

Reuben Epstein

List of Publications by Year in descending order

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126
papers

4,719
citations

87888

38
h-index

110387

64
g-index

127
all docs

127
docs citations

127
times ranked

1685
citing authors

#	ARTICLE	IF	CITATIONS
1	Causes of fuelâ€œablator mix inferred from modeling of monochromatic time-gated radiography of OMEGA cryogenic implosions. Physics of Plasmas, 2022, 29, .	1.9	8
2	A case study of using x-ray Thomson scattering to diagnose the in-flight plasma conditions of DT cryogenic implosions. Physics of Plasmas, 2022, 29, 072703.	1.9	7
3	Bound on hot-spot mix in high-velocity, high-adiabat direct-drive cryogenic implosions based on comparison of absolute x-ray and neutron yields. Physical Review E, 2022, 106, .	2.1	2
4	Direct Measurements of DT Fuel Preheat from Hot Electrons in Direct-Drive Inertial Confinement Fusion. Physical Review Letters, 2021, 127, 055001.	7.8	18
5	Experimentally Inferred Fusion Yield Dependencies of OMEGA Inertial Confinement Fusion Implosions. Physical Review Letters, 2021, 127, 105001.	7.8	23
6	Parameterizing hot electron energy distributions for tabular emissivities and opacities. High Energy Density Physics, 2020, 35, 100730.	1.5	3
7	Effect of cross-beam energy transfer on target-offset asymmetry in direct-drive inertial confinement fusion implosions. Physics of Plasmas, 2020, 27, 112713.	1.9	6
8	Hot-electron generation at direct-drive ignition-relevant plasma conditions at the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	27
9	Inferred UV fluence focal-spot profiles from soft x-ray pinhole-camera measurements on OMEGA. Review of Scientific Instruments, 2020, 91, 023505.	1.3	3
10	Self-radiography of imploded shells on OMEGA based on additive-free multi-monochromatic continuum spectral analysis. Physics of Plasmas, 2020, 27, .	1.9	1
11	Interpreting the electron temperature inferred from x-ray continuum emission for direct-drive inertial confinement fusion implosions on OMEGA. Physics of Plasmas, 2019, 26, .	1.9	12
12	Tripled yield in direct-drive laser fusion through statistical modelling. Nature, 2019, 565, 581-586.	27.8	103
13	X-ray spectroscopy of planar laser-plasma interaction experiments at the National Ignition Facility. Physics of Plasmas, 2019, 26, .	1.9	3
14	The National Direct-Drive Inertial Confinement Fusion Program. Nuclear Fusion, 2019, 59, 032007.	3.5	10
15	Origins and Scaling of Hot-Electron Preheat in Ignition-Scale Direct-Drive Inertial Confinement Fusion Experiments. Physical Review Letters, 2018, 120, 055001.	7.8	104
16	The National Direct-Drive Program: OMEGA to the National Ignition Facility. Fusion Science and Technology, 2018, 73, 89-97.	1.1	12
17	Properties of hot-spot emission in a warm plastic-shell implosion on the OMEGA laser system. Physical Review E, 2018, 98, .	2.1	2
18	Effects of residual kinetic energy on yield degradation and ion temperature asymmetries in inertial confinement fusion implosions. Physics of Plasmas, 2018, 25, .	1.9	33

