T R Jarboe

List of Publications by Year
in descending order

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127 papers	2,878 citations	201674 27 h-index	189892 50 g-index
130 all docs	130 docs citations	130 times ranked	821 citing authors

#	Article	IF	Citations
1	Initial Results from High-Field-Side Transient CHI Start-Up on QUEST. Plasma and Fusion Research, 2021, 16, 2402048-2402048.	0.7	2
2	Two-temperature effects in Hall-MHD simulations of the HIT-SI experiment. Physics of Plasmas, 2020, 27, .	1.9	6
3	Effects of temperature and density evolution in MHD simulations of HIT-SI. Physics of Plasmas, 2020, 27, 042508.	1.9	3
4	Innovative approaches towards an economic fusion reactor. National Science Review, 2020, 7, 245-247.	9.5	2
5	10.1063/5.0006311.1. , 2020, , .		0
6	The nature and source of solar magnetic phenomena. Physics of Plasmas, 2019, 26, 092902.	1.9	2
7	Formation of closed flux surfaces in spheromaks sustained by steady inductive helicity injection. Nuclear Fusion, 2019, 59, 066037.	3.5	5
8	Electromagnetic particle injector for fast time response disruption mitigation in tokamaks. Nuclear Fusion, 2019, 59, 016021.	3.5	14
9	Improvements to the ion Doppler spectrometer diagnostic on the HIT-SI experiments. Review of Scientific Instruments, 2018, 89, 035107.	1.3	0
10	Initial results from solenoid-free plasma start-up using Transient CHI on QUEST. Plasma Physics and Controlled Fusion, 2018, 60, 115001.	2.1	15
11	Compatibility of lithium plasma-facing surfaces with high edge temperatures in the Lithium Tokamak Experiment. Physics of Plasmas, 2017, 24, .	1.9	28
12	Derivation of dynamo current drive in a closed-current volume and stable current sustainment in the HIT-SI experiment. Physics of Plasmas, 2017, 24, .	1.9	3
13	Validation of extended magnetohydrodynamic simulations of the HIT-SI3 experiment using the NIMROD code. Physics of Plasmas, 2017, 24, .	1.9	7
14	Two-photon LIF on the HIT-SI3 experiment: Absolute density and temperature measurements of deuterium neutrals. Review of Scientific Instruments, 2016, 87, 11E506.	1.3	5
15	Design Description for a Coaxial Helicity Injection Plasma Start-Up System for a ST-FNSF. Fusion Science and Technology, 2015, 68, 674-679.	1.1	11
16	A mechanism for the dynamo terms to sustain closed-flux current, including helicity balance, by driving current which crosses the magnetic field. Physics of Plasmas, 2015, 22, .	1.9	6
17	Development of validation metrics using biorthogonal decomposition for the comparison of magnetic field measurements. Plasma Physics and Controlled Fusion, 2015, 57, 045010.	2.1	11
18	Numerical studies and metric development for validation of magnetohydrodynamic models on the	1.9	12

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19	Simulation of injector dynamics during steady inductive helicity injection current drive in the HIT-SI experiment. Physics of Plasmas, 2015, 22, .	1.9	10
20	An overview of recent physics results from NSTX. Nuclear Fusion, 2015, 55, 104002.	3.5	21
21	Design and operation of a fast electromagnetic inductive massive gas injection valve for NSTX-U. Review of Scientific Instruments, 2014, 85, 11E801.	1.3	9
22	Sustained spheromaks with ideal nâ€‰=â€‰1 kink stability and pressure confinement. Physics of Plasmas, 2014, 21, 082504.	1.9	18
23	Design Details of the Transient CHI Plasma Start-up System on NSTX-U. IEEE Transactions on Plasma Science, 2014, 42, 2154-2160.	1.3	3
24	A Proof of Principle of Imposed Dynamo Current Drive: Demonstration of Sufficient Confinement. Fusion Science and Technology, 2014, 66, 369-384.	1.1	5
25	Overview of physics results from the conclusive operation of the National Spherical Torus Experiment. Nuclear Fusion, 2013, 53, 104007.	3.5	53
26	Design description of the coaxial helicity injection (CHI) system on NSTX-U. , 2013, , .		0
27	Relaxation-time measurement via a time-dependent helicity balance model. Physics of Plasmas, 2013, 20, 012503.	1.9	15
28	Validation of single-fluid and two-fluid magnetohydrodynamic models of the helicity injected torus spheromak experiment with the NIMROD code. Physics of Plasmas, 2013, 20, .	1.9	16
29	Reduction of plasma density in the Helicity Injected Torus with Steady Inductance experiment by using a helicon pre-ionization source. Review of Scientific Instruments, 2013, 84, 103506.	1.3	7
30	Advances in Steady Inductive Helicity Injection for Plasma Startup and Toroidal Current Drive. IEEJ Transactions on Fundamentals and Materials, 2012, 132, 472-476.	0.2	1
31	Massive Gas Injection Plans for Disruption Mitigation Studies in NSTX-U. IEEJ Transactions on Fundamentals and Materials, 2012, 132, 468-471.	0.2	0
32	Transient Coaxial Helicity Injection Plasma Start-up in NSTX and CHI Program Plans on NSTX-U. IEEJ Transactions on Fundamentals and Materials, 2012, 132, 462-467.	0.2	0
33	Overview of physics results from NSTX. Nuclear Fusion, 2011, 51, 094011.	3.5	10
34	Evidence for Separatrix Formation and Sustainment with Steady Inductive Helicity Injection. Physical Review Letters, 2011, 107, 165005.	7.8	16
35	Experimental demonstration of tokamak inductive flux saving by transient coaxial helicity injection on national spherical torus experiment. Physics of Plasmas, 2011, 18, .	1.9	21
36	Demonstration of Plasma Start-up in HIT-II and NSTX Using Transient Coaxial Helicity Injection. Journal of Fusion Energy, 2010, 29, 540-542.	1.2	0

