Uri Shumlak

List of Publications by Year
in descending order

92	1,733	279798	289244
papers	citations	23 h-index	40 g-index

93	93	93	810
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Sheared Flow Stabilization of them=1Kink Mode inZPinches. Physical Review Letters, 1995, 75, 3285-3288.	7.8	132
2	Approximate Riemann solver for the two-fluid plasma model. Journal of Computational Physics, 2003, 187, 620-638.	3.8	105
3	A high resolution wave propagation scheme for ideal Two-Fluid plasma equations. Journal of Computational Physics, 2006, 219, 418-442.	3.8	85
4	Evidence of Stabilization in theZ-Pinch. Physical Review Letters, 2001, 87, 205005.	7.8	81
5	A general nonlinear fluid model for reacting plasma-neutral mixtures. Physics of Plasmas, 2012, 19, .	1.9	77
6	A heuristic model for the nonlinear Rayleighâ€“Taylor instability in fast Z pinches. Physics of Plasmas, 1995, 2, 2055-2062.	1.9	72
7	Electromagnetic Implosion of Spherical Liner. Physical Review Letters, 1995, 74, 98-101.	7.8	65
8	Advanced physics calculations using a multi-fluid plasma model. Computer Physics Communications, 2011, 182, 1767-1770.	7.5	62
9	An Implicit Scheme for Nonideal Magnetohydrodynamics. Journal of Computational Physics, 1997, 130, 231-242.	3.8	60
10	Sheared flow stabilization experiments in the ZaP flow Z pinch. Physics of Plasmas, 2003, 10, 1683-1690.	1.9	59
11	Formation of a sheared flow Z pinch. Physics of Plasmas, 2005, 12, 062505.	1.9	52
12	Analytical and computational study of the ideal full two-fluid plasma model and asymptotic approximations for Hall-magnetohydrodynamics. Physics of Plasmas, 2011, 18, .	1.9	48
13	Mitigation of the Rayleighâ€“Taylor instability by sheared axial flows. Physics of Plasmas, 1998, 5, 2384-2389.	1.9	44
14	Compression of Plasma to Megabar Range using Imploding Liner. Physical Review Letters, 1999, 82, 2681-2684.	7.8	43
15	A Discontinuous Galerkin Method for Ideal Two-Fluid Plasma Equations. Communications in Computational Physics, 2011, 9, 240-268.	1.7	43
16	Equilibrium, flow shear and stability measurements in the Z-pinch. Nuclear Fusion, 2009, 49, 075039.	3.5	38
17	Increasing plasma parameters using sheared flow stabilization of a Z-pinch. Physics of Plasmas, 2017, 24, .	1.9	35
18	Sustained Neutron Production from a Sheared-Flow Stabilized <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline"><mml:mi>Z</mml:mi></mml:math> Pinch. Physical Review Letters, 2019, 122, 135001.	7.8	35

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19	Z-pinch fusion. Journal of Applied Physics, 2020, 127, .	2.5	35
20	Numerical simulations of impulsively generated vertical oscillations in a solar coronal arcade loop. Astronomy and Astrophysics, 2006, 454, 653-661.	5.1	34
21	A discontinuous Galerkin method for the full two-fluid plasma model. Computer Physics Communications, 2005, 169, 251-255.	7.5	33
22	Numerical Methods for Two-Fluid Dispersive Fast MHD Phenomena. Communications in Computational Physics, 2011, 10, 183-215.	1.7	25
23	The Sheared-Flow Stabilized Z-Pinch. Fusion Science and Technology, 2012, 61, 119-124.	1.1	23
24	Spatial deconvolution technique to obtain velocity profiles from chord integrated spectra. Review of Scientific Instruments, 2003, 74, 2332-2337.	1.3	22
25	Nonlinear full two-fluid study of m=0 sausage instabilities in an axisymmetric Z pinch. Physics of Plasmas, 2006, 13, 082310.	1.9	22
26	Stable high beta spheromak equilibria using concave flux conservers. Physics of Plasmas, 2000, 7, 2959-2963.	1.9	21
27	Deconvolution of Stark broadened spectra for multi-point density measurements in a flow Z-pinch. Review of Scientific Instruments, 2011, 82, 103504.	1.3	20
28	A blended continuousâ€“discontinuous finite element method for solving the multi-fluid plasma model. Journal of Computational Physics, 2016, 326, 56-75.	3.8	20
29	Abel inversion of a holographic interferogram for determination of the density profile of a sheared-flow Z pinch. Review of Scientific Instruments, 2006, 77, 083502.	1.3	19
30	Two-fluid physics and field-reversed configurations. Physics of Plasmas, 2007, 14, 055911.	1.9	19
31	A multi-species 13-moment model for moderately collisional plasmas. Physics of Plasmas, 2016, 23, 082303.	1.9	19
32	Note: Zeeman splitting measurements in a high-temperature plasma. Review of Scientific Instruments, 2010, 81, 126104.	1.3	18
33	A priori mesh quality metric error analysis applied to a high-order finite element method. Journal of Computational Physics, 2011, 230, 5564-5586.	3.8	17
34	Spectral element spatial discretization error in solving highly anisotropic heat conduction equation. Computer Physics Communications, 2010, 181, 837-841.	7.5	16
35	Conservative fourth-order finite-volume Vlasovâ€“Poisson solver for axisymmetric plasmas in cylindrical (r,v,v) phase space coordinates. Journal of Computational Physics, 2018, 373, 877-899.	3.8	15
36	Physics-Based-Adaptive Plasma Model for High-Fidelity Numerical Simulations. Frontiers in Physics, 2018, 6, .	2.1	14

