Ronald C Davidson

List of Publications by Year
in descending order

118 papers	1,457 citations	361045 20 h-index	476904 29 g-index
121 all docs	121 docs citations	121 times ranked	459 citing authors

#	Article	IF	Citations
1	Dynamics of Ion Beam Charge Neutralization by Ferroelectric Plasma Sources*. , 2017, , .		0
2	Envelope Hamiltonian for charged-particle dynamics in general linear coupled systems. Physics of Plasmas, 2016, 23, .	0.7	3
3	On the structure of the two-stream instability–complex G-Hamiltonian structure and Krein collisions between positive- and negative-action modes. Physics of Plasmas, 2016, 23, .	0.7	15
4	Dynamics of ion beam charge neutralization by ferroelectric plasma sources. Physics of Plasmas, 2016, 23, .	0.7	14
5	Generalized Kapchinskij-Vladimirskij Distribution and Beam Matrix for Phase-Space Manipulations of High-Intensity Beams. Physical Review Letters, 2016, 117, 224801.	2.9	9
6	Referee acknowledgment for 2014. Physics of Plasmas, 2015, 22, 039801.	0.7	0
7	Foreword to Special Issue: Papers from the 56th Annual Meeting of the APS Division of Plasma Physics, October 27–31, 2014, New Orleans, Louisiana, USA. Physics of Plasmas, 2015, 22, 055301.	0.7	0
8	Beam envelope calculations in general linear coupled lattices. Physics of Plasmas, 2015, 22, 013109.	0.7	5
9	Announcement: The 2014 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2015, 22, 055401.	0.7	0
10	Physics of Plasmas, 2015, 22, 056702.	0.7	4
11	One-dimensional kinetic description of nonlinear traveling-pulse and traveling-wave disturbances in long coasting charged particle beams. Physical Review Special Topics: Accelerators and Beams, 2015, 18, .	1.8	1
12	Announcement: The 2013 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2014, 21, 055401.	0.7	0
13	Foreword to Special Issue: Papers from the 55th Annual Meeting of the APS Division of Plasma Physics, November 11–14, 2013, Denver, Colorado, USA. Physics of Plasmas, 2014, 21, 055301.	0.7	0
14	Two-stream instability with time-dependent drift velocity. Physics of Plasmas, 2014, 21, .	0.7	14
15	Analytical methods for describing charged particle dynamics in general focusing lattices using generalized Courant-Snyder theory. Physical Review Special Topics: Accelerators and Beams, 2014, 17, .	1.8	15
16	Field theory and weak Euler-Lagrange equation for classical particle-field systems. Physical Review E, 2014, 90, 043102.	0.8	15
17	Referee acknowledgment for 2013. Physics of Plasmas, 2014, 21, 019801.	0.7	0
18	Generalized Courant-Snyder Theory for Charged-Particle Dynamics in General Focusing Lattices. Physical Review Letters, 2013, 111, 104801.	2