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37	An explanation of closed-flux formation and sustainment using coaxial helicity injection on HIT-II. Plasma Physics and Controlled Fusion, 2010, 52, 045001.	2.1	2
38	Demonstration of Tokamak Ohmic Flux Saving by Transient Coaxial Helicity Injection in the National Spherical Torus Experiment. Physical Review Letters, 2010, 104, 095003.	7.8	44
39	TRANSIENT CHI START-UP IN NSTX. , 2009, , .		0
40	SOLENOID-FREE PLASMA START-UP IN HIT-II. , 2009, , .		0
41	SPHEROMAK FORMATION BY STEADY INDUCTIVE HELICITY INJECTION. , 2009, , .		0
42	Solenoid-free Plasma Start-up in NSTX using Transient CHI. Journal of Fusion Energy, 2009, 28, 200-202.	1.2	2
43	Overview of results from the National Spherical Torus Experiment (NSTX). Nuclear Fusion, 2009, 49, 104016.	3.5	41
44	Solenoid-Less Plasma Start-Up in NSTX Using Transient CHI. Fusion Science and Technology, 2009, 56, 512-517.	1.1	1
45	An Engineerâ€™s Approach to Fusion Energy. Journal of Fusion Energy, 2008, 27, 49-52.	1.2	0
46	Plasma Start-up in HIT-II and NSTX Using Transient Coaxial Helicity Injection. Journal of Fusion Energy, 2008, 27, 96-99.	1.2	1
47	Internal Fields in Helicity Injected Torus with Steady Inductive Helicity Injection (HIT-SI) Discharges. Journal of Fusion Energy, 2008, 27, 100-103.	1.2	2
48	Status of the Plasma Science and Innovation Center Interfacing Group. Journal of Fusion Energy, 2008, 27, 87-90.	1.2	0
49	Temperature and density characteristics of the Helicity Injected Torus-II spherical tokamak indicating closed flux sustainment using coaxial helicity injection. Physics of Plasmas, 2008, 15, 082501.	1.9	3
50	Flux amplification in Helicity Injected Torus (HITâ€“II) coaxial helicity injection discharges. Physics of Plasmas, 2008, 15, 022506.	1.9	21
51	Coaxial helicity injection in open-flux low-aspect-ratio toroidal discharges. Physics of Plasmas, 2007, 14, 112511.	1.9	15
52	Transient coaxial helicity injection for solenoid-free plasma startup in HIT-II. Physics of Plasmas, 2007, 14, 022504.	1.9	12
53	A fully relaxed helicity balance model for an inductively driven spheromak. Physics of Plasmas, 2007, 14, 112304.	1.9	10
54	Plasma startup in the National Spherical Torus Experiment using transient coaxial helicity injection. Physics of Plasmas, 2007, 14, 056106.	1.9	8

