Thomas J Murphy

List of Publications by Year
in descending order

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93 papers	2,851 citations	218677 26 h-index	175258 52 g-index
95 all docs	95 docs citations	95 times ranked	1412 citing authors

#	Article	IF	Citations
1	Burning plasma achieved in inertial fusion. Nature, 2022, 601, 542-548.	27.8	233
2	Use of the positron as a plasma particle. Physics of Fluids B, 1990, 2, 1372-1375.	1.7	209
3	Positron trapping in an electrostatic well by inelastic collisions with nitrogen molecules. Physical Review A, 1992, 46, 5696-5705.	2.5	187
4	Use of positrons to study transport in tokamak plasmas (invited). Review of Scientific Instruments, 1986, 57, 1862-1867.	1.3	148
5	Threeâ€dimensional simulations of Nova high growth factor capsule implosion experiments. Physics of Plasmas, 1996, 3, 2070-2076.	1.9	143
6	Measurements of positron-annihilation rates on molecules. Physical Review A, 1995, 51, 473-487.	2.5	117
7	Neutron spectrometryâ€”An essential tool for diagnosing implosions at the National Ignition Facility (invited). Review of Scientific Instruments, 2012, 83, 10D308.	1.3	117
8	The effect of turbulent kinetic energy on inferred ion temperature from neutron spectra. Physics of Plasmas, 2014, 21, .	1.9	104
9	Design of inertial fusion implosions reaching the burning plasma regime. Nature Physics, 2022, 18, 251-258.	16.7	87
10	Diagnosing implosion performance at the National Ignition Facility (NIF) by means of neutron spectrometry. Nuclear Fusion, 2013, 53, 043014.	3.5	84
11	Indirectly Driven, High Convergence Inertial Confinement Fusion Implosions. Physical Review Letters, 1994, 73, 2316-2319.	7.8	76
12	Annihilation of positrons on organic molecules. Physical Review Letters, 1991, 67, 2954-2957.	7.8	72
13	Hohlraum Radiation Drive Measurements on the Omega Laser. Physical Review Letters, 1997, 79, 1491-1494.	7.8	65
14	Symmetry experiments in gasâ€filled hohlraums at NOVA. Physics of Plasmas, 1996, 3, 2022-2028.	1.9	54
15	The Shock/Shear platform for planar radiation-hydrodynamics experiments on the National Ignition Facility. Physics of Plasmas, 2015, 22, .	1.9	45
16	Interpretation of neutron time-of-flight signals from current-mode detectors. Review of Scientific Instruments, 1997, 68, 610-613.	1.3	43
17	Observation of persistent species temperature separation in inertial confinement fusion mixtures. Nature Communications, 2020, 11, 544.	12.8	41
18	Target diagnostic system for the national ignition facility (invited). Review of Scientific Instruments, 1997, 68, 868-879.	1.3	40

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19	Inertial Confinement Fusion with Tetrahedral Hohlraums at OMEGA. Physical Review Letters, 1999, 82, 3807-3810.	7.8	39
20	Nuclear diagnostics for the National Ignition Facility (invited). Review of Scientific Instruments, 2001, 72, 773-779.	1.3	39
21	Scattered and (n,2n) neutrons as a measure of areal density in ICF capsules. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2002, 488, 400-409.	1.6	36
22	Development of a Big Area BackLighter for high energy density experiments. Review of Scientific Instruments, 2014, 85, 093501.	1.3	33
23	Ionâ€temperature measurement of indirectly driven implosions using a geometryâ€compensated neutron timeâ€ofâ€flight detector. Review of Scientific Instruments, 1995, 66, 930-932.	1.3	31
24	Demonstration of time-dependent symmetry control in hohlraums by drive-beam staggering. Physics of Plasmas, 2000, 7, 333-337.	1.9	31
25	Spatially resolved measurement of alpha particle emission from PLT plasmas heated by ICRH. Nuclear Fusion, 1985, 25, 383-386.	3.5	28
26	Hohlraum Symmetry Experiments with Multiple Beam Cones on the Omega Laser Facility. Physical Review Letters, 1998, 81, 108-111.	7.8	28
27	Modeâ€“particle resonances during nearâ€tangential neutral beam injection in the Tokamak Fusion Test Reactor. Physics of Fluids B, 1990, 2, 1584-1588.	1.7	26
28	New methods for diagnosing and controlling hohlraum drive asymmetry on Nova. Physics of Plasmas, 1997, 4, 1862-1871.	1.9	25
29	Role of shocks and mix caused by capsule defects. Physics of Plasmas, 2012, 19, .	1.9	25
30	Observation of early shell-dopant mix in OMEGA direct-drive implosions and comparisons with radiation-hydrodynamic simulations. Physics of Plasmas, 2014, 21, .	1.9	25
31	Late-Time Mixing Sensitivity to Initial Broadband Surface Roughness in High-Energy-Density Shear Layers. Physical Review Letters, 2016, 117, 225001.	7.8	25
32	Progress in the development of the MARBLE platform for studying thermonuclear burn in the presence of heterogeneous mix on OMEGA and the National Ignition Facility. Journal of Physics: Conference Series, 2016, 717, 012072.	0.4	24
33	Measurements of neutral beam species, impurities, spatial divergence, energy dispersion, pressure, and reionization using the TFTR U.S. Common Long Pulse Ion Source. Review of Scientific Instruments, 1989, 60, 37-52.	1.3	23
34	Annihilation of positrons in xenon gas. Journal of Physics B: Atomic, Molecular and Optical Physics, 1990, 23, L727-L732.	1.5	23
35	Using multiple secondary fusion products to evaluate fuel ÏR, electron temperature, and mix in deuterium-filled implosions at the NIF. Physics of Plasmas, 2015, 22, .	1.9	23
36	Systematic Fuel Cavity Asymmetries in Directly Driven Inertial Confinement Fusion Implosions. Physical Review Letters, 2017, 118, 135001.	7.8	22

