T R Jarboe

List of Publications by Year
in descending order

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	Exploration of spherical torus physics in the NSTX device. Nuclear Fusion, 2000, 40, 557-561.	3.5	363
2	Review of spheromak research. Plasma Physics and Controlled Fusion, 1994, 36, 945-990.	2.1	197
3	Slow Formation and Sustainment of Spheromaks by a Coaxial Magnetized Plasma Source. Physical Review Letters, 1983, 51, 39-42.	7.8	137
4	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
5	Formation and Steady-State Sustainment of a Tokamak by Coaxial Helicity Injection. Fusion Science and Technology, 1989, 15, 7-11.	0.6	120
6	Motion of a Compact Toroid inside a Cylindrical Flux Conserver. Physical Review Letters, 1980, 45, 1264-1267.	7.8	104
7	Experimental determination of the conservation of magnetic helicity from the balance between source and spheromak. Physics of Fluids, 1986, 29, 3415.	1.4	93
8	A model for the loop voltage of reversed field pinches. Physics of Fluids, 1987, 30, 1177.	1.4	86
9	Physics Design of the National Spherical Torus Experiment. Fusion Science and Technology, 1999, 36, 16-37.	0.6	85
10	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
11	Formation and sustainment of a 150 kA tokamak by coaxial helicity injection. Physical Review Letters, 1994, 72, 3666-3669.	7.8	62
12	Demonstration of Plasma Startup by Coaxial Helicity Injection. Physical Review Letters, 2003, 90, 075005.	7.8	54
13	Overview of physics results from the conclusive operation of the National Spherical Torus Experiment. Nuclear Fusion, 2013, 53, 104007.	3.5	53
14	Formation and sustainment of a lowâ€aspect ratio tokamak by coaxial helicity injection. Physics of Plasmas, 1995, 2, 2337-2341.	1.9	52
15	Progress with energy confinement time in the CTX spheromak. Physics of Fluids B, 1990, 2, 1342-1346.	1.7	48
16	Initial physics results from the National Spherical Torus Experiment. Physics of Plasmas, 2001, 8, 1977-1987.	1.9	46
17	Results from current drive experiments on the Helicity Injected Torus. Physics of Plasmas, 1998, 5, 1807-1814.	1.9	45
18	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

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19	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
20	Spheromak Formation by Steady Inductive Helicity Injection. Physical Review Letters, 2006, 97, 115003.	7.8	41
21	Overview of results from the National Spherical Torus Experiment (NSTX). Nuclear Fusion, 2009, 49, 104016.	3.5	41
22	Evidence for a Pressure-Driven Instability in the CTX Spheromak. Physical Review Letters, 1988, 61, 2457-2460.	7.8	37
23	The Ohmic heating of a spheromak to 100 eV. Physics of Fluids, 1984, 27, 13.	1.4	35
24	Improved energy confinement in spheromaks with reduced field errors. Physical Review Letters, 1990, 65, 40-43.	7.8	34
25	Current drive experiments in the helicity injected torus (HIT-II). Physics of Plasmas, 2002, 9, 2006-2013.	1.9	34
26	Effect of plasma shaping on performance in the National Spherical Torus Experiment. Physics of Plasmas, 2006, 13, 056122.	1.9	33
27	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
28	Steady Inductive Helicity Injection and Its Application to a High-Beta Spheromak. Fusion Science and Technology, 1999, 36, 85-91.	0.6	28
29	Compatibility of lithium plasma-facing surfaces with high edge temperatures in the Lithium Tokamak Experiment. Physics of Plasmas, 2017, 24, .	1.9	28
30	Magnetic relaxation in coaxial helicity injection. Plasma Physics and Controlled Fusion, 2002, 44, 493-517.	2.1	24
31	Recent results from the National Spherical Torus Experiment. Plasma Physics and Controlled Fusion, 2003, 45, 657-669.	2.1	23
32	Stable high beta spheromak equilibria using concave flux conservers. Physics of Plasmas, 2000, 7, 2959-2963.	1.9	21
33	Flux amplification in Helicity Injected Torus (HITâ€“II) coaxial helicity injection discharges. Physics of Plasmas, 2008, 15, 022506.	1.9	21
34	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
35	An overview of recent physics results from NSTX. Nuclear Fusion, 2015, 55, 104002.	3.5	21
36	The m=1 helicity source spheromak experiment. Physics of Fluids B, 1989, 1, 1254-1270.	1.7	20