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19	The role of hot spot mix in the low-foot and high-foot implosions on the NIF. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	49
20	Three-dimensional hydrodynamic simulations of OMEGA implosions. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	26
21	Monochromatic backlighting of direct-drive cryogenic DT implosions on OMEGA. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	21
22	Simulation and analysis of time-gated monochromatic radiographs of cryogenic implosions on OMEGA. <i>High Energy Density Physics</i> , 2017, 23, 167-177.	1.5	4
23	Simultaneous diagnosis of radial profiles and mix in NIF ignition-scale implosions via X-ray spectroscopy. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	9
24	National direct-drive program on OMEGA and the National Ignition Facility. <i>Plasma Physics and Controlled Fusion</i> , 2017, 59, 014008.	2.1	50
25	Direct-drive implosion physics: Results from OMEGA and the National Ignition Facility. <i>Journal of Physics: Conference Series</i> , 2016, 688, 012006.	0.4	4
26	Isolating and quantifying cross-beam energy transfer in direct-drive implosions on OMEGA and the National Ignition Facility. <i>Physics of Plasmas</i> , 2016, 23, .	1.9	19
27	Polar-direct-drive experiments with contoured-shell targets on OMEGA. <i>Physics of Plasmas</i> , 2016, 23, 012711.	1.9	10
28	Demonstration of Fuel Hot-Spot Pressure in Excess of 50ÅGbar for Direct-Drive, Layered Deuterium-Tritium Implosions on OMEGA. <i>Physical Review Letters</i> , 2016, 117, 025001.	7.8	72
29	Hydrodynamic simulations of long-scale-length plasmas for two-plasmon-decay planar-target experiments on the NIF. <i>Journal of Physics: Conference Series</i> , 2016, 717, 012053.	0.4	6
30	X-ray self-emission imaging used to diagnose 3-D nonuniformities in direct-drive ICF implosions. <i>Review of Scientific Instruments</i> , 2016, 87, 11E340.	1.3	7
31	Measurements of the ablation-front trajectory and low-mode nonuniformity in direct-drive implosions using x-ray self-emission shadowgraphy. <i>High Power Laser Science and Engineering</i> , 2015, 3, .	4.6	22
32		1.9	52
33	X-ray continuum as a measure of pressure and fuelâ€œshell mix in compressed isobaric hydrogen implosion cores. <i>Physics of Plasmas</i> , 2015, 22, .	1.9	14
34	Direct-driveâ€œignition designs with mid- <i>Z</i> ablaters. <i>Physics of Plasmas</i> , 2015, 22, .	1.9	25
35	Mass-ablation-rate measurements in direct-drive cryogenic implosions using x-ray self-emission images. <i>Review of Scientific Instruments</i> , 2014, 85, 11D616.	1.3	2
36	Soft x-ray backlighting of cryogenic implosions using a narrowband crystal imaging system (invited). <i>Review of Scientific Instruments</i> , 2014, 85, 11E501.	1.3	24

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37	Theory of hydro-equivalent ignition for inertial fusion and its applications to OMEGA and the National Ignition Facility. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	68
38	X-ray area backlighter development at the National Ignition Facility (invited). <i>Review of Scientific Instruments</i> , 2014, 85, 11D502.	1.3	22
39	Improving the hot-spot pressure and demonstrating ignition hydrodynamic equivalence in cryogenic deuterium-tritium implosions on OMEGA. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	139
40	First-principles opacity table of warm dense deuterium for inertial-confinement-fusion applications. <i>Physical Review E</i> , 2014, 90, 033111.	2.1	53
41	Hot-Spot Mix in Ignition-Scale Inertial Confinement Fusion Targets. <i>Physical Review Letters</i> , 2013, 111, 045001.	7.8	135
42	Onset of Hydrodynamic Mix in High-Velocity, Highly Compressed Inertial Confinement Fusion Implosions. <i>Physical Review Letters</i> , 2013, 111, 085004.	7.8	215
43	Demonstration of the Improved Rocket Efficiency in Direct-Drive Implosions Using Different Ablator Materials. <i>Physical Review Letters</i> , 2013, 111, 245005.	7.8	33
44	Experimental investigation of bright spots in broadband, gated x-ray images of ignition-scale implosions on the National Ignition Facility. <i>Physics of Plasmas</i> , 2013, 20, 072706.	1.9	19
45	Improving cryogenic deuterium-tritium implosion performance on OMEGA. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	48
46	Progress towards polar-drive ignition for the NIF. <i>Nuclear Fusion</i> , 2013, 53, 113021.	3.5	20
47	Polar-drive implosions on OMEGA and the National Ignition Facility. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	28
48	Soft x-ray backlighting of direct-drive implosions using a spherical crystal imager on OMEGA. <i>Review of Scientific Instruments</i> , 2012, 83, 10E501.	1.3	13
49	Shell trajectory measurements from direct-drive implosion experiments. <i>Review of Scientific Instruments</i> , 2012, 83, 10E530.	1.3	36
50	Crossed-beam energy transfer in direct-drive implosions. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	133
51	Hot-spot mix in ignition-scale implosions on the NIF. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	107
52	Diagnosing and controlling mix in National Ignition Facility implosion experiments. <i>Physics of Plasmas</i> , 2011, 18, .	1.9	92
53	Spectroscopic observations of Fermi-degenerate aluminum compressed and heated to four times solid density and 20ÅeV. <i>High Energy Density Physics</i> , 2011, 7, 259-262.	1.5	3
54	Shock-tuned cryogenic-deuterium-tritium implosion performance on Omega. <i>Physics of Plasmas</i> , 2010, 17, 056312.	1.9	33

