

David Montgomery

List of Publications by Year in descending order

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135
papers

3,425
citations

117625

34
h-index

175258

52
g-index

141
all docs

141
docs citations

141
times ranked

1682
citing authors

#	ARTICLE	IF	CITATIONS
1	High Temperatures in Inertial Confinement Fusion Radiation Cavities Heated with 0.35 μ m Light. Physical Review Letters, 1994, 73, 2320-2323.	7.8	156
2	Observation of Stimulated Electron-Acoustic-Wave Scattering. Physical Review Letters, 2001, 87, 155001.	7.8	149
3	Laser-plasma interactions in ignition-scale hohlraum plasmas. Physics of Plasmas, 1996, 3, 2029-2040.	1.9	148
4	Recent Trident single hot spot experiments: Evidence for kinetic effects, and observation of Langmuir decay instability cascade. Physics of Plasmas, 2002, 9, 2311-2320.	1.9	126
5	Observation of Energy Transfer between Frequency-Mismatched Laser Beams in a Large-Scale Plasma. Physical Review Letters, 1996, 76, 2065-2068.	7.8	101
6	Two decades of progress in understanding and control of laser plasma instabilities in indirect drive inertial fusion. Physics of Plasmas, 2016, 23, .	1.9	99
7	Observation of a Transition from Fluid to Kinetic Nonlinearities for Langmuir Waves Driven by Stimulated Raman Backscatter. Physical Review Letters, 2005, 94, 175003.	7.8	94
8	Observed Dependence of Stimulated Raman Scattering on Ion-Acoustic Damping in Hohlraum Plasmas. Physical Review Letters, 1996, 77, 2702-2705.	7.8	71
9	Effect of Ion-Wave Damping on Stimulated Raman Scattering in High-Z Laser-Produced Plasmas. Physical Review Letters, 1996, 77, 2706-2709.	7.8	70
10	Evidence of plasma fluctuations and their effect on the growth of stimulated Brillouin and stimulated Raman scattering in laser plasmas. Physics of Plasmas, 1998, 5, 1973-1980.	1.9	65
11	Design considerations for indirectly driven double shell capsules. Physics of Plasmas, 2018, 25, .	1.9	65
12	Characterization of National Ignition Facility cryogenic beryllium capsules using x-ray phase contrast imaging. Review of Scientific Instruments, 2004, 75, 3986-3988.	1.3	62
13	Different $k \gg D$ regimes for nonlinear effects on Langmuir waves. Physics of Plasmas, 2006, 13, 055906.	1.9	61
14	Cryogenic DT and D2 targets for inertial confinement fusion. Physics of Plasmas, 2007, 14, 058101.	1.9	55
15	Observed insensitivity of stimulated Raman scattering on electron density. Physics of Plasmas, 2000, 7, 3743-3750.	1.9	51
16	Onset and saturation of backward stimulated Raman scattering of laser in trapping regime in three spatial dimensions. Physics of Plasmas, 2009, 16, 113101.	1.9	50
17	Trapping induced nonlinear behavior of backward stimulated Raman scattering in multi-speckled laser beams. Physics of Plasmas, 2012, 19, .	1.9	50
18	Nonlinear laser-matter interaction processes in long-scale-length plasmas. Physics of Fluids B, 1992, 4, 2232-2240.	1.7	47

