Bessel beams and construction of basis Bessel fields. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 195, 8-17.	1.1	41
22	Interference enhancement of the internal fields at structural scattering resonances of a coated sphere. Applied Optics, 1990, 29, 3180.	2.1	39
23	Excitation efficiency of a morphology-dependent resonance by a focused Gaussian beam. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1998, 15, 2986.	0.8	35
24	Scattering of an electromagnetic plane wave by a Luneburg lens I Ray theory. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2008, 25, 2971.	0.8	32
25	A darkness theorem for the beam shape coefficients and its relationship to higher-order non-vortex Bessel beams. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 201, 229-235.	1.1	31
26	Understanding light scattering by a coated sphere Part 1: Theoretical considerations. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2012, 29, 1489.	0.8	29
27	Debye series for light scattering by a nonspherical particle. Physical Review A, 2010, 81, .	1.0	28
28	On the description of electromagnetic arbitrary shaped beams: The relationship between beam shape coefficients and plane wave spectra. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 18-30.	1.1	28
29	Scattering of an electromagnetic plane wave by a Luneburg lens II Wave theory. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2008, 25, 2980.	0.8	27
30	Optical caustics observed in light scattered by an oblate spheroid. Applied Optics, 2010, 49, 1288.	2.1	27
31	Glitter and glints on water. Applied Optics, 2011, 50, F39.	2.1	27
32	Mie scattering in the time domain Part 1 The role of surface waves. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2011, 28, 1086.	0.8	25
33	Interpretation of extinction in Gaussian-beam scattering. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1995, 12, 929.	0.8	24
34	Scattering of an electromagnetic plane wave by a Luneburg lens III Finely stratified sphere model. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2008, 25, 2991.	0.8	23
35	Diffraction of a Gaussian beam by a spherical obstacle. American Journal of Physics, 1993, 61, 698-707.	0.3	22
36	Mie scattering in the time domain Part II The role of diffraction. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2011, 28, 1096.	0.8	22

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37	Interference between diffraction and transmission in the Mie extinction efficiency. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1991, 8, 1132.	0.8	21
38	Debye series analysis of scattering of a plane wave by a spherical Bragg grating. Applied Optics, 2005, 44, 5594.	2.1	21
39	On an infinite number of quadratures to evaluate beam shape coefficients in generalized Lorenz-Mie theory and the extended boundary condition method for structured EM beams. Journal of Quantitative Spectroscopy and Radiative Transfer, 2020, 242, 106779.	1.1	21
40	Rainbows in the grass I External-reflection rainbows from pendant droplets. Applied Optics, 2008, 47, H203.	2.1	20
41	Consequences of the angular spectrum decomposition of a focused beam, including slower than c beam propagation. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 178, 142-151.	1.1	20
42	Further thoughts on Newtonâ€™s zeroâ€order rainbow. American Journal of Physics, 1994, 62, 1082-1089.	0.3	19
43	The physics of air resistance. Physics Teacher, 1982, 20, 158-160.	0.2	18
44	Scattering of a tightly focused beam by an optically trapped particle. Applied Optics, 2006, 45, 3634.	2.1	18
45	Far-field scattering of a non-Gaussian off-axis axisymmetric laser beam by a spherical particle. Applied Optics, 1996, 35, 6605.	2.1	17
46	Excitation of morphology-dependent resonances and van de Hulstâ€™s localization principle. Optics Letters, 1999, 24, 427.	1.7	17
47	Observability of atmospheric glories and supernumerary rainbows. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1989, 6, 1924.	0.8	16
48	Far-field scattering of an axisymmetric laser beam of arbitrary profile by an on-axis spherical particle. Applied Optics, 1996, 35, 4283.	2.1	16
49	Far-field Lorenzâ€“Mie scattering in an absorbing host medium. II: Improved stability of the numerical algorithm. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 217, 274-277.	1.1	16
50	Efficient computation of arbitrary beam scattering on a sphere: Comments and rebuttal, with a review on the angular spectrum decomposition. Journal of Quantitative Spectroscopy and Radiative Transfer, 2021, 276, 107913.	1.1	16
51	Understanding light scattering by a coated sphere Part 2: Time domain analysis. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2012, 29, 1498.	0.8	15
52	Beam shape coefficients of the most general focused Gaussian laser beam for light scattering applications. Journal of Quantitative Spectroscopy and Radiative Transfer, 2013, 126, 16-24.	1.1	15
53	Twin-Rainbow Metrology. I. Measurement of the Thickness of a Thin Liquid Film Draining Under Gravity. Applied Optics, 2003, 42, 6584.	2.1	14
54	Partial-wave expansions of angular spectra of plane waves. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2006, 23, 2803.	0.8	14

