B M Hegelich

List of Publications by Year
in descending order

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84 papers	4,780 citations	126907 33 h-index	91884 69 g-index
84 all docs	84 docs citations	84 times ranked	1961 citing authors

#	Article	IF	Citations
1	Laser acceleration of quasi-monoenergetic MeV ion beams. Nature, 2006, 439, 441-444.	27.8	659
2	Radiation-Pressure Acceleration of Ion Beams Driven by Circularly Polarized Laser Pulses. Physical Review Letters, 2009, 103, 245003.	7.8	421
3	Monoenergetic and GeV ion acceleration from the laser breakout afterburner using ultrathin targets. Physics of Plasmas, 2007, 14, 056706.	1.9	299
4	GeV laser ion acceleration from ultrathin targets: The laser break-out afterburner. Laser and Particle Beams, 2006, 24, 291-298.	1.0	283
5	Bright Laser-Driven Neutron Source Based on the Relativistic Transparency of Solids. Physical Review Letters, 2013, 110, 044802.	7.8	271
6	Enhanced Laser-Driven Ion Acceleration in the Relativistic Transparency Regime. Physical Review Letters, 2009, 103, 045002.	7.8	208
7	Radiochromic film imaging spectroscopy of laser-accelerated proton beams. Review of Scientific Instruments, 2009, 80, 033301.	1.3	182
8	Analytical Model for Ion Acceleration by High-Intensity Laser Pulses. Physical Review Letters, 2006, 97, 045005.	7.8	166
9	Three-Dimensional Dynamics of Breakout Afterburner Ion Acceleration Using High-Contrast Short-Pulse Laser and Nanoscale Targets. Physical Review Letters, 2011, 107, 045003.	7.8	155
10	Controlled Transport and Focusing of Laser-Accelerated Protons with Miniature Magnetic Devices. Physical Review Letters, 2008, 101, 055004.	7.8	152
11	Coherent synchrotron emission from electron nanobunches formed in relativistic laserâ€“plasma interactions. Nature Physics, 2012, 8, 804-808.	16.7	132
12	Ultrashort Pulsed Neutron Source. Physical Review Letters, 2014, 113, 184801.	7.8	123
13	Fast ignition of inertial fusion targets by laser-driven carbon beams. Physics of Plasmas, 2009, 16, .	1.9	98
14	High-temporal contrast using low-gain optical parametric amplification. Optics Letters, 2009, 34, 2273.	3.3	92
15	Relativistic Buneman instability in the laser breakout afterburner. Physics of Plasmas, 2007, 14, .	1.9	88
16	Development and calibration of a Thomson parabola with microchannel plate for the detection of laser-accelerated MeV ions. Review of Scientific Instruments, 2008, 79, 093306.	1.3	88
17	Uniform Laser-Driven Relativistic Electron Layer for Coherent Thomson Scattering. Physical Review Letters, 2010, 104, 234801.	7.8	78
18	Laser-driven ion acceleration from relativistically transparent nanotargets. New Journal of Physics, 2013, 15, 085015.	2.9	75