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55	The effects of target mounts in direct-drive implosions on OMEGA. <i>Physics of Plasmas</i> , 2009, 16, .	1.9	45
56	Neutron yield study of direct-drive, low-adiabat cryogenic D2 implosions on OMEGA laser system. <i>Physics of Plasmas</i> , 2009, 16, 112706.	1.9	27
57	Applied plasma spectroscopy: Laser-fusion experiments. <i>High Energy Density Physics</i> , 2009, 5, 234-243.	1.5	10
58	Plasma-Density Determination from X-Ray Radiography of Laser-Driven Spherical Implosions. <i>Physical Review Letters</i> , 2009, 102, 185004.	7.8	68
59	Performance of direct-drive cryogenic targets on OMEGA. <i>Physics of Plasmas</i> , 2008, 15, .	1.9	92
60	Diagnosing direct-drive, shock-heated, and compressed plastic planar foils with noncollective spectrally resolved x-ray scattering. <i>Physics of Plasmas</i> , 2007, 14, 122703.	1.9	37
61	Progress in hydrodynamics theory and experiments for direct-drive and fast ignition inertial confinement fusion. <i>Plasma Physics and Controlled Fusion</i> , 2006, 48, B153-B163.	2.1	27
62	Polar-direct-drive experiments on OMEGA. <i>European Physical Journal Special Topics</i> , 2006, 133, 153-157.	0.2	19
63	Polar-direct-drive simulations and experiments. <i>Physics of Plasmas</i> , 2006, 13, 056311.	1.9	58
64	Test of Thermal Transport Models through Dynamic Overpressure Stabilization of Ablation-Front Perturbation Growth in Laser-Driven CH Foils. <i>Physical Review Letters</i> , 2006, 96, 115005.	7.8	32
65	Direct-drive inertial confinement fusion research at the Laboratory for Laser Energetics: charting the path to thermonuclear ignition. <i>Nuclear Fusion</i> , 2005, 45, S283-S290.	3.5	27
66	Polar direct drive: Proof-of-principle experiments on OMEGA and prospects for ignition on the National Ignition Facility. <i>Physics of Plasmas</i> , 2005, 12, 056304.	1.9	46
67	Direct-drive, cryogenic target implosions on OMEGA. <i>Physics of Plasmas</i> , 2005, 12, 056302.	1.9	27
68	Multidimensional analysis of direct-drive, plastic-shell implosions on OMEGA. <i>Physics of Plasmas</i> , 2005, 12, 056307.	1.9	95
69	Dependence of Shell Mix on Feedthrough in Direct Drive Inertial Confinement Fusion. <i>Physical Review Letters</i> , 2004, 92, 185002.	7.8	29
70	Direct-drive cryogenic target implosion performance on OMEGA. <i>Physics of Plasmas</i> , 2004, 11, 2790-2797.	1.9	39
71	On the Bellâ€Plesset effects: The effects of uniform compression and geometrical convergence on the classical Rayleighâ€Taylor instability. <i>Physics of Plasmas</i> , 2004, 11, 5114-5124.	1.9	97
72	Direct-drive-implosion experiments with enhanced fluence balance on OMEGA. <i>Physics of Plasmas</i> , 2004, 11, 251-259.	1.9	56