#	ARTICLE	IF	CITATIONS
19	Effects of laser beam smoothing on stimulated Raman scattering in exploding foil plasmas. <i>Physics of Plasmas</i> , 1996, 3, 1728-1736.	1.9	47
20	First Optical Observation of Intensity Dependent Laser Beam Deflection in a Flowing Plasma. <i>Physical Review Letters</i> , 1996, 77, 1294-1297.	7.8	46
21	Characterization of an x-ray-flux source for the production of high-energy-density plasmas. <i>Physical Review A</i> , 1992, 46, 7853-7868.	2.5	45
22	Observation of the Parametric Two-Ion Decay Instability with Thomson Scattering. <i>Physical Review Letters</i> , 2004, 93, 045004.	7.8	45
23	Use of external magnetic fields in hohlraum plasmas to improve laser-coupling. <i>Physics of Plasmas</i> , 2015, 22, .	1.9	45
24	Nonlinear backward stimulated Raman scattering from electron beam acoustic modes in the kinetic regime. <i>Physics of Plasmas</i> , 2006, 13, 072701.	1.9	42
25	Self-organized coherent bursts of stimulated Raman scattering and speckle interaction in multi-speckled laser beams. <i>Physics of Plasmas</i> , 2013, 20, 012702.	1.9	42
26	TRIDENT high-energy-density facility experimental capabilities and diagnostics. <i>Review of Scientific Instruments</i> , 2008, 79, 10F305.	1.3	41
27	Equation of State Measurements of Warm Dense Carbon Using Laser-Driven Shock and Release Technique. <i>Physical Review Letters</i> , 2014, 112, 155003.	7.8	38
28	Observation of multiple mechanisms for stimulating ion waves in ignition scale plasmas. <i>Physics of Plasmas</i> , 1997, 4, 1800-1810.	1.9	37
29	X-ray imaging of cryogenic deuterium-tritium layers in a beryllium shell. <i>Journal of Applied Physics</i> , 2005, 98, 103105.	2.5	37
30	Measurements of Radial Heat Wave Propagation in Laser-Produced Exploding-Foil Plasmas. <i>Physical Review Letters</i> , 1994, 73, 2055-2058.	7.8	36
31	Controlling shockwave dynamics using architecture in periodic porous materials. <i>Journal of Applied Physics</i> , 2017, 121, .	2.5	36
32	Gas-filled targets for large scale-length plasma interaction experiments on Nova. <i>Physics of Plasmas</i> , 1995, 2, 2473-2479.	1.9	35
33	Measurements of Electron Temperature by Spectroscopy in Hohlraum Targets. <i>Physical Review Letters</i> , 1996, 77, 4350-4353.	7.8	35
34	Measurements of laser-plasma instability relevant to ignition hohlraums. <i>Physics of Plasmas</i> , 1997, 4, 1849-1856.	1.9	35
35	Low Stimulated Brillouin Backscatter Observed from Large, Hot Plasmas in Gas-Filled Hohlraums. <i>Physical Review Letters</i> , 1995, 74, 2957-2960.	7.8	34
36	Generation of magnetized collisionless shocks by a novel, laser-driven magnetic piston. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	34

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37	Flow-Induced Beam Steering in a Single Laser Hot Spot. <i>Physical Review Letters</i> , 2000, 84, 678-681.	7.8	33
38	Experimental study of energy transfer in double shell implosions. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	32
39	Investigation of stimulated Raman scattering using a short-pulse diffraction limited laser beam near the instability threshold. <i>Laser and Particle Beams</i> , 2009, 27, 185-190.	1.0	31
40	High-speed synchrotron X-ray phase contrast imaging for analysis of low-Z composite microstructure. <i>Composites Part A: Applied Science and Manufacturing</i> , 2012, 43, 885-892.	7.6	31
41	Electron temperature and density measurements in laser-produced large-scale-length gas-bag plasmas by x-ray spectroscopy. <i>Physical Review E</i> , 1997, 55, 927-938.	2.1	30
42	Imaging X-ray crystal spectrometer for laser-produced plasmas. <i>Journal of Instrumentation</i> , 2011, 6, P04004-P04004.	1.2	30
43	Production and characterization of large plasmas from gas bag targets on Nova. <i>Physics of Plasmas</i> , 1995, 2, 3161-3168.	1.9	29
44	Stimulated Brillouin scattering in the saturated regime. <i>Physics of Plasmas</i> , 2003, 10, 1846-1853.	1.9	29
45	Progress in long scale length laser-plasma interactions. <i>Nuclear Fusion</i> , 2004, 44, S185-S190.	3.5	29
46	Experimental Demonstration of Plasma-Drag Acceleration of a Dust Cloud to Hypervelocities. <i>Physical Review Letters</i> , 2008, 100, 155002.	7.8	28
47	Imaging x-ray Thomson scattering spectrometer design and demonstration (invited). <i>Review of Scientific Instruments</i> , 2012, 83, 10E108.	1.3	28
48	Imaging backscattered and near to backscattered light in ignition scale plasmas (invited). <i>Review of Scientific Instruments</i> , 1997, 68, 636-640.	1.3	27
49	In-situ investigation of the dynamic response of energetic materials using IMPULSE at the Advanced Photon Source. <i>Journal of Physics: Conference Series</i> , 2014, 500, 142028.	0.4	27
50	Dependence of stimulated Brillouin scattering on laser intensity, laser number, and ion species in hohlraum plasmas. <i>Physical Review E</i> , 1996, 53, 2747-2750.	2.1	26
51	Intensity scaling of stimulated Raman forward scattering in laser-produced plasmas. <i>Physical Review Letters</i> , 1991, 66, 2324-2327.	7.8	25
52	Nonlinear Theory and Simulations of Stimulated Brillouin Backscatter in Multispecies Plasmas. <i>Physical Review Letters</i> , 1995, 74, 5048-5051.	7.8	25
53	Plasma jet acceleration of dust particles to hypervelocities. <i>Physics of Plasmas</i> , 2008, 15, .	1.9	24
54	Observation of the Nonlinear Saturation of Langmuir Waves Driven by Ponderomotive Force in a Large Scale Plasma. <i>Physical Review Letters</i> , 1999, 83, 2965-2968.	7.8	23