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37	Late-time mixing and turbulent behavior in high-energy-density shear experiments at high Atwood numbers. Physics of Plasmas, 2018, 25, .	1.9	22
38	Multipurpose 10 in. manipulator-based optical telescope for Omega and the Trident laser facilities. Review of Scientific Instruments, 1999, 70, 803-805.	1.3	21
39	Development of a polar direct-drive platform for studying inertial confinement fusion implosion mix on the National Ignition Facility. Physics of Plasmas, 2013, 20, .	1.9	21
40	Effects of variable xâ€ray preheat shielding in indirectly driven implosions. Physics of Plasmas, 1996, 3, 2094-2097.	1.9	20
41	Moderate-convergence inertial confinement fusion implosions in tetrahedral hohlraums at Omega. Physics of Plasmas, 2000, 7, 2594-2603.	1.9	20
42	Neutron time-of-flight and emission time diagnostics for the National Ignition Facility. Review of Scientific Instruments, 2001, 72, 850-853.	1.3	20
43	Indirectly driven, high growth Rayleigh-Taylor implosions on Nova. Journal of Quantitative Spectroscopy and Radiative Transfer, 1995, 54, 245-255.	2.3	19
44	Observation of reduced beam deflection using smoothed beams in gas-filled hohlraum symmetry experiments at Nova. Physics of Plasmas, 2000, 7, 1609-1613.	1.9	19
45	Positron deposition in plasmas by positronium beam ionization and transport of positrons in Tokamak plasmas. Plasma Physics and Controlled Fusion, 1987, 29, 549-563.	2.1	18
46	TFTR epithermal neutron detector system: Recalibration and effect of nonisotropic neutron emission. Review of Scientific Instruments, 1988, 59, 1682-1684.	1.3	18
47	The rate of development of atomic mixing and temperature equilibration in inertial confinement fusion implosions. Physics of Plasmas, 2020, 27, .	1.9	17
48	Neutron time-of-flight signals from expanding or contracting spherical sources. Review of Scientific Instruments, 1997, 68, 614-617.	1.3	16
49	Calibration of the TFTR neutron activation system. Review of Scientific Instruments, 1988, 59, 1715-1717.	1.3	15
50	Indirect drive experiments utilizing multiple beam cones in cylindrical hohlraums on OMEGA. Physics of Plasmas, 1998, 5, 1960-1965.	1.9	14
51	Asymmetric directly driven capsule implosions: Modeling and experimentsâ€”A requirement for the National Ignition Facility. Physics of Plasmas, 2012, 19, 122713.	1.9	14
52	X-ray spectroscopic diagnostics and modeling of polar-drive implosion experiments on the National Ignition Facility. Physics of Plasmas, 2014, 21, .	1.9	13
53	Novel symmetry tuning in Nova hohlraums using axial gold disks. Physics of Plasmas, 1996, 3, 4166-4171.	1.9	12
54	Designing symmetric polar direct drive implosions on the Omega laser facility. Physics of Plasmas, 2014, 21, .	1.9	12