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55	NSTX Plasma Start-Up Using Transient Coaxial Helicity Injection. Fusion Science and Technology, 2007, 52, 393-397.	1.1	3
56	Overview of the Plasma Science and Innovation Center (PSI â€“ Center). Journal of Fusion Energy, 2007, 26, 91-92.	1.2	1
57	The Plasma Science and Innovation Center Interfacing Group. Journal of Fusion Energy, 2007, 26, 127-130.	1.2	1
58	Overview of the Helicity Injected Torus (HIT) Program. Journal of Fusion Energy, 2007, 26, 163-168.	1.2	2
59	Solenoid-free Plasma Start-up in HIT-II and NSTX using Transient CHI. Journal of Fusion Energy, 2007, 26, 159-162.	1.2	2
60	Chair Summaries from the 2006 Innovative Confinement Concepts (ICC) Workshop. Journal of Fusion Energy, 2007, 26, 3-15.	1.2	1
61	Overview of HIT-SI Diagnostic Systems. Journal of Fusion Energy, 2007, 26, 131-133.	1.2	7
62	Sustained spheromak coaxial gun operation in the presence of an n=1 magnetic distortion. Physics of Plasmas, 2006, 13, 022504.	1.9	8
63	Spheromak Formation by Steady Inductive Helicity Injection. Physical Review Letters, 2006, 97, 115003.	7.8	41
64	Efficient Generation of Closed Magnetic Flux Surfaces in a Large Spherical Tokamak Using Coaxial Helicity Injection. Physical Review Letters, 2006, 97, 175002.	7.8	45
65	Effect of plasma shaping on performance in the National Spherical Torus Experiment. Physics of Plasmas, 2006, 13, 056122.	1.9	33
66	Observation of persistent edge current driven by coaxial helicity Injection. Physics of Plasmas, 2005, 12, 070702.	1.9	8
67	Refractory clad transient internal probe for magnetic field measurements in high temperature plasmas. Review of Scientific Instruments, 2005, 76, 053504.	1.3	1
68	Three-dimensional magnetohydrodynamic simulations of the Helicity Injected Torus with Steady Inductive drive. Physics of Plasmas, 2005, 12, 056109.	1.9	11
69	Ion heating during magnetic relaxation in the helicity injected torus-II experiment. Physics of Plasmas, 2005, 12, 122506.	1.9	10
70	Overview of the Helicity Injected Torus Program. IEEE International Conference on Plasma Science, 2005, , .	0.0	0
71	The spheromak confinement device. Physics of Plasmas, 2005, 12, 058103.	1.9	16
72	Design, installation and performance of the new insulator for NSTX CHI experiments. , 2005, , .		0

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73	Spheromak Fusion Propulsion for Future Solar System Exploration. Journal of Propulsion and Power, 2005, 21, 218-229.	2.2	5
74	Magnetic Relaxation in Coaxial Helicity Injection Discharges in the HIT-II Spherical Torus. IEEJ Transactions on Fundamentals and Materials, 2005, 125, 887-894.	0.2	3
75	Solenoid-free Plasma Startup in NSTX using Coaxial Helicity Injection. IEEJ Transactions on Fundamentals and Materials, 2005, 125, 895-901.	0.2	0
76	Status and Plans for the National Spherical Torus Experimental Research Facility. IEEJ Transactions on Fundamentals and Materials, 2005, 125, 868-880.	0.2	1
77	Next-step spherical torus experiment and spherical torus strategy in the course of development of fusion energy. Nuclear Fusion, 2004, 44, 452-463.	3.5	30
78	A Martinâ€“Puplett cartridge FIR interferometer. Review of Scientific Instruments, 2004, 75, 3426-3428.	1.3	0
79	Experimental demonstration of plasma startup by coaxial helicity injection. Physics of Plasmas, 2004, 11, 2565-2572.	1.9	20
80	Compact high-resolution ion Doppler spectrometer for quartz ultraviolet line emissions. Review of Scientific Instruments, 2004, 75, 1337-1340.	1.3	18
81	Fast neutral pressure gauges in NSTX. Review of Scientific Instruments, 2004, 75, 4347-4349.	1.3	11
82	Fast neutral pressure measurements in NSTX. Review of Scientific Instruments, 2003, 74, 1900-1904.	1.3	6
83	Demonstration of Plasma Startup by Coaxial Helicity Injection. Physical Review Letters, 2003, 90, 075005.	7.8	54
84	Martinâ€“Puplett multichannel far infrared heterodyne interferometer on the Helicity Injected Torus II. Review of Scientific Instruments, 2003, 74, 80-87.	1.3	5
85	A numerical assessment of the Lundquist number requirement for relaxation current drive. Physics of Plasmas, 2003, 10, 2903-2911.	1.9	12
86	Recent results from the National Spherical Torus Experiment. Plasma Physics and Controlled Fusion, 2003, 45, 657-669.	2.1	23
87	Edge plasma characteristics in the helicity injected torus (HIT-II) spherical tokamak. Plasma Physics and Controlled Fusion, 2003, 45, 1283-1295.	2.1	2
88	Current drive experiments in the helicity injected torus (HIT-II). Physics of Plasmas, 2002, 9, 2006-2013.	1.9	34
89	Magnetic relaxation in coaxial helicity injection. Plasma Physics and Controlled Fusion, 2002, 44, 493-517.	2.1	24
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91	Nonperturbing field profile measurements of a sustained spheromak. Review of Scientific Instruments, 2001, 72, 1054-1058.	1.3	1
92	Initial results from coaxial helicity injection experiments in NSTX. Plasma Physics and Controlled Fusion, 2001, 43, 305-312.	2.1	16
93	Initial physics results from the National Spherical Torus Experiment. Physics of Plasmas, 2001, 8, 1977-1987.	1.9	46
94	Stable high beta spheromak equilibria using concave flux conservers. Physics of Plasmas, 2000, 7, 2959-2963.	1.9	21
95	Exploration of spherical torus physics in the NSTX device. Nuclear Fusion, 2000, 40, 557-561.	3.5	363
96	Higher mode stability in spheromak equilibria. Physics of Plasmas, 1999, 6, 4382-4383.	1.9	4
97	Steady Inductive Helicity Injection and Its Application to a High-Beta Spheromak. Fusion Science and Technology, 1999, 36, 85-91.	0.6	28
98	Simulation of a Nonideal Saddle Coil on Toroidally Symmetrical Magnetic Confinement Experiments. Fusion Science and Technology, 1999, 36, 62-68.	0.6	0
99	Physics Design of the National Spherical Torus Experiment. Fusion Science and Technology, 1999, 36, 16-37.	0.6	85
100	Results from current drive experiments on the Helicity Injected Torus. Physics of Plasmas, 1998, 5, 1807-1814.	1.9	45
101	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
102	Magnetic field measurements using the transient internal probe (TIP). Review of Scientific Instruments, 1996, 67, 469-472.	1.3	4
103	An equilibrium model for helicity injector operation in the helicity injected tokamak (HIT) experiment. Plasma Physics and Controlled Fusion, 1996, 38, 1967-1974.	2.1	8
104	of Scientific Instruments, 1995, 66, 1197-1200.	1.3	5
105	Calibration of magnetic probes mounted in a copper wall. Review of Scientific Instruments, 1995, 66, 3263-3268.	1.3	6
106	Formation and sustainment of a lowâ€aspect ratio tokamak by coaxial helicity injection. Physics of Plasmas, 1995, 2, 2337-2341.	1.9	52
107	Formation and sustainment of a 150 kA tokamak by coaxial helicity injection. Physical Review Letters, 1994, 72, 3666-3669.	7.8	62
108	Review of spheromak research. Plasma Physics and Controlled Fusion, 1994, 36, 945-990.	2.1	197