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55	Temperature measurements of shocked silica aerogel foam. <i>Physical Review E</i> , 2014, 90, 033107.	2.1	23
56	Phase-contrast imaging using ultrafast x-rays in laser-shocked materials. <i>Review of Scientific Instruments</i> , 2010, 81, 10E520.	1.3	22
57	Development of a polar direct-drive platform for studying inertial confinement fusion implosion mix on the National Ignition Facility. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	21
58	Stimulated scattering in laser driven fusion and high energy density physics experiments. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	21
59	X-ray flux from a burnthrough Au foil. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1994, 51, 19-25.	2.3	20
60	Increased Saturated Levels of Stimulated Brillouin Scattering of a Laser by Seeding a Plasma with an External Light Source. <i>Physical Review Letters</i> , 1998, 81, 2252-2255.	7.8	20
61	Beam smoothing effects on the stimulated Brillouin scattering (SBS) instability in Nova exploding foil plasmas. <i>Physics of Plasmas</i> , 1995, 2, 4285-4296.	1.9	19
62	Simulated performance of the optical Thomson scattering diagnostic designed for the National Ignition Facility. <i>Review of Scientific Instruments</i> , 2016, 87, 11E510.	1.3	19
63	Observation of ion heating by stimulated-Brillouin-scattering-driven ion-acoustic waves using Thomson scattering. <i>Physics of Plasmas</i> , 2002, 9, 4709-4718.	1.9	18
64	Constraining computational modeling of indirect drive double shell capsule implosions using experiments. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	17
65	Experimental studies of stimulated Raman scattering in reactor-size, laser-produced plasmas. <i>Physics of Fluids B</i> , 1991, 3, 1473-1478.	1.7	16
66	Design considerations for fiber-coupled streaked optical spectroscopy. <i>Review of Scientific Instruments</i> , 2001, 72, 979-982.	1.3	15
67	Measurement of Preheat Due to Nonlocal Electron Transport in Warm Dense Matter. <i>Physical Review Letters</i> , 2018, 120, 025002.	7.8	15
68	Observation of near-forward stimulated Brillouin scattering from a laser-produced plasma. <i>Physical Review Letters</i> , 1993, 70, 802-805.	7.8	14
69	Measurements of high intensity laser beam transmission through a large scalelength plasma. <i>Review of Scientific Instruments</i> , 1997, 68, 1725-1729.	1.3	13
70	Gas-filled hohlraum experiments at the National Ignition Facility. <i>Physics of Plasmas</i> , 2006, 13, 056319.	1.9	13
71	Combined x-ray scattering, radiography, and velocity interferometry/streaked optical pyrometry measurements of warm dense carbon using a novel technique of shock-and-release. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	13
72	Production of very large, sub-critical plasmas for laser-fusion research. <i>Physics of Fluids B</i> , 1991, 3, 2898-2905.	1.7	12

