Debra A Callahan

List of Publications by Year
in descending order

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135	9,593	28274	38395
papers	citations	55 h-index	95 g-index

136	136	136	2081
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Extensions of a classical mechanics â€œpiston-modelâ€•for understanding the impact of asymmetry on ICF implosions: The cases of mode 2, mode 2/1 coupling, time-dependent asymmetry, and the relationship to coast-time. Physics of Plasmas, 2022, 29, .	1.9	22
2	Design of inertial fusion implosions reaching the burning plasma regime. Nature Physics, 2022, 18, 251-258.	16.7	87
3	Burning plasma achieved in inertial fusion. Nature, 2022, 601, 542-548.	27.8	233
4	Hydroscaling indirect-drive implosions on the National Ignition Facility. Physics of Plasmas, 2022, 29, .	1.9	4
5	Low mode implosion symmetry sensitivity in low gas-fill NIF cylindrical hohlraums. Physics of Plasmas, 2021, 28, .	1.9	15
6	Three dimensional low-mode areal-density non-uniformities in indirect-drive implosions at the National Ignition Facility. Physics of Plasmas, 2021, 28, .	1.9	12
7	The effects of multispecies Hohlraum walls on stimulated Brillouin scattering, Hohlraum dynamics, and beam propagation. Physics of Plasmas, 2021, 28, .	1.9	6
8	Achieving record hot spot energies with large HDC implosions on NIF in HYBRID-E. Physics of Plasmas, 2021, 28, .	1.9	55
9	Metrics for implosion performance with enhanced energy coupling on NIF. Nuclear Fusion, 2021, 61, 116066.	3.5	7
10	Evidence of Three-Dimensional Asymmetries Seeded by High-Density Carbon-Ablator Nonuniformity in Experiments at the National Ignition Facility. Physical Review Letters, 2021, 126, 025002.	7.8	40
11	Record Energetics for an Inertial Fusion Implosion at NIF. Physical Review Letters, 2021, 126, 025001.	7.8	76
12	Application of cross-beam energy transfer to control drive symmetry in ICF implosions in low gas fill Hohlraums at the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	18
13	Integrated performance of large HDC-capsule implosions on the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	22
14	Hot-spot mix in large-scale HDC implosions at NIF. Physics of Plasmas, 2020, 27, .	1.9	46
15	Fill tube dynamics in inertial confinement fusion implosions with high density carbon ablators. Physics of Plasmas, 2020, 27, .	1.9	11
16	A simple model to scope out parameter space for indirect drive designs on NIF. Physics of Plasmas, 2020, 27, .	1.9	14
17	View factor estimation of hot spot velocities in inertial confinement fusion implosions at the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	9
18	Measurements of enhanced performance in an indirect drive inertial confinement fusion experiment when reducing the contact area of the capsule support. Physics of Plasmas, 2020, 27, .	1.9	7