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110	Current Drive by Tokamak Injection. Fusion Science and Technology, 1991, 20, 407-410.	0.6	6
111	Progress with energy confinement time in the CTX spheromak. Physics of Fluids B, 1990, 2, 1342-1346.	1.7	48
112	The impedance and energy efficiency of a coaxial magnetized plasma source used for spheromak formation and sustainment. Physics of Fluids B, 1990, 2, 1871-1888.	1.7	73
113	Improved energy confinement in spheromaks with reduced field errors. Physical Review Letters, 1990, 65, 40-43.	7.8	34
114	Formation and Steady-State Sustainment of a Tokamak by Coaxial Helicity Injection. Fusion Science and Technology, 1989, 15, 7-11.	0.6	120
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117	A model for the loop voltage of reversed field pinches. Physics of Fluids, 1987, 30, 1177.	1.4	86
118	Current and heat flux to the wall and electron density control in reversed field pinches. Journal of Nuclear Materials, 1987, 145-147, 487-495.	2.7	15
119	Experimental determination of the conservation of magnetic helicity from the balance between source and spheromak. Physics of Fluids, 1986, 29, 3415.	1.4	93
120	Observations of spheromak equilibria which differ from the minimum-energy state and have internal kink distortions. Physical Review Letters, 1986, 56, 842-845.	7.8	123
121	Increased particle confinement observed with the use of an external dc bias field in a spheromak experiment. Physics of Fluids, 1985, 28, 3443.	1.4	16
122	The Ohmic heating of a spheromak to 100 eV. Physics of Fluids, 1984, 27, 13.	1.4	35
123	Slow Formation and Sustainment of Spheromaks by a Coaxial Magnetized Plasma Source. Physical Review Letters, 1983, 51, 39-42.	7.8	137
124	Motion of a Compact Toroid inside a Cylindrical Flux Conserver. Physical Review Letters, 1980, 45, 1264-1267.	7.8	104
125	Measurement of Faraday rotation in the Implosion Heating Experiment. Journal of Applied Physics, 1977, 48, 557-558.	2.5	4
126	Study of plasma density distribution produced by irradiating a 50 Î¼ deuterium pellet on one side with a ruby laser. Physics of Fluids, 1976, 19, 1501.	1.4	15

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127	Apparatus for producing laser targets of 50 Î¼ deuterium pellets. Review of Scientific Instruments, 1974, 45, 431-433.	1.3	6