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19	Monoenergetic Ion Beam Generation by Driving Ion Solitary Waves with Circularly Polarized Laser Light. Physical Review Letters, 2011, 107, 115002.	7.8	67
20	Spectral properties of laser-accelerated mid-Z MeVâˆ•u ion beams. Physics of Plasmas, 2005, 12, 056314.	1.9	66
21	Theory of Laser Acceleration of Light-Ion Beams from Interaction of Ultrahigh-Intensity Lasers with Layered Targets. Physical Review Letters, 2006, 97, 115002.	7.8	66
22	Efficient carbon ion beam generation from laser-driven volume acceleration. New Journal of Physics, 2013, 15, 023007.	2.9	66
23	Laser-driven 1â€‰GeV carbon ions from preheated diamond targets in the break-out afterburner regime. Physics of Plasmas, 2013, 20, 083103.	1.9	65
24	Increased efficiency of short-pulse laser-generated proton beams from novel flat-top cone targets. Physics of Plasmas, 2008, 15, .	1.9	61
25	Development of a high resolution and high dispersion Thomson parabola. Review of Scientific Instruments, 2011, 82, 013306.	1.3	57
26	Break-out afterburner ion acceleration in the longer laser pulse length regime. Physics of Plasmas, 2011, 18, .	1.9	51
27	Laser-plasmas in the relativistic-transparency regime: Science and applications. Physics of Plasmas, 2017, 24, 056702.	1.9	44
28	Beam profiles of proton and carbon ions in the relativistic transparency regime. New Journal of Physics, 2013, 15, 123035.	2.9	43
29	Characterization of a novel, short pulse laser-driven neutron source. Physics of Plasmas, 2013, 20, .	1.9	43
30	TRIDENT high-energy-density facility experimental capabilities and diagnostics. Review of Scientific Instruments, 2008, 79, 10F305.	1.3	41
31	Laser beam-profile impression and target thickness impact on laser-accelerated protons. Physics of Plasmas, 2008, 15, .	1.9	34
32	First observation of quasi-monoenergetic electron bunches driven out of ultra-thin diamond-like carbon (DLC) foils. European Physical Journal D, 2009, 55, 427-432.	1.3	34
33	A novel high resolution ion wide angle spectrometer. Review of Scientific Instruments, 2011, 82, 043301.	1.3	34
34	Neutron imaging with the short-pulse laser driven neutron source at the Trident laser facility. Journal of Applied Physics, 2016, 120, .	2.5	32
35	Bremsstrahlung hard x-ray source driven by an electron beam from a self-modulated laser wakefield accelerator. Plasma Physics and Controlled Fusion, 2018, 60, 054008.	2.1	31
36	Coherent synchrotron emission in transmission from ultrathin relativistic laser plasmas. New Journal of Physics, 2013, 15, 015025.	2.9	29

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37	Nonlinear coherent Thomson scattering from relativistic electron sheets as a means to produce isolated ultrabright attosecond x-ray pulses. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	26
38	Beam distortion effects upon focusing an ultrashort petawatt laser pulse to greater than 10²²â€‰â€‰W/cm². Optics Letters, 2019, 44, 2764.	3.3	26
39	Mono-energetic ion beam acceleration in solitary waves during relativistic transparency using high-contrast circularly polarized short-pulse laser and nanoscale targets. Physics of Plasmas, 2011, 18, 053103.	1.9	24
40	X-ray sources using a picosecond laser driven plasma accelerator. Physics of Plasmas, 2019, 26, .	1.9	22
41	Progress on ion based fast ignition. Journal of Physics: Conference Series, 2008, 112, 022051.	0.4	21
42	Improved pulse contrast on the Texas Petawatt Laser. Journal of Physics: Conference Series, 2016, 717, 012092.	0.4	19
43	A double-foil target for improving beam quality in laser ion acceleration with thin foils. Physics of Plasmas, 2011, 18, .	1.9	17
44	Proton acceleration by irradiation of isolated spheres with an intense laser pulse. Physical Review E, 2016, 94, 033208.	2.1	17
45	Large temporal window contrast measurement using optical parametric amplification and low-sensitivity detectors. European Physical Journal D, 2009, 55, 305-309.	1.3	16
46	Pulse shape measurements using single shot-frequency resolved optical gating for high energy (80 J) short pulse (600 fs) laser. Review of Scientific Instruments, 2010, 81, 10E103.	1.3	14
47	Gas-filled hohlraum experiments at the National Ignition Facility. Physics of Plasmas, 2006, 13, 056319.	1.9	13
48	Studies in capsule design for mid-Z ion-driven fast ignition. Journal of Physics: Conference Series, 2008, 112, 022029.	0.4	11
49	En-route to the fissionâ€“fusion reaction mechanism: a status update on laser-driven heavy ion acceleration. Plasma Physics and Controlled Fusion, 2019, 61, 055002.	2.1	10
50	Laser-driven x-ray and proton micro-source and application to simultaneous single-shot bi-modal radiographic imaging. Nature Communications, 2020, 11, 6174.	12.8	10
51	Experiments and simulations of isochorically heated warm dense carbon foam at the Texas Petawatt Laser. Matter and Radiation at Extremes, 2021, 6, .	3.9	10
52	Improving beam spectral and spatial quality by double-foil target in laser ion acceleration. Physical Review Special Topics: Accelerators and Beams, 2011, 14, .	1.8	9
53	Cascade random-quasi-phase-matched harmonic generation in polycrystalline ZnSe. Journal of Applied Physics, 2018, 124, 243102.	2.5	9
54	A simple apparatus for quick qualitative analysis of CR39 nuclear track detectors. Review of Scientific Instruments, 2008, 79, 10E536.	1.3	8