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37	Doryâ€“Guestâ€“Harris instability as a benchmark for continuum kinetic Vlasovâ€“Poisson simulations of magnetized plasmas. Journal of Computational Physics, 2014, 277, 101-120.	3.8	13
38	Digital holographic interferometry employing Fresnel transform reconstruction for the study of flow shear stabilized Z-pinch plasmas. Review of Scientific Instruments, 2016, 87, 103502.	1.3	12
39	Flow Z-pinch plasma production on the FuZE experiment. Physics of Plasmas, 2020, 27, .	1.9	12
40	Three-dimensional magnetic field enhancement in a liner implosion system. IEEE Transactions on Plasma Science, 1995, 23, 83-88.	1.3	10
41	Ultrasonically Aided Electrospray Source for Charged Particles Approaching Monodisperse Distributions. Journal of Propulsion and Power, 2010, 26, 353-363.	2.2	10
42	Discrete Calderonâ€™s projections on parallelepipeds and their application to computing exterior magnetic fields for FRC plasmas. Journal of Computational Physics, 2013, 234, 172-198.	3.8	10
43	Kinetic simulations of sheared flow stabilization in high-temperature Z-pinch plasmas. Physics of Plasmas, 2019, 26, .	1.9	10
44	Modeling open boundaries in dissipative MHD simulation. Journal of Computational Physics, 2012, 231, 2963-2976.	3.8	9
45	Charged Nanoparticle Source for High Thrust Level Colloid Thruster. Journal of Propulsion and Power, 2008, 24, 146-148.	2.2	8
46	Two-fluid and kinetic transport physics of Kelvinâ€“Helmholtz instabilities in nonuniform low-beta plasmas. Physics of Plasmas, 2020, 27, .	1.9	8
47	Thermonuclear neutron emission from a sheared-flow stabilized Z-pinch. Physics of Plasmas, 2021, 28, .	1.9	8
48	Effects of a Conducting Wall on Z-Pinch Stability. IEEE Transactions on Plasma Science, 2014, 42, 1531-1543.	1.3	7
49	The Flow-through Z-Pinch for Fusion Energy Production. Fusion Science and Technology, 1994, 26, 1203-1206.	0.6	6
50	Progress Toward a Compact Fusion Reactor Using the Sheared-Flow-Stabilized Z-Pinch. Fusion Science and Technology, 2019, 75, 599-607.	1.1	6
51	Measurements of temporally- and spatially-resolved neutron production in a sheared-flow stabilized Z-pinch. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2019, 947, 162764.	1.6	6
52	A Finite Volume Algorithm for the Two-Fluid Plasma System. , 2003, , .		5
53	Calculation of the Equilibrium Evolution of the ZaP Flow Z -Pinch Using a Four-Chord Interferometer. IEEE Transactions on Plasma Science, 2015, 43, 2469-2479.	1.3	5
54	Rotational effects on the m=1 magnetohydrodynamic instability in spheromaks. Physics of Plasmas, 1994, 1, 643-647.	1.9	4