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19	Hotspot parameter scaling with velocity and yield for high-adiabat layered implosions at the National Ignition Facility. Physical Review E, 2020, 102, 023210.	2.1	25
20	Symmetric fielding of the largest diamond capsule implosions on the NIF. Physics of Plasmas, 2020, 27, .	1.9	28
21	Hotspot conditions achieved in inertial confinement fusion experiments on the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	50
22	Beryllium implosions at smaller case-to-capsule ratio on NIF. High Energy Density Physics, 2020, 34, 100747.	1.5	6
23	Plasma stopping-power measurements reveal transition from non-degenerate to degenerate plasmas. Nature Physics, 2020, 16, 432-437.	16.7	28
24	Achieving 280 Gbar hot spot pressure in DT-layered CH capsule implosions at the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	20
25	Toward a burning plasma state using diamond ablator inertially confined fusion (ICF) implosions on the National Ignition Facility (NIF). Plasma Physics and Controlled Fusion, 2019, 61, 014023.	2.1	53
26	Implosion performance of subscale beryllium capsules on the NIF. Physics of Plasmas, 2019, 26, 052707.	1.9	26
27	Approaching a burning plasma on the NIF. Physics of Plasmas, 2019, 26, .	1.9	83
28	Maintaining low-mode symmetry control with extended pulse shapes for lower-adiabat Bigfoot implosions on the National Ignition Facility. Physics of Plasmas, 2019, 26, .	1.9	14
29	Beyond alpha-heating: driving inertially confined fusion implosions toward a burning-plasma state on the National Ignition Facility. Plasma Physics and Controlled Fusion, 2019, 61, 014033.	2.1	61
30	Comparison of plastic, high density carbon, and beryllium as indirect drive NIF ablators. Physics of Plasmas, 2018, 25, .	1.9	39
31	Update 2017 on Target Fabrication Requirements for High-Performance NIF Implosion Experiments. Fusion Science and Technology, 2018, 73, 83-88.	1.1	2
32	The high velocity, high adiabat, â€œBigfootâ€•campaign and tests of indirect-drive implosion scaling. Physics of Plasmas, 2018, 25, .	1.9	90
33	Exploring the limits of case-to-capsule ratio, pulse length, and picket energy for symmetric hohlraum drive on the National Ignition Facility Laser. Physics of Plasmas, 2018, 25, .	1.9	79
34	Energy transfer between lasers in low-gas-fill-density hohlraums. Physical Review E, 2018, 98, .	2.1	27
35	High-Performance Indirect-Drive Cryogenic Implosions at High Adiabat on the National Ignition Facility. Physical Review Letters, 2018, 121, 135001.	7.8	86
36	Beryllium capsule implosions at a case-to-capsule ratio of 3.7 on the National Ignition Facility. Physics of Plasmas, 2018, 25, .	1.9	20

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37	Implosion shape control of high-velocity, large case-to-capsule ratio beryllium ablators at the National Ignition Facility. Physics of Plasmas, 2018, 25, 072708.	1.9	16
38	Increasing stagnation pressure and thermonuclear performance of inertial confinement fusion capsules by the introduction of a high-Z dopant. Physics of Plasmas, 2018, 25, .	1.9	42
39	The influence of hohlraum dynamics on implosion symmetry in indirect drive inertial confinement fusion experiments. Physics of Plasmas, 2018, 25, .	1.9	42
40	Fusion Energy Output Greater than the Kinetic Energy of an Imploding Shell at the National Ignition Facility. Physical Review Letters, 2018, 120, 245003.	7.8	205
41	Examining the radiation drive asymmetries present in the high foot series of implosion experiments at the National Ignition Facility. Physics of Plasmas, 2017, 24, .	1.9	31
42	The role of hot spot mix in the low-foot and high-foot implosions on the NIF. Physics of Plasmas, 2017, 24, .	1.9	49
43	Symmetry control of an indirectly driven high-density-carbon implosion at high convergence and high velocity. Physics of Plasmas, 2017, 24, .	1.9	106
44	On the importance of minimizing â€œcoast-timeâ€•in x-ray driven inertially confined fusion implosions. Physics of Plasmas, 2017, 24, .	1.9	47
45	Indirect drive ignition at the National Ignition Facility. Plasma Physics and Controlled Fusion, 2017, 59, 014021.	2.1	64
46	Control of Be capsule low mode implosions symmetry at the National Ignition Facility. Journal of Physics: Conference Series, 2016, 717, 012033.	0.4	2
47	NIF Rugby High Foot Campaign from the design side. Journal of Physics: Conference Series, 2016, 717, 012035.	0.4	4
48	Simulations of symcap and layered NIF experiments with top/bottom laser asymmetry to impose P1 drive on capsules. Journal of Physics: Conference Series, 2016, 717, 012014.	0.4	5
49	Performance of indirectly driven capsule implosions on NIF using adiabat-shaping. Journal of Physics: Conference Series, 2016, 717, 012045.	0.4	0
50	Electron temperature measurements inside the ablating plasma of gas-filled hohlraums at the National Ignition Facility. Physics of Plasmas, 2016, 23, .	1.9	34
51	First beryllium capsule implosions on the National Ignition Facility. Physics of Plasmas, 2016, 23, 056310.	1.9	37
52	Spatially resolved X-ray emission measurements of the residual velocity during the stagnation phase of inertial confinement fusion implosion experiments. Physics of Plasmas, 2016, 23, 072701.	1.9	8
53	Developing one-dimensional implosions for inertial confinement fusion science. High Power Laser Science and Engineering, 2016, 4, .	4.6	5
54	The near vacuum hohlraum campaign at the NIF: A new approach. Physics of Plasmas, 2016, 23, .	1.9	51