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55	Debye series for light scattering by a coated nonspherical particle. Physical Review A, 2010, 81, .	1.0	14
56	Experimental observation of rainbow scattering by a coated cylinder: twin primary rainbows and thin-film interference. Applied Optics, 2001, 40, 1548.	2.1	13
57	Role of the tunneling ray in near-critical-angle scattering by a dielectric sphere. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2003, 20, 499.	0.8	10
58	Analysis of the shadow-sausage effect caustic. Applied Optics, 2003, 42, 418.	2.1	9
59	Scattering of the evanescent components in the angular spectrum of a tightly focused electromagnetic beam by a spherical particle. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 95-102.	1.1	9
60	A persistent feature of multiple scattering of waves in the time-domain: A tutorial. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 221-240.	1.1	8
61	Scattering of a plane electromagnetic wave by a generalized Luneburg sphereâ€“Part 2: Wave scattering and time-domain scattering. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 164-174.	1.1	8
62	Scattering of a plane electromagnetic wave by a generalized Luneburg sphereâ€“Part 1: Ray scattering. Journal of Quantitative Spectroscopy and Radiative Transfer, 2015, 162, 154-163.	1.1	8
63	Linear system approach to the Debye series for electromagnetic scattering by a multi-layer sphere: A tutorial. Journal of Quantitative Spectroscopy and Radiative Transfer, 2016, 178, 38-49.	1.1	8
64	Co-polarized and cross-polarized scattering of an off-axis focused Gaussian beam by a spherical particle. 1. Exact GLMT formalism. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 221, 260-272.	1.1	7
65	An analysis of two unusual reflection caustics. American Journal of Physics, 1989, 57, 260-264.	0.3	6
66	A simple demonstration of Mie scattering using an overhead projector. American Journal of Physics, 2002, 70, 91-93.	0.3	6
67	Scattering of a transversely confined Neumann beam by a spherical particle. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2011, 28, 2577.	0.8	6
68	Bubble optics: Leonardoâ€™s cross revisitedâ€”Part 1, numerical methods. Applied Optics, 2021, 60, 6213.	0.9	6
69	Bubble optics: Leonardoâ€™s cross revisitedâ€”Part 2, paraxial analytical methods. Applied Optics, 2021, 60, 6226.	0.9	6
70	Geometrically enhanced morphology-dependent resonances of a dielectric sphere. Applied Optics, 2011, 50, 6652.	2.1	5
71	Co-polarized and cross-polarized scattering of an off-axis focused Gaussian beam by a spherical particle. 3. Diffraction, the Debye series, and time-domain scattering. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 221, 286-299.	1.1	5
72	Co-polarized and cross-polarized scattering of an off-axis focused Gaussian beam by a spherical particle. 2. Sum over azimuthal modes. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 221, 273-285.	1.1	5

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73	An alternative approach to the teaching of rotational dynamics. American Journal of Physics, 1989, 57, 428-432.	0.3	4
74	Caustics due to complex water menisci. Applied Optics, 2015, 54, B207.	0.9	4
75	Negative extinction in one-dimensional scattering. Journal of Quantitative Spectroscopy and Radiative Transfer, 2018, 216, 37-46.	1.1	4
76	Optical caustics of multiple objects in water: two vertical rods and normally incident light. Applied Optics, 2020, 59, 7981.	0.9	4
77	Electric field autocorrelation functions for beginning multiple Rayleigh scattering. Applied Optics, 2001, 40, 4187.	2.1	3
78	Electromagnetic scattering of a plane wave by a radially inhomogeneous sphere in the short wavelength limit. Journal of Quantitative Spectroscopy and Radiative Transfer, 2017, 202, 126-135.	1.1	3
79	Transmission bows of radially inhomogeneous spheres. Applied Optics, 2017, 56, G9.	2.1	3
80	The rotated diffraction gratingâ€A laboratory experiment. Physics Teacher, 1985, 23, 226-228.	0.2	2
81	Fresnel diffraction effects in misfocused vision. American Journal of Physics, 1987, 55, 265-269.	0.3	2
82	The author adds detail. Physics Teacher, 1982, 20, 400-401.	0.2	1
83	Relativistic invariance and Zitterbewegung. American Journal of Physics, 1984, 52, 223-227.	0.3	1
84	The temporary capture of light by a dielectric film. American Journal of Physics, 1985, 53, 968-971.	0.3	1
85	Numerical methods in optics: A course about learning physics through computing. American Journal of Physics, 1987, 55, 1121-1125.	0.3	1
86	An exactly soluble Fresnel diffraction model of twoâ€slit interference. American Journal of Physics, 1996, 64, 1307-1311.	0.3	1
87	High-order rainbows of a spherical particle produced by near-grazing incident light. Applied Optics, 2017, 56, G75.	2.1	1
88	The Debye Series and Its Use in Time-Domain Scattering. , 2016, , 219-297.		1
89	The transformation properties of world lines in relativistic quantum mechanical Hamiltonian models. Foundations of Physics, 1982, 12, 743-757.	0.6	0
90	Centerâ€ofâ€mass properties of composite systems subject to nonlinear external interactions. American Journal of Physics, 1983, 51, 717-721.	0.3	0