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73	Direct-drive cryogenic target implosion performance on OMEGA. <i>Physics of Plasmas</i> , 2003, 10, 1937-1945.	1.9	32
74	First results from cryogenic target implosions on OMEGA. <i>Physics of Plasmas</i> , 2002, 9, 2195-2201.	1.9	49
75	Characterization of direct-drive-implosion core conditions on OMEGA with time-resolved ArK-shell spectroscopy. <i>Physics of Plasmas</i> , 2002, 9, 1357-1365.	1.9	65
76	Inference of mix in direct-drive implosions on OMEGA. <i>Physics of Plasmas</i> , 2002, 9, 2208-2213.	1.9	48
77	OMEGA ICF experiments and preparation for direct drive ignition on NIF. <i>Nuclear Fusion</i> , 2001, 41, 1413-1422.	3.5	45
78	Inferences of mix in direct-drive spherical implosions with high uniformity. <i>Plasma Physics and Controlled Fusion</i> , 2001, 43, A277-A286.	2.1	4
79	Core performance and mix in direct-drive spherical implosions with high uniformity. <i>Physics of Plasmas</i> , 2001, 8, 2251-2256.	1.9	84
80	Laser uniformity and hydrodynamic stability experiments at the OMEGA laser facility. <i>Laser and Particle Beams</i> , 2000, 18, 11-19.	1.0	3
81	Direct-drive high-convergence-ratio implosion studies on the OMEGA laser system. <i>Physics of Plasmas</i> , 2000, 7, 2108-2113.	1.9	23
82	Inertial confinement fusion experiments with OMEGA-A 30-kJ, 60-beam UV laser. <i>Fusion Engineering and Design</i> , 1999, 44, 35-42.	1.9	22
83	Measurements of core and pusher conditions in surrogate capsule implosions on the OMEGA laser system. <i>Physics of Plasmas</i> , 1998, 5, 1870-1879.	1.9	36
84	Signatures of target performance and mixing in titanium-doped, laser-driven target implosions. <i>Physics of Plasmas</i> , 1997, 4, 3021-3030.	1.9	21
85	Reduction of time-averaged irradiation speckle nonuniformity in laser-driven plasmas due to target ablation. <i>Journal of Applied Physics</i> , 1997, 82, 2123-2139.	2.5	31
86	Novel Methods for Diagnosing Mixing and Laser-Fusion Target Performance Using X-ray Spectroscopy of an Embedded Titanium Layer. <i>Optics and Photonics News</i> , 1997, 8, 42.	0.5	13
87	Areal-density measurement of laser targets using absorption lines. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1997, 58, 75-83.	2.3	6
88	Satellite spectral lines in high density laser-produced plasmas. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1997, 58, 559-570.	2.3	14
89	Direct-drive laser-fusion experiments with the OMEGA, 60-beam, >40 kJ, ultraviolet laser system. <i>Physics of Plasmas</i> , 1996, 3, 2108-2112.	1.9	182
90	High temperature of laser-compressed shells measured with Kr34 and Kr35 x-ray lines. <i>Physical Review E</i> , 1996, 54, 5848-5850.	2.1	12

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91	Effects of ion dynamics and opacity on Stark-broadened argon line profiles. <i>Physical Review E</i> , 1996, 53, 1042-1050.	2.1	58
92	Diagnosis of High-Temperature Implosions Using Low- and High-Opacity Krypton Lines. <i>Journal of X-Ray Science and Technology</i> , 1996, 6, 172-187.	1.0	8
93	Diagnosis of core-shell mixing using absorption and emission spectra of a doped layer. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1996, 55, 731-739.	2.3	5
94	Spectroscopic analysis of hot dense plasmas: A focus on ion dynamics. <i>Laser and Particle Beams</i> , 1996, 14, 713-730.	1.0	3
95	X-ray backlighting imaging of mixed imploded targets. <i>Laser and Particle Beams</i> , 1996, 14, 81-91.	1.0	5
96	Monochromatic Backlighting as a Laser-Fusion Diagnostic. <i>Journal of X-Ray Science and Technology</i> , 1995, 5, 73-87.	1.0	2
97	Spectroscopic analysis of Ar-doped laser-driven implosions. <i>Review of Scientific Instruments</i> , 1995, 66, 755-757.	1.3	14
98	New diagnostic features in the laser implosion of argon-filled targets. <i>Review of Scientific Instruments</i> , 1995, 66, 728-730.	1.3	3
99	Target imaging and backlighting diagnosis. <i>Review of Scientific Instruments</i> , 1995, 66, 731-733.	1.3	0
100	Diagnosis of laser-target implosions by space-resolved continuum absorption x-ray spectroscopy. <i>Physical Review E</i> , 1994, 49, 4381-4390.	2.1	21
101	New diagnostic features in the laser implosion of argon-filled targets. <i>Optics Communications</i> , 1994, 111, 556-565.	2.1	2
102	Short-wavelength-laser requirements for direct-drive ignition and gain. <i>Laser and Particle Beams</i> , 1993, 11, 299-306.	1.0	5
103	Electron-temperature measurement in laser-produced plasmas by the ratio of isoelectronic line intensities. <i>Physical Review A</i> , 1992, 46, R1747-R1750.	2.5	50
104	Production and characterization of hot, long-scale-length laser plasmas. <i>Physics of Fluids B</i> , 1992, 4, 432-449.	1.7	21
105	Diagnosis of laser-compressed shells based on absorption of core radiation. <i>Physical Review A</i> , 1991, 44, 8429-8432.	2.5	15
106	Satellite absorption lines and the temperature dependence of x-ray absorption features in high-temperature plasmas. <i>Physical Review A</i> , 1991, 43, 961-967.	2.5	12
107	Effect of photoelectric fluorescence on the formation of x-ray absorption lines in laser-plasma experiments. <i>Physical Review A</i> , 1991, 44, 5111-5117.	2.5	4
108	X-ray lasing in thick foil irradiation geometry. <i>Optics Communications</i> , 1990, 79, 57-63.	2.1	12