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55	X-ray analysis methods for sources from self-modulated laser wakefield acceleration driven by picosecond lasers. Review of Scientific Instruments, 2019, 90, 033503.	1.3	8
56	A novel backscatter focus diagnostic for the TRIDENT 200 TW laser. Review of Scientific Instruments, 2008, 79, 10F547.	1.3	7
57	Fast ignition by laser-driven carbon beams. Journal of Physics: Conference Series, 2010, 244, 022038.	0.4	7
58	Ultrashort-laser-produced heavy ion generation via target laser-ablation cleaning. European Physical Journal Special Topics, 2006, 133, 1117-1122.	0.2	7
59	Theory and modeling of ion acceleration from the interaction of ultra-intense lasers with solid density targets. European Physical Journal Special Topics, 2006, 133, 467-471.	0.2	5
60	Short pulse laser train for laser plasma interaction experiments. Review of Scientific Instruments, 2007, 78, 083501.	1.3	4
61	Ultraintense laser interaction with nanoscale targets: a simple model for layer expansion and ion acceleration. Journal of Physics: Conference Series, 2010, 244, 042022.	0.4	4
62	Laser generation of ultra-short neutron bursts from high atomic number converters. Proceedings of SPIE, 2015, , .	0.8	4
63	On the analysis of inhomogeneous magnetic field spectrometer for laser-driven ion acceleration. Review of Scientific Instruments, 2015, 86, 033303.	1.3	4
64	Gradient magnet design for simultaneous detection of electrons and positrons in the intermediate MeV range. Review of Scientific Instruments, 2019, 90, 083304.	1.3	3
65	Measurements of gas filled halfraum energetics at the national ignition facility using a single quad. European Physical Journal Special Topics, 2006, 133, 919-923.	0.2	3
66	Vision of a fully laser-driven ${sf ngamma}{-}{sf mgamma}$ collider. European Physical Journal D, 2009, 55, 253-264.	1.3	2
67	A bright neutron source driven by relativistic transparency of solids. Journal of Physics: Conference Series, 2016, 688, 012094.	0.4	2
68	Creating QED photon jets with present-day lasers. Physical Review Research, 2021, 3, .	3.6	2
69	Laser-ion acceleration from transparent overdense plasmas at the Texas Petawatt. Proceedings of SPIE, 2013, , .	0.8	1
70	Streaked optical pyrometer for proton-driven isochoric heating experiments of solid and foam targets. AIP Advances, 2020, 10, 045220.	1.3	1
71	Spectroscopic diagnostics for multi-TW laser-produced plasmas. European Physical Journal Special Topics, 2006, 133, 529-531.	0.2	0
72	Plasma physics experiments at GSI. Journal of Physics: Conference Series, 2008, 112, 042068.	0.4	0

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73	PW performance ion acceleration from the LANL 200TW Trident laser facility. , 2009, , .		0
74	Recent progress on ion-driven fast ignition. , 2009, , .		0
75	Generation of 0.5GEV C6+ ions from irradiation of ultra-thin foils with high contrast, high intensity laser pulses. , 2009, , .		0
76	Laser-driven electron breakout from ultra-thin targets. , 2009, , .		0
77	Single-Shot 60 dB Dynamic Range Laser Contrast Measurement Using Fourth-Order Cross-Correlation from Self-Referencing-Spectral-Interferometry (FOX-SRSI). , 2013, , .		0
78	High energy ion acceleration and neutron production using relativistic transparency in solids. , 2014, , .		0
79	Laser interactions with micro-targets for imaging applications. , 2017, , .		0
80	Preface to Special Topic: Extreme High-Field Physics Driven by Lasers. Matter and Radiation at Extremes, 2019, 4, 063002.	3.9	0
81	Challenges and Progress of Laser-driven Ion Acceleration beyond 100 MeV/amu. , 2013, , .		0
82	Fast Ignition With Laser-Driven Ion Beams: Progress On Ignitor Beam Development Based On A New Relativistic Laser-Plasma Regime. , 2013, , .		0
83	Laser Driven Proton Acceleration Experiment with Micro-Structured Target at the Texas Petawatt Laser Facility. , 2013, , .		0
84	The Role of Picosecond Scale â€˜Coherentâ€™ Contrast in Dense Electron Nanobunch Formation for Laser-driven Coherent Synchrotron Emission. , 2017, , .		0