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73	Experimental investigation of short scalelength density fluctuations in laser-produced plasmas. <i>Physics of Plasmas</i> , 2000, 7, 2114-2125.	1.9	12
74	Progress Toward Fabrication of Machined Metal Shells for the First Double-Shell Implosions at the National Ignition Facility. <i>Fusion Science and Technology</i> , 2018, 73, 344-353.	1.1	12
75	Computational study of instability and fill tube mitigation strategies for double shell implosions. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	12
76	Detrimental effects and mitigation of the joint feature in double shell implosion simulations. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	12
77	Comment on "First Observation of Ion Acoustic Waves Produced by the Langmuir Decay Instability". <i>Physical Review Letters</i> , 2001, 86, 3686-3686.	7.8	11
78	Modelling of collective Thomson scattering from collisional plasmas. <i>Journal of Physics A</i> , 2003, 36, 5981-5989.	1.6	11
79	Calibration of initial measurements from the full aperture backscatter system on the National Ignition Facility. <i>Review of Scientific Instruments</i> , 2004, 75, 4174-4176.	1.3	11
80	Particle-in-cell studies of laser-driven hot spots and a statistical model for mesoscopic properties of Raman backscatter. <i>European Physical Journal Special Topics</i> , 2006, 133, 253-257.	0.2	11
81	The first target experiments on the National Ignition Facility. <i>European Physical Journal D</i> , 2007, 44, 273-281.	1.3	11
82	Laser irradiance scaling in polar direct drive implosions on the National Ignition Facility. <i>Physics of Plasmas</i> , 2015, 22, .	1.9	11
83	Tracking the density evolution in counter-propagating shock waves using imaging X-ray scattering. <i>Applied Physics Letters</i> , 2016, 109, 031108.	3.3	11
84	Parametric instabilities in large nonuniform laser plasmas. <i>Plasma Physics and Controlled Fusion</i> , 1992, 34, 2077-2081.	2.1	10
85	The spatial location of laser-driven, forward-propagating waves in a National-Ignition-Facility-relevant plasma. <i>Physics of Plasmas</i> , 2000, 7, 323-332.	1.9	10
86	Detailed characterization of plasma wave behavior using collective Thomson scattering (invited). <i>Review of Scientific Instruments</i> , 2004, 75, 3793-3799.	1.3	10
87	Investigation of laser plasma instabilities using picosecond laser pulses. <i>Journal of Physics: Conference Series</i> , 2008, 112, 022042.	0.4	10
88	Evaluating the accuracy of optical "streak" camera sweep rates using uncertain data. <i>Review of Scientific Instruments</i> , 1992, 63, 4322-4326.	1.3	9
89	Experimental study of laser beam transmission and power accounting in a large scale length laser plasma. <i>Physics of Plasmas</i> , 2000, 7, 3388-3398.	1.9	9
90	Collisionless Shocks in a Large Magnetized Laser-Plasma Plume. <i>IEEE Transactions on Plasma Science</i> , 2011, 39, 2406-2407.	1.3	9

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91	X-ray Thomson scattering measurement of temperature in warm dense carbon. Plasma Physics and Controlled Fusion, 2017, 59, 014050.	2.1	9
92	Status of cryogenic layering for NIF ignition targets. European Physical Journal Special Topics, 2006, 133, 863-867.	0.2	9
93	Flat-Field Response And Geometric Distortion Measurements Of Optical Streak Cameras. Proceedings of SPIE, 1988, 0832, 283.	0.8	8
94	Thomson Scattering Measurements of Temperature and Density in a Low-Density, Laser-Driven Magnetized Plasma. Journal of Instrumentation, 2012, 7, P02002-P02002.	1.2	8
95	Multiangle, Time-Resolved Spectroscopy of Laser-Light Scattering in Underdense, Inhomogeneous Laser Plasmas. Physical Review Letters, 1995, 74, 3157-3160.	7.8	7
96	X-ray imaging of uniform large scale-length plasmas created from gas-filled targets on Nova. Review of Scientific Instruments, 1995, 66, 782-784.	1.3	7
97	Measuring electron heat conduction in non-uniform laser-produced plasmas using imaging Thomson scattering. Journal of Instrumentation, 2010, 5, P11005-P11005.	1.2	7
98	Simultaneous measurements of several state variables in shocked carbon by imaging x-ray scattering. Physics of Plasmas, 2014, 21, 042701.	1.9	7
99	Mechanisms of shape transfer and preheating in indirect-drive double shell collisions. Physics of Plasmas, 2022, 29, .	1.9	7
100	Near-forward scattering of laser light*. Physics of Fluids B, 1993, 5, 2596-2602.	1.7	6
101	Characterization of titanium laser-produced plasmas. Physics of Plasmas, 1995, 2, 3792-3803.	1.9	6
102	Mitigation of stimulated Raman scattering in hohlraum plasmas. Journal of Physics: Conference Series, 2008, 112, 022030.	0.4	6
103	Carbon ion beam focusing using laser irradiated, heated diamond hemispherical shells. Journal of Physics: Conference Series, 2010, 244, 022053.	0.4	6
104	Investigations into the seeding of instabilities due to x-ray preheat in beryllium-based inertial confinement fusion targets. Physics of Plasmas, 2010, 17, 056308.	1.9	6
105	Demonstration of x-ray fluorescence imaging of a high-energy-density plasma. Review of Scientific Instruments, 2014, 85, 11E602.	1.3	6
106	The design of the optical Thomson scattering diagnostic for the National Ignition Facility. Review of Scientific Instruments, 2016, 87, 11E549.	1.3	6
107	Characterization of D-T cryogenic layer formation in a Beryllium capsule using X-ray phase contrast imaging. European Physical Journal Special Topics, 2006, 133, 869-873.	0.2	5
108	Spatially resolved density and ionization measurements of shocked foams using x-ray fluorescence. Journal of Applied Physics, 2016, 120, 125901.	2.5	5