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37	A Plan for the Development of Fusion Energy. Journal of Fusion Energy, 2002, 21, 61-111.	1.2	20
38	Experimental demonstration of plasma startup by coaxial helicity injection. Physics of Plasmas, 2004, 11, 2565-2572.	1.9	20
39	Compact high-resolution ion Doppler spectrometer for quartz ultraviolet line emissions. Review of Scientific Instruments, 2004, 75, 1337-1340.	1.3	18
40	Sustained spheromaks with ideal nâ€‰=â€‰1 kink stability and pressure confinement. Physics of Plasmas, 2014, 21, 082504.	1.9	18
41	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
42	Initial results from coaxial helicity injection experiments in NSTX. Plasma Physics and Controlled Fusion, 2001, 43, 305-312.	2.1	16
43	The spheromak confinement device. Physics of Plasmas, 2005, 12, 058103.	1.9	16
44	Evidence for Separatrix Formation and Sustainment with Steady Inductive Helicity Injection. Physical Review Letters, 2011, 107, 165005.	7.8	16
45	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
46	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
47	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
48	Coaxial helicity injection in open-flux low-aspect-ratio toroidal discharges. Physics of Plasmas, 2007, 14, 112511.	1.9	15
49	Relaxation-time measurement via a time-dependent helicity balance model. Physics of Plasmas, 2013, 20, 012503.	1.9	15
50	Initial results from solenoid-free plasma start-up using Transient CHI on QUEST. Plasma Physics and Controlled Fusion, 2018, 60, 115001.	2.1	15
51	Electromagnetic particle injector for fast time response disruption mitigation in tokamaks. Nuclear Fusion, 2019, 59, 016021.	3.5	14
52	A numerical assessment of the Lundquist number requirement for relaxation current drive. Physics of Plasmas, 2003, 10, 2903-2911.	1.9	12
53	Transient coaxial helicity injection for solenoid-free plasma startup in HIT-II. Physics of Plasmas, 2007, 14, 022504.	1.9	12
54	Numerical studies and metric development for validation of magnetohydrodynamic models on the	1.9	12

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55	Fast neutral pressure gauges in NSTX. Review of Scientific Instruments, 2004, 75, 4347-4349.	1.3	11
56	Three-dimensional magnetohydrodynamic simulations of the Helicity Injected Torus with Steady Inductive drive. Physics of Plasmas, 2005, 12, 056109.	1.9	11
57	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
58	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
59	Ion heating during magnetic relaxation in the helicity injected torus-II experiment. Physics of Plasmas, 2005, 12, 122506.	1.9	10
60	A fully relaxed helicity balance model for an inductively driven spheromak. Physics of Plasmas, 2007, 14, 112304.	1.9	10
61	Overview of physics results from NSTX. Nuclear Fusion, 2011, 51, 094011.	3.5	10
62	Simulation of injector dynamics during steady inductive helicity injection current drive in the HIT-SI experiment. Physics of Plasmas, 2015, 22, .	1.9	10
63	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
64	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
65	Observation of persistent edge current driven by coaxial helicity Injection. Physics of Plasmas, 2005, 12, 070702.	1.9	8
66	Sustained spheromak coaxial gun operation in the presence of an n=1 magnetic distortion. Physics of Plasmas, 2006, 13, 022504.	1.9	8
67	Plasma startup in the National Spherical Torus Experiment using transient coaxial helicity injection. Physics of Plasmas, 2007, 14, 056106.	1.9	8
68	Overview of HIT-SI Diagnostic Systems. Journal of Fusion Energy, 2007, 26, 131-133.	1.2	7
69	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
70	Validation of extended magnetohydrodynamic simulations of the HIT-SI3 experiment using the NIMROD code. Physics of Plasmas, 2017, 24, .	1.9	7
71	Apparatus for producing laser targets of 50 Î¼ deuterium pellets. Review of Scientific Instruments, 1974, 45, 431-433.	1.3	6
72	Current Drive by Tokamak Injection. Fusion Science and Technology, 1991, 20, 407-410.	0.6	6

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73	Calibration of magnetic probes mounted in a copper wall. Review of Scientific Instruments, 1995, 66, 3263-3268.	1.3	6
74	Fast neutral pressure measurements in NSTX. Review of Scientific Instruments, 2003, 74, 1900-1904.	1.3	6
75	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
76	Two-temperature effects in Hall-MHD simulations of the HIT-SI experiment. Physics of Plasmas, 2020, 27, .	1.9	6
77	of Scientific Instruments, 1995, 66, 1197-1200.	1.3	5
78	Martinâ€"Puplett multichannel far infrared heterodyne interferometer on the Helicity Injected Torus II. Review of Scientific Instruments, 2003, 74, 80-87.	1.3	5
79	Spheromak Fusion Propulsion for Future Solar System Exploration. Journal of Propulsion and Power, 2005, 21, 218-229.	2.2	5
80	A Proof of Principle of Imposed Dynamo Current Drive: Demonstration of Sufficient Confinement. Fusion Science and Technology, 2014, 66, 369-384.	1.1	5
81	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
82	Formation of closed flux surfaces in spheromaks sustained by steady inductive helicity injection. Nuclear Fusion, 2019, 59, 066037.	3.5	5
83	Measurement of Faraday rotation in the Implosion Heating Experiment. Journal of Applied Physics, 1977, 48, 557-558.	2.5	4
84	Magnetic field measurements using the transient internal probe (TIP). Review of Scientific Instruments, 1996, 67, 469-472.	1.3	4
85	Higher mode stability in spheromak equilibria. Physics of Plasmas, 1999, 6, 4382-4383.	1.9	4
86	Development of a transient internal probe diagnostic. Review of Scientific Instruments, 1992, 63, 5148-5150.	1.3	3
87	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
88	NSTX Plasma Start-Up Using Transient Coaxial Helicity Injection. Fusion Science and Technology, 2007, 52, 393-397.	1.1	3
89	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
90	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