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109	Demonstration of a narrow-divergence x-ray laser in neonlike titanium. <i>Physical Review A</i> , 1990, 42, 6962-6965.	2.5	102
110	Anticipated improvement in laser beam uniformity using distributed phase plates with quasirandom patterns. <i>Journal of Applied Physics</i> , 1990, 68, 924-931.	2.5	12
111	Radiation cooling in laser-produced plasmas due to high-Z layers. <i>Physical Review A</i> , 1989, 40, 4564-4571.	2.5	3
112	Experimental and numerical study of thermal transport in 24-beam ultraviolet irradiation of spherical targets. <i>Journal of Applied Physics</i> , 1989, 65, 969-977.	2.5	2
113	The design and optimization of recombination extreme-ultraviolet lasers. <i>Physics of Fluids B</i> , 1989, 1, 214-220.	1.7	16
114	X-ray laser studies at LLE. <i>IEEE Transactions on Plasma Science</i> , 1988, 16, 505-511.	1.3	3
115	X-ray diagnosis of high-density compression of Ar-filled polymer shell targets (abstract). <i>Review of Scientific Instruments</i> , 1988, 59, 1851-1851.	1.3	0
116	Thermal transport studies of 351-nm laser-produced plasmas using extreme ultraviolet spectroscopy. <i>Journal of Applied Physics</i> , 1988, 63, 674-680.	2.5	4
117	Effect of laser illumination nonuniformity on the analysis of time-resolved x-ray measurements in uv spherical transport experiments. <i>Physical Review A</i> , 1987, 36, 3926-3934.	2.5	242
118	Effects of non-Maxwellian electron populations in non-LTE simulations of laser-plasma thermal transport and implosion experiments. <i>Journal of Quantitative Spectroscopy and Radiative Transfer</i> , 1986, 35, 131-143.	2.3	28
119	Multibeam, laser-imploded cylindrical plasmas. <i>Physical Review A</i> , 1986, 33, 1246-1253.	2.5	10
120	Statistical ray tracing in plasmas with random density fluctuations. <i>Physical Review A</i> , 1986, 33, 1892-1902.	2.5	7
121	Absorption-spectroscopy diagnosis of pusher conditions in laser-driven implosions. <i>Physical Review A</i> , 1986, 34, 411-420.	2.5	44
122	Post-post-Newtonian deflection of light by the Sun. <i>Physical Review D</i> , 1980, 22, 2947-2949.	4.7	137
123	The generation of gravitational radiation by escaping supernova neutrinos. <i>Astrophysical Journal</i> , 1978, 223, 1037.	4.5	99
124	Neutrino angular momentum loss in rotating stars. <i>Astrophysical Journal</i> , 1978, 219, L39.	4.5	12
125	The binary pulsar - Post-Newtonian timing effects. <i>Astrophysical Journal</i> , 1977, 216, 92.	4.5	88
126	Post-Newtonian generation of gravitational waves. <i>Astrophysical Journal</i> , 1975, 197, 717.	4.5	139