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109	Experimental investigation of stimulated Raman and Brillouin scattering instabilities driven by two successive collinear picosecond laser pulses. <i>Physical Review E</i> , 2016, 93, 043209.	2.1	5
110	Neural network for 3D inertial confinement fusion shell reconstruction from single radiographs. <i>Review of Scientific Instruments</i> , 2021, 92, 033547.	1.3	5
111	An experimental investigation of refraction-induced distortions in harmonic light images of laser-produced plasmas. <i>Journal of Applied Physics</i> , 1990, 67, 3630-3634.	2.5	4
112	Beam smoothing effects on stimulated Raman and Brillouin backscattering in laser-produced plasmas. <i>Journal of Fusion Energy</i> , 1993, 12, 323-330.	1.2	4
113	Simultaneous temporal, spectral, and spatial resolution of laser scatter from parametric plasma instabilities. <i>Review of Scientific Instruments</i> , 1995, 66, 4204-4207.	1.3	4
114	Short pulse laser train for laser plasma interaction experiments. <i>Review of Scientific Instruments</i> , 2007, 78, 083501.	1.3	4
115	Intensity scaling and saturation of stimulated Raman forward scattering. <i>Physics of Plasmas</i> , 1994, 1, 1985-1996.	1.9	3
116	Effects of ion composition on backward stimulated Raman and Brillouin scattering in a laser-driven hot spot. <i>European Physical Journal Special Topics</i> , 2006, 133, 335-337.	0.2	3
117	Using a short-pulse diffraction-limited laser beam to probe filamentation of a random phase plate smoothed beam. <i>Review of Scientific Instruments</i> , 2008, 79, 10F551.	1.3	3
118	Study of shock waves and related phenomena motivated by astrophysics. <i>Journal of Physics: Conference Series</i> , 2016, 688, 012016.	0.4	3
119	Measurements of gas filled halfraum energetics at the national ignition facility using a single quad. <i>European Physical Journal Special Topics</i> , 2006, 133, 919-923.	0.2	3
120	X-Ray Phase Contrast Imaging of Granular Systems. <i>Shock Wave and High Pressure Phenomena</i> , 2019, , 195-230.	0.1	3
121	Cyclic plasma shearing interferometry for temporal characterization of a laser-produced plasma. <i>Review of Scientific Instruments</i> , 2002, 73, 3813-3817.	1.3	2
122	Kinetic simulations of stimulated Raman and Brillouin scattering of trident short-pulse laser in a single-hot-spot. <i>Journal of Physics: Conference Series</i> , 2008, 112, 022033.	0.4	2
123	The Dynamics of Thermal Expansion in Single Crystal Beryllium from Nanosecond X-Ray Irradiation. <i>Fusion Science and Technology</i> , 2009, 55, 152-162.	1.1	2
124	Advanced Laser Particle Accelerator Development at LANL: From Fast Ignition to Radiation Oncology. , 2010, , .		2
125	Examining Material Response Using X-Ray Phase Contrast Imaging. <i>Conference Proceedings of the Society for Experimental Mechanics</i> , 2019, , 89-93.	0.5	2
126	Experimental observation of elevated heating in dynamically compressed CH foam. <i>Plasma Physics and Controlled Fusion</i> , 2020, 62, 074001.	2.1	2

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127	Evidence for trapping-induced nonlinear frequency shifts in Langmuir waves driven via stimulated Raman scattering. <i>Physics of Plasmas</i> , 2021, 28, 092103.	1.9	2
128	Summary of control and data acquisition systems for NOVA experiments (invited). <i>Review of Scientific Instruments</i> , 1986, 57, 1868-1871.	1.3	1
129	A Comparison Of Flat-Field Measurement Techniques For Optical Streak Cameras'. <i>Proceedings of SPIE</i> , 1989, , .	0.8	1
130	Stability And Accuracy Of The Sweep Rate Measurements For LLNL Optical Streak Cameras. , 1990, , .		1
131	Software systems for processing and analysis at the NOVA high-energy laser facility. <i>Review of Scientific Instruments</i> , 1986, 57, 1878-1879.	1.3	0
132	Characterization using Phase-Contrast Enhanced X-Ray Imaging. <i>IEEE International Conference on Plasma Science</i> , 2005, , .	0.0	0
133	Grazing incidence imaging spectrometer for use in inertial confinement fusion and radiation hydrodynamic experiments. <i>Review of Scientific Instruments</i> , 2006, 77, 10F320.	1.3	0
134	INERTIAL CONFINEMENT FUSION RESEARCH AT LOS ALAMOS NATIONAL LABORATORY. , 2009, , .		0
135	A Simple Model of Hohlraum Power Balance and Mitigation of SRS. <i>Journal of Physics: Conference Series</i> , 2016, 688, 012002.	0.4	0