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91	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
92	Effects of temperature and density evolution in MHD simulations of HIT-SI. Physics of Plasmas, 2020, 27, 042508.	1.9	3
93	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
94	Edge plasma characteristics in the helicity injected torus (HIT-II) spherical tokamak. Plasma Physics and Controlled Fusion, 2003, 45, 1283-1295.	2.1	2
95	Overview of the Helicity Injected Torus (HIT) Program. Journal of Fusion Energy, 2007, 26, 163-168.	1.2	2
96	Solenoid-free Plasma Start-up in HIT-II and NSTX using Transient CHI. Journal of Fusion Energy, 2007, 26, 159-162.	1.2	2
97	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
98	Solenoid-free Plasma Start-up in NSTX using Transient CHI. Journal of Fusion Energy, 2009, 28, 200-202.	1.2	2
99	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
100	The nature and source of solar magnetic phenomena. Physics of Plasmas, 2019, 26, 092902.	1.9	2
101	Innovative approaches towards an economic fusion reactor. National Science Review, 2020, 7, 245-247.	9.5	2
102	Initial Results from High-Field-Side Transient CHI Start-Up on QUEST. Plasma and Fusion Research, 2021, 16, 2402048-2402048.	0.7	2
103	Nonperturbing field profile measurements of a sustained spheromak. Review of Scientific Instruments, 2001, 72, 1054-1058.	1.3	1
104	Refractory clad transient internal probe for magnetic field measurements in high temperature plasmas. Review of Scientific Instruments, 2005, 76, 053504.	1.3	1
105	Overview of the Plasma Science and Innovation Center (PSI â€“ Center). Journal of Fusion Energy, 2007, 26, 91-92.	1.2	1
106	The Plasma Science and Innovation Center Interfacing Group. Journal of Fusion Energy, 2007, 26, 127-130.	1.2	1
107	Chair Summaries from the 2006 Innovative Confinement Concepts (ICC) Workshop. Journal of Fusion Energy, 2007, 26, 3-15.	1.2	1
108	Plasma Start-up in HIT-II and NSTX Using Transient Coaxial Helicity Injection. Journal of Fusion Energy, 2008, 27, 96-99.	1.2	1

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109	Solenoid-Less Plasma Start-Up in NSTX Using Transient CHI. Fusion Science and Technology, 2009, 56, 512-517.	1.1	1
110	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
111	Status and Plans for the National Spherical Torus Experimental Research Facility. IEEJ Transactions on Fundamentals and Materials, 2005, 125, 868-880.	0.2	1
112	Simulation of a Nonideal Saddle Coil on Toroidally Symmetrical Magnetic Confinement Experiments. Fusion Science and Technology, 1999, 36, 62-68.	0.6	0
113	A Martinâ€“Puplett cartridge FIR interferometer. Review of Scientific Instruments, 2004, 75, 3426-3428.	1.3	0
114	Overview of the Helicity Injected Torus Program. IEEE International Conference on Plasma Science, 2005, , .	0.0	0
115	Design, installation and performance of the new insulator for NSTX CHI experiments. , 2005, , .		0
116	An Engineerâ€™s Approach to Fusion Energy. Journal of Fusion Energy, 2008, 27, 49-52.	1.2	0
117	Status of the Plasma Science and Innovation Center Interfacing Group. Journal of Fusion Energy, 2008, 27, 87-90.	1.2	0
118	TRANSIENT CHI START-UP IN NSTX. , 2009, , .		0
119	SOLENOID-FREE PLASMA START-UP IN HIT-II. , 2009, , .		0
120	SPHEROMAK FORMATION BY STEADY INDUCTIVE HELICITY INJECTION. , 2009, , .		0
121	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
122	Design description of the coaxial helicity injection (CHI) system on NSTX-U. , 2013, , .		0
123	Improvements to the ion Doppler spectrometer diagnostic on the HIT-SI experiments. Review of Scientific Instruments, 2018, 89, 035107.	1.3	0
124	Solenoid-free Plasma Startup in NSTX using Coaxial Helicity Injection. IEEJ Transactions on Fundamentals and Materials, 2005, 125, 895-901.	0.2	0
125	Massive Gas Injection Plans for Disruption Mitigation Studies in NSTX-U. IEEJ Transactions on Fundamentals and Materials, 2012, 132, 468-471.	0.2	0
126	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

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127	10.1063/5.0006311.1. , 2020, , .		0