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55	Performance of indirectly driven capsule implosions on the National Ignition Facility using adiabat-shaping. Physics of Plasmas, 2016, 23, 056303.	1.9	38
56	Symmetry control in subscale near-vacuum hohlraums. Physics of Plasmas, 2016, 23, .	1.9	34
57	Experimental results of radiation-driven, layered deuterium-tritium implosions with adiabat-shaped drives at the National Ignition Facility. Physics of Plasmas, 2016, 23, .	1.9	27
58	Integrated modeling of cryogenic layered highfoot experiments at the NIF. Physics of Plasmas, 2016, 23, .	1.9	59
59	Experimental room temperature hohlraum performance study on the National Ignition Facility. Physics of Plasmas, 2016, 23, .	1.9	6
60	Inertially confined fusion plasmas dominated by alpha-particle self-heating. Nature Physics, 2016, 12, 800-806.	16.7	144
61	Indications of flow near maximum compression in layered deuterium-tritium implosions at the National Ignition Facility. Physical Review E, 2016, 94, 021202.	2.1	49
62	Development of Improved Radiation Drive Environment for High Foot Implosions at the National Ignition Facility. Physical Review Letters, 2016, 117, 225002.	7.8	61
63	Generation and Beaming of Early Hot Electrons onto the Capsule in Laser-Driven Ignition Hohlraums. Physical Review Letters, 2016, 116, 075003.	7.8	45
64	Update 2015 on Target Fabrication Requirements for NIF Layered Implosions, with Emphasis on Capsule Support and Oxygen Modulations in GDP. Fusion Science and Technology, 2016, 70, 121-126.	1.1	16
65	Images of the gold bubble feature in NIF Gas-Filled Ignition Hohlraums. Journal of Physics: Conference Series, 2016, 717, 012049.	0.4	12
66	Improved Performance of High Areal Density Indirect Drive Implosions at the National Ignition Facility using a Four-Shock Adiabat Shaped Drive. Physical Review Letters, 2015, 115, 105001.	7.8	58
67	The size and structure of the laser entrance hole in gas-filled hohlraums at the National Ignition Facility. Physics of Plasmas, 2015, 22, .	1.9	19
68	Overview of Performance and Progress with Inertially Confined Fusion Implosions on the National Ignition Facility. , 2015, , .		0
69	2015, 22, 056314.	1.9	49
70	First High-Convergence Cryogenic Implosion in a Near-Vacuum Hohlraum. Physical Review Letters, 2015, 114, 175001.	7.8	117
71	of Plasmas, 2015, 22, 056315.	1.9	82
72	Thin Shell, High Velocity Inertial Confinement Fusion Implosions on the National Ignition Facility. Physical Review Letters, 2015, 114, 145004.	7.8	56

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73	In-flight observations of low-mode <i>Ï‹/i>R asymmetries in NIF implosions. Physics of Plasmas, 2015, 22, .	1.9	24
74	Demonstration of High Performance in Layered Deuterium-Tritium Capsule Implosions in Uranium Hohlraums at the National Ignition Facility. Physical Review Letters, 2015, 115, 055001.	7.8	101
75	First results of radiation-driven, layered deuterium-tritium implosions with a 3-shock adiabat-shaped drive at the National Ignition Facility. Physics of Plasmas, 2015, 22, .	1.9	29
76	Low-adiabat rugby hohlraum experiments on the National Ignition Facility: Comparison with high-flux modeling and the potential for gas-wall interpenetration. Physics of Plasmas, 2014, 21, .	1.9	36
77	The effect of shock dynamics on compressibility of ignition-scale National Ignition Facility implosions. Physics of Plasmas, 2014, 21, .	1.9	20
78	Metrics for long wavelength asymmetries in inertial confinement fusion implosions on the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	140
79	Simulations of indirectly driven gas-filled capsules at the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	12
80	Progress in hohlraum physics for the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	62
81	Development of the CD Symcap platform to study gas-shell mix in implosions at the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	42
82	Fuel gain exceeding unity in an inertially confined fusion implosion. Nature, 2014, 506, 343-348.	27.8	742
83	High-Adiabat High-Foot Inertial Confinement Fusion Implosion Experiments on the National Ignition Facility. Physical Review Letters, 2014, 112, 055001.	7.8	199
84	Design of a High-Foot High-Adiabat ICF Capsule for the National Ignition Facility. Physical Review Letters, 2014, 112, 055002.	7.8	173
85	Measurements of an Ablator-Gas Atomic Mix in Indirectly Driven Implosions at the National Ignition Facility. Physical Review Letters, 2014, 112, 025002.	7.8	60
86	High-density carbon ablator experiments on the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	116
87	The high-foot implosion campaign on the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	149
88	Reduced instability growth with high-adiabat high-foot implosions at the National Ignition Facility. Physical Review E, 2014, 90, 011102.	2.1	77
89	Progress towards ignition on the National Ignition Facility. Physics of Plasmas, 2013, 20, .	1.9	259
90	Hot-Spot Mix in Ignition-Scale Inertial Confinement Fusion Targets. Physical Review Letters, 2013, 111, 045001.	7.8	135

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91	Onset of Hydrodynamic Mix in High-Velocity, Highly Compressed Inertial Confinement Fusion Implosions. Physical Review Letters, 2013, 111, 085004.	7.8	215
92	Hohlraum energetics scaling to 520 TW on the National Ignition Facility. Physics of Plasmas, 2013, 20, .	1.9	59
93	Performance of High-Convergence, Layered DT Implosions with Extended-Duration Pulses at the National Ignition Facility. Physical Review Letters, 2013, 111, 215001.	7.8	47
94	Early-Time Symmetry Tuning in the Presence of Cross-Beam Energy Transfer in ICF Experiments on the National Ignition Facility. Physical Review Letters, 2013, 111, 235001.	7.8	44
95	Numerical Modeling of the Sensitivity of X-Ray Driven Implosions to Low-Mode Flux Asymmetries. Physical Review Letters, 2013, 110, 075001.	7.8	63
96	Saturation of multi-laser beams laser-plasma instabilities from stochastic ion heating. Physics of Plasmas, 2013, 20, .	1.9	48
97	X-ray driven implosions at ignition relevant velocities on the National Ignition Facility. Physics of Plasmas, 2013, 20, .	1.9	54
98	Nuclear imaging of the fuel assembly in ignition experiments. Physics of Plasmas, 2013, 20, 056320.	1.9	65
99	Progress toward ignition at the National Ignition Facility. Plasma Physics and Controlled Fusion, 2013, 55, 124015.	2.1	23
100	NIF Ignition Campaign Target Performance and Requirements: Status May 2012. Fusion Science and Technology, 2013, 63, 67-75.	1.1	28
101	Cryogenic thermonuclear fuel implosions on the National Ignition Facility. Physics of Plasmas, 2012, 19, .	1.9	95
102	Charged-particle spectroscopy for diagnosing shock ïR and strength in NIF implosions. Review of Scientific Instruments, 2012, 83, 10D901.	1.3	38
103	South pole bang-time diagnostic on the National Ignition Facility (invited). Review of Scientific Instruments, 2012, 83, 10E119.	1.3	25
104	Measurement of electron temperature of imploded capsules at the National Ignition Facility. Review of Scientific Instruments, 2012, 83, 10E121.	1.3	23
105	Assembly of High-Areal-Density Deuterium-Tritium Fuel from Indirectly Driven Cryogenic Implosions. Physical Review Letters, 2012, 108, 215005.	7.8	57
106	Soft x-ray images of the laser entrance hole of ignition hohlraums. Review of Scientific Instruments, 2012, 83, 10E525.	1.3	22
107	Stochastic Ion Heating from Many Overlapping Laser Beams in Fusion Plasmas. Physical Review Letters, 2012, 109, 195004.	7.8	35
108	Implosion dynamics measurements at the National Ignition Facility. Physics of Plasmas, 2012, 19, .	1.9	125