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55	Shumlak and Hartman Reply:. Physical Review Letters, 1996, 76, 2199-2199.	7.8	4
56	Higher mode stability in spheromak equilibria. Physics of Plasmas, 1999, 6, 4382-4383.	1.9	4
57	An approximate Riemann solver for MHD computations on parallel architectures. , 2001, , .		4
58	Advanced Space Propulsion Based on the Flow-Stabilized Z-Pinch Fusion Concept. , 2006, , .		4
59	Development of five-moment two-fluid modeling for Z-pinch physics. Physics of Plasmas, 2021, 28, 092512.	1.9	4
60	On the validity of quasilinear theory applied to the electron bump-on-tail instability. Physics of Plasmas, 2022, 29, 043902.	1.9	4
61	Comment on â€œMagnetohydrodynamic simulations of direct current helicity injection for current drive inâ€‰tokamaksâ€™â€™â€‰[Phys.â€‰Plasmasâ€‰3,â€‰1038 (1996)]. Physics of Plasmas, 1997, 4, 501-502.	1.9	3
62	Plasma Jet Studies via the Flow Z-Pinch. Astrophysics and Space Science, 2007, 307, 41-45.	1.4	3
63	Time-discretization of a plasma-neutral MHD model with a semi-implicit leapfrog algorithm. Computer Physics Communications, 2022, 274, 108288.	7.5	3
64	The ZaP Flow Z-Pinch: Plasma Flow Shear and Stability. Fusion Science and Technology, 2005, 47, 134-137.	1.1	2
65	Equilibrium Evolution in the ZaP Flow Z-Pinch. Journal of Fusion Energy, 2007, 26, 185-189.	1.2	2
66	Stabilization in the ZaP Flow Z-Pinch. Journal of Fusion Energy, 2008, 27, 111-114.	1.2	2
67	Stabilization in the ZaP Flow Z-Pinch. Journal of Fusion Energy, 2009, 28, 208-211.	1.2	2
68	High-order finite element method for plasma modeling. , 2013, , .		2
69	Plasma exhaust in a sheared-flow-stabilized Z pinch. Physics of Plasmas, 2020, 27, .	1.9	2
70	Electromagnetic extension of the Doryâ€“Guestâ€“Harris instability as a benchmark for Vlasovâ€“Maxwell continuum kinetic simulations of magnetized plasmas. Physics of Plasmas, 2021, 28, .	1.9	2
71	Plasma Jet Studies via the Flow Z-Pinch. , 2006, , 41-45.		2
72	A Flow-Stabilized Z-Pinch Fusion Space Thruster. , 2003, , .		1

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73	Comparisons of Two-Fluid Plasma Models. , 2008, , .		1
74	Regions of Validity for the 10-Moment, Two Fluid Plasma Model. , 2008, , .		1
75	High-order continuum kinetic method for modeling plasma dynamics in phase space. , 2014, , .		1
76	UNCERTAINTY QUANTIFICATION OF THE GEM CHALLENGE MAGNETIC RECONNECTION PROBLEM USING THE MULTILEVEL MONTE CARLO METHOD. , 2015, 5, 327-339.		1
77	Spatio-temporal ion temperature and velocity measurements in a Z pinch using fast-framing spectroscopy. Review of Scientific Instruments, 2020, 91, 083104.	1.3	1
78	Nonlinear study of spheromak tilt instability. , 1998, , .		0
79	A near-term, Z-pinch fusion space thruster. , 2000, , .		0
80	Application of analytical methods to computing numerical flux Jacobians. , 2001, , .		0
81	Effects of Initial Gas Injection on the Behavior of a Sheared-Flow Z-Pinch. , 2005, , .		0
82	An Engineerâ€™s Approach to Fusion Energy. Journal of Fusion Energy, 2008, 27, 49-52.	1.2	0
83	Comparisons and Applications of Two Fluid Plasma Algorithms. , 2008, , .		0
84	Results of the Inner Electrode Modification on the ZaP Flow Z-Pinch. Journal of Fusion Energy, 2009, 28, 175-178.	1.2	0
85	High-order computational method applied to the multi-fluid plasma model. , 2012, , .		0
86	Generating high energy density plasmas using the flow Z-pinch concept. , 2013, , .		0
87	High-order finite element method for plasma modeling. , 2013, , .		0
88	A universal framework for non-deteriorating time-domain numerical algorithms in Maxwellâ€™s electrodynamics. AIP Conference Proceedings, 2016, , .	0.4	0
89	Formation of a sheared flow z-pinch plasma. , 2001, , .		0
90	Some Considerations of a Flow-Stabilized Z-Pinch for Megagauss Fusion. , 2021, , .		0

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91	Low-Rank Decomposition of Plasma Kinetic Distributions in the Collisional Transition Regime. , 2022, , .		0
92	Fusion Power System Development at Zap Energy. , 2022, , .		0