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55	Laser irradiance scaling in polar direct drive implosions on the National Ignition Facility. Physics of Plasmas, 2015, 22, .	1.9	11
56	Development of the Marble experimental platform at the National Ignition Facility. Physics of Plasmas, 2020, 27, .	1.9	11
57	Geometry compensation for improving speed and efficiency of scintillatorâ€based neutron timeâ€ofâ€flight detectors. Review of Scientific Instruments, 1992, 63, 4880-4882.	1.3	10
58	Development of a geometryâ€compensated neutron timeâ€ofâ€flight detector for ICF applications with approximately 200 ps time response. Review of Scientific Instruments, 1992, 63, 4883-4885.	1.3	10
59	Results from single-shock Marble experiments studying thermonuclear burn in the presence of heterogeneous mix on the National Ignition Facility. High Energy Density Physics, 2021, 38, 100929.	1.5	10
60	High-yield neutron activation system for the National Ignition Facility. Review of Scientific Instruments, 2001, 72, 818-821.	1.3	9
61	A validation payload for space and atmospheric nuclear event detection. IEEE Transactions on Nuclear Science, 2003, 50, 1175-1181.	2.0	9
62	Plasma temperatures from firstâ€hit neutron timeâ€ofâ€flight spectra. Review of Scientific Instruments, 1992, 63, 4877-4879.	1.3	8
63	Measurements of neutron spectra from Nova targets. Review of Scientific Instruments, 1997, 68, 607-609.	1.3	8
64	Use of computer vision for analysis of image datasets from high temperature plasma experiments. Review of Scientific Instruments, 2021, 92, 033532.	1.3	8
65	First downscattered neutron images from Inertial Confinement Fusion experiments at the National Ignition Facility. EPJ Web of Conferences, 2013, 59, 13018.	0.3	7
66	Material Characterization of Hierarchical Tunable Pore Size Polymer Foams Used in the MARBLE Mix Morphology Experiment. Fusion Science and Technology, 2020, 76, 795-806.	1.1	7
67	Experimental quantification of the impact of heterogeneous mix on thermonuclear burn. Physics of Plasmas, 2022, 29, .	1.9	7
68	Summary of the first neutron image data collected at the National Ignition Facility. EPJ Web of Conferences, 2013, 59, 13017.	0.3	6
69	First measurement of the 10B(Î±,n)13N reaction in an inertial confinement fusion implosion at the National Ignition Facility: Initial steps toward the development of a radiochemistry mix diagnostic. Physics of Plasmas, 2022, 29, .	1.9	6
70	Implementation of a new multiple monochromatic x-ray 2D imager at NIF. Proceedings of SPIE, 2013, , .	0.8	5
71	Multiple-view spectrally resolved x-ray imaging observations of polar-direct-drive implosions on OMEGA. Physics of Plasmas, 2014, 21, 122704.	1.9	5
72	Experimental validation of shock propagation through a foam with engineered macro-pores. Physics of Plasmas, 2021, 28, 012702.	1.9	5

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73	A sensitive neutron spectrometer for the National Ignition Facility. Review of Scientific Instruments, 2001, 72, 846-849.	1.3	4
74	Analysis of mix experiments on Omega. EPJ Web of Conferences, 2013, 59, 04004.	0.3	3
75	Development of a polar direct drive platform for mix and burn experiments on the National Ignition Facility. Journal of Physics: Conference Series, 2016, 688, 012075.	0.4	3
76	Three-dimensional characterization of the third line-of-site neutron imaging pinhole at NIF. , 2019, , .		3
77	Calibration and operation of a neutron time-of-flight scintillator array on Nova. Fusion Engineering and Design, 1997, 34-35, 577-580.	1.9	2
78	Defect-induced mix experiment for NIF. EPJ Web of Conferences, 2013, 59, 04005.	0.3	2
79	Comparing neutron and X-ray images from NIF implosions. EPJ Web of Conferences, 2013, 59, 04002.	0.3	2
80	Application of coincidence techniques to fusion product measurements. Review of Scientific Instruments, 1986, 57, 1766-1768.	1.3	1
81	Calculation of fusion product angular correlation coefficients for fusion plasmas. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 1988, 267, 520-536.	1.6	1
82	Symmetry experiments in gas filled Hohlraums at Nova. AIP Conference Proceedings, 1996, , .	0.4	1
83	Los Alamos Progress toward Achieving DT Burn on the National Ignition Facility. Fusion Science and Technology, 1998, 34, 753-759.	0.6	1
84	Preparing for polar-drive ignition on the National Ignition Facility. EPJ Web of Conferences, 2013, 59, 02014.	0.3	1
85	The neutron imaging system fielded at the National Ignition Facility. EPJ Web of Conferences, 2013, 59, 13016.	0.3	1
86	Recent Nova Experimental Results. Fusion Science and Technology, 1992, 21, 1340-1343.	0.6	0
87	Recent experimental results on Nova. , 1993, , .		0
88	Neutron detectors for fusion reaction-rate measurements. AIP Conference Proceedings, 1994, , .	0.4	0
89	A proton-recoil neutron spectrometer for time-dependent ion temperatures on the National Ignition Facility. , 1995, , .		0
90	Modeling of drive-symmetry experiments in gas-filled hohlraums at Nova. AIP Conference Proceedings, 1996, , .	0.4	0

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91	High convergence, indirect drive inertial confinement fusion experiments at Nova. AIP Conference Proceedings, 1996, , .	0.4	0
92	Performance characteristics of the neutron imaging diagnostic at NIF. , 2011, , .		0
93	Inertial Confinement Fusion at Los Alamosâ€“The Pursuit of Ignition and Science-Based Stockpile Stewardship. Fusion Science and Technology, 1996, 30, 497-503.	0.6	0