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109	Shock timing experiments on the National Ignition Facility: Initial results and comparison with simulation. Physics of Plasmas, 2012, 19, .	1.9	115
110	A high-resolution integrated model of the National Ignition Campaign cryogenic layered experiments. Physics of Plasmas, 2012, 19, .	1.9	108
111	Progress in the indirect-drive National Ignition Campaign. Plasma Physics and Controlled Fusion, 2012, 54, 124026.	2.1	38
112	Hot-spot mix in ignition-scale implosions on the NIF. Physics of Plasmas, 2012, 19, .	1.9	107
113	The velocity campaign for ignition on NIF. Physics of Plasmas, 2012, 19, .	1.9	76
114	X-ray conversion efficiency in vacuum hohlraum experiments at the National Ignition Facility. Physics of Plasmas, 2012, 19, 053301.	1.9	48
115	Direct Measurement of Energetic Electrons Coupling to an Imploding Low-Adiabat Inertial Confinement Fusion Capsule. Physical Review Letters, 2012, 108, 135006.	7.8	44
116	Multistep redirection by cross-beam power transfer of ultrahigh-power lasers in a plasma. Nature Physics, 2012, 8, 344-349.	16.7	104
117	First implosion experiments with cryogenic thermonuclear fuel on the National Ignition Facility. Plasma Physics and Controlled Fusion, 2012, 54, 045013.	2.1	41
118	Capsule implosion optimization during the indirect-drive National Ignition Campaign. Physics of Plasmas, 2011, 18, .	1.9	131
119	Point design targets, specifications, and requirements for the 2010 ignition campaign on the National Ignition Facility. Physics of Plasmas, 2011, 18, .	1.9	534
120	Three-wavelength scheme to optimize hohlraum coupling on the National Ignition Facility. Physical Review E, 2011, 83, 046409.	2.1	54
121	The experimental plan for cryogenic layered target implosions on the National Ignition Facilityâ€”The inertial confinement approach to fusion. Physics of Plasmas, 2011, 18, .	1.9	148
122	Analysis of the National Ignition Facility ignition hohlraum energetics experiments. Physics of Plasmas, 2011, 18, .	1.9	82
123	Symmetry tuning for ignition capsules via the symcap technique. Physics of Plasmas, 2011, 18, .	1.9	101
124	Symmetry tuning via controlled crossed-beam energy transfer on the National Ignition Facility. Physics of Plasmas, 2010, 17, .	1.9	171
125	The first measurements of soft x-ray flux from ignition scale Hohlraums at the National Ignition Facility using DANTE (invited). Review of Scientific Instruments, 2010, 81, 10E321.	1.3	66
126	Symmetric Inertial Confinement Fusion Implosions at Ultra-High Laser Energies. Science, 2010, 327, 1228-1231.	12.6	321

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127	Measuring symmetry of implosions in cryogenic Hohlraums at the NIF using gated x-ray detectors (invited). Review of Scientific Instruments, 2010, 81, 10E316.	1.3	95
128	Analyses of laser-plasma interactions in NIF ignition emulator designs. Journal of Physics: Conference Series, 2010, 244, 022019.	0.4	1
129	National Ignition Campaign Hohlraum energetics. Physics of Plasmas, 2010, 17, .	1.9	115
130	Capsule performance optimization in the National Ignition Campaign. Physics of Plasmas, 2010, 17, .	1.9	51
131	Plastic ablator ignition capsule design for the National Ignition Facility. Physics of Plasmas, 2010, 17, .	1.9	89
132	Suprathermal electrons generated by the two-plasmon-decay instability in gas-filled Hohlraums. Physics of Plasmas, 2010, 17, .	1.9	51
133	Energy transfer between laser beams crossing in ignition hohlraums. Physics of Plasmas, 2009, 16, .	1.9	92
134	Tuning the Implosion Symmetry of ICF Targets via Controlled Crossed-Beam Energy Transfer. Physical Review Letters, 2009, 102, 025004.	7.8	247
135	Energetics of multiple-ion species hohlraum plasmas. Physics of Plasmas, 2008, 15, .	1.9	26