

# Igor Igumenshchev

## List of Publications by Year in descending order

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71  
papers

2,309  
citations

172457

29  
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223800

46  
g-index

71  
all docs

71  
docs citations

71  
times ranked

1117  
citing authors

#	ARTICLE	IF	CITATIONS
1	Crossed-beam energy transfer in implosion experiments on OMEGA. <i>Physics of Plasmas</i> , 2010, 17, .	1.9	142
2	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
3	Crossed-beam energy transfer in direct-drive implosions. <i>Physics of Plasmas</i> , 2012, 19, .	1.9	133
4	Demonstration of the Highest Deuterium-Tritium Areal Density Using Multiple-Picket Cryogenic Designs on OMEGA. <i>Physical Review Letters</i> , 2010, 104, 165001.	7.8	111
5	Tripled yield in direct-drive laser fusion through statistical modelling. <i>Nature</i> , 2019, 565, 581-586.	27.8	103
6	Performance of direct-drive cryogenic targets on OMEGA. <i>Physics of Plasmas</i> , 2008, 15, .	1.9	92
7	Accretion discs around black holes: two-dimensional, advection-cooled flows. <i>Monthly Notices of the Royal Astronomical Society</i> , 1996, 278, 236-250.	4.4	73
8	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
9	Three-dimensional modeling of direct-drive cryogenic implosions on OMEGA. <i>Physics of Plasmas</i> , 2016, 23, .	1.9	69
10	Increasing Hydrodynamic Efficiency by Reducing Cross-Beam Energy Transfer in Direct-Drive-Implosion Experiments. <i>Physical Review Letters</i> , 2012, 108, 125003.	7.8	67
11	Precision Mapping of Laser-Driven Magnetic Fields and Their Evolution in High-Energy-Density Plasmas. <i>Physical Review Letters</i> , 2015, 114, 215003.	7.8	54
12	On the absence of winds in advection-dominated accretion flows. <i>Monthly Notices of the Royal Astronomical Society</i> , 2000, 314, 775-781.	4.4	51
13	National direct-drive program on OMEGA and the National Ignition Facility. <i>Plasma Physics and Controlled Fusion</i> , 2017, 59, 014008.	2.1	50
14	Improving cryogenic deuterium–tritium implosion performance on OMEGA. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	48
15	Measured hot-electron intensity thresholds quantified by a two-plasmon-decay resonant common-wave gain in various experimental configurations. <i>Physics of Plasmas</i> , 2013, 20, .	1.9	47
16	The effects of target mounts in direct-drive implosions on OMEGA. <i>Physics of Plasmas</i> , 2009, 16, .	1.9	45
17	Magnetic Field Generation by the Rayleigh-Taylor Instability in Laser-Driven Planar Plastic Targets. <i>Physical Review Letters</i> , 2012, 109, 115001.	7.8	42
18	A wave-based model for cross-beam energy transfer in direct-drive inertial confinement fusion. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	40

#	ARTICLE	IF	CITATIONS
19	Numerical simulation of thick disc accretion on to a rotating black hole. Monthly Notices of the Royal Astronomical Society, 1997, 284, 767-772.	4.4	37
20	Diagnosing direct-drive, shock-heated, and compressed plastic planar foils with noncollective spectrally resolved x-ray scattering. Physics of Plasmas, 2007, 14, 122703.	1.9	37
21	Shell trajectory measurements from direct-drive implosion experiments. Review of Scientific Instruments, 2012, 83, 10E530.	1.3	36
22	Self-generated magnetic fields in direct-drive implosion experiments. Physics of Plasmas, 2014, 21, .	1.9	35
23	Designs for highly nonlinear ablative Rayleigh-Taylor experiments on the National Ignition Facility. Physics of Plasmas, 2012, 19, .	1.9	33
24	Demonstration of the Improved Rocket Efficiency in Direct-Drive Implosions Using Different Ablator Materials. Physical Review Letters, 2013, 111, 245005.	7.8	33
25	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
26	Laser-plasma interactions in direct-drive ignition plasmas. Plasma Physics and Controlled Fusion, 2012, 54, 124016.	2.1	31
27	Laser-Beam Zooming to Mitigate Crossed-Beam Energy Losses in Direct-Drive Implosions. Physical Review Letters, 2013, 110, 145001.	7.8	31
28	Observation of Self-Similarity in the Magnetic Fields Generated by the Ablative Nonlinear Rayleigh-Taylor Instability. Physical Review Letters, 2013, 110, 185003.	7.8	30
29	Mitigation of cross-beam energy transfer in symmetric implosions on OMEGA using wavelength detuning. Physics of Plasmas, 2017, 24, 062706.	1.9	30
30	Nonuniformly Driven Two-Plasmon-Decay Instability in Direct-Drive Implosions. Physical Review Letters, 2014, 112, 145001.	7.8	29
31	Studies of Plastic-Ablator Compressibility for Direct-Drive Inertial Confinement Fusion on Omega. Physical Review Letters, 2008, 100, 185003.	7.8	28
32	Neutron yield study of direct-drive, low-adiabat cryogenic D2 implosions on OMEGA laser system. Physics of Plasmas, 2009, 16, 112706.	1.9	27
33	Three-dimensional hydrodynamic simulations of OMEGA implosions. Physics of Plasmas, 2017, 24, .	1.9	26
34	Mitigation of mode-one asymmetry in laser-direct-drive inertial confinement fusion implosions. Physics of Plasmas, 2021, 28, .	1.9	26
35	From ICF to laboratory astrophysics: ablative and classical Rayleigh-Taylor instability experiments in turbulent-like regimes. Nuclear Fusion, 2019, 59, 032002.	3.5	25
36	Experimentally Inferred Fusion Yield Dependencies of OMEGA Inertial Confinement Fusion Implosions. Physical Review Letters, 2021, 127, 105001.	7.8	23

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37	Systematic Fuel Cavity Asymmetries in Directly Driven Inertial Confinement Fusion Implosions. <i>Physical Review Letters</i> , 2017, 118, 135001.	7.8	22
38	A note on the conditions for SSD--ADAF transitions. <i>Monthly Notices of the Royal Astronomical Society</i> , 1998, 293, 443-446.	4.4	21
39	Monochromatic backlighting of direct-drive cryogenic DT implosions on OMEGA. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	21
40	Full-wave and ray-based modeling of cross-beam energy transfer between laser beams with distributed phase plates and polarization smoothing. <i>Physics of Plasmas</i> , 2017, 24, .	1.9	20
41	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
42	Progress in indirect and direct-drive planar experiments on hydrodynamic instabilities at the ablation front. <i>Physics of Plasmas</i> , 2014, 21, 122702.	1.9	18
43	Analysis of trends in experimental observables: Reconstruction of the implosion dynamics and implications for fusion yield extrapolation for direct-drive cryogenic targets on OMEGA. <i>Physics of Plasmas</i> , 2018, 25, .	1.9	18
44	Real and complex valued geometrical optics inverse ray-tracing for inline field calculations. <i>Physics of Plasmas</i> , 2019, 26, 032301.	1.9	18
45	Impact of asymmetries on fuel performance in inertial confinement fusion. <i>Physical Review E</i> , 2018, 98, .	2.1	16
46	Adaptive inverse ray-tracing for accurate and efficient modeling of cross beam energy transfer in hydrodynamics simulations. <i>Physics of Plasmas</i> , 2019, 26, 072706.	1.9	16
47	On the morphology of accretion flows with small, non-zero specific angular momentum. <i>Monthly Notices of the Royal Astronomical Society</i> , 1997, 285, 439-448.	4.4	15
48	Impact of imposed mode 2 laser drive asymmetry on inertial confinement fusion implosions. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	15
49	Impact of stalk on directly driven inertial confinement fusion implosions. <i>Physics of Plasmas</i> , 2020, 27, 032704.	1.9	15
50	Measuring magnetic flux suppression in high-power laser-plasma interactions. <i>Physics of Plasmas</i> , 2022, 29, .	1.9	14
51	Slim accretion discs: a model for ADAF-SLE transitions. <i>Monthly Notices of the Royal Astronomical Society</i> , 1998, 298, 1069-1078.	4.4	12
52	Measurements of the Conduction-Zone Length and Mass Ablation Rate in Cryogenic Direct-Drive Implosions on OMEGA. <i>Physical Review Letters</i> , 2015, 114, 155002.	7.8	12
53	Inertial Confinement Fusion Using the OMEGA Laser System. <i>IEEE Transactions on Plasma Science</i> , 2011, 39, 1007-1014.	1.3	11
54	Subpercent-Scale Control of 3D Low Modes of Targets Imploded in Direct-Drive Configuration on OMEGA. <i>Physical Review Letters</i> , 2018, 120, 125001.	7.8	11

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55	Inverse ray tracing on icosahedral tetrahedron grids for non-linear laser plasma interaction coupled to 3D radiation hydrodynamics. <i>Journal of Computational Physics</i> , 2021, 443, 110537.	3.8	11
56	Total energy loss to fast ablator-ions and target capacitance of direct-drive implosions on OMEGA. <i>Applied Physics Letters</i> , 2012, 101, 114102.	3.3	10
57	Rarefaction Flows and Mitigation of Imprint in Direct-Drive Implosions. <i>Physical Review Letters</i> , 2019, 123, 065001.	7.8	10
58	Novel Hot-Spot Ignition Designs for Inertial Confinement Fusion with Liquid-Deuterium-Tritium Spheres. <i>Physical Review Letters</i> , 2020, 125, 065001.	7.8	9
59	Unipolar outflows and global meridional circulations in rotating accretion flows. <i>Monthly Notices of the Royal Astronomical Society</i> , 2000, 314, 54-58.	4.4	7
60	Double-Pulse Laser-Driven Jets on OMEGA. <i>Astrophysics and Space Science</i> , 2007, 307, 47-50.	1.4	7
61	The outflowing regime of quasi-spherical accretion on to X-ray compact objects. <i>Monthly Notices of the Royal Astronomical Society</i> , 1993, 260, 727-764.	4.4	6
62	Measurement of ablative Richtmyer-Meshkov evolution from laser imprint. <i>Physics of Plasmas</i> , 2017, 24, 102702.	1.9	4
63	Long-duration direct drive hydrodynamics experiments on the National Ignition Facility: Platform development and numerical modeling with CHIC. <i>Physics of Plasmas</i> , 2019, 26, 082703.	1.9	4
64	Observations of anomalous x-ray emission at early stages of hot-spot formation in deuterium-tritium cryogenic implosions. <i>Physical Review E</i> , 2021, 103, 023201.	2.1	4
65	Using statistical modeling to predict and understand fusion experiments. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	4
66	Central Density and Low-Mode Perturbation Control of Inertial Confinement Fusion Dynamic-Shell Targets. <i>Frontiers in Physics</i> , 2021, 9, .	2.1	3
67	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
68	Post-processing of face-on radiographic images for quantitative analysis in ablative Rayleigh-Taylor instability experiments. <i>High Energy Density Physics</i> , 2020, 37, 100851.	1.5	2
69	Bound on hot-spot mix in high-velocity, high-adiabat direct-drive cryogenic implosions based on comparison of absolute x-ray and neutron yields. <i>Physical Review E</i> , 2022, 106, .	2.1	2
70	Statistical theory of thermal instability. <i>Monthly Notices of the Royal Astronomical Society</i> , 1998, 298, 909-919.	4.4	1
71	Analysis of limited coverage effects on areal density measurements in inertial confinement fusion implosions. <i>Physics of Plasmas</i> , 2022, 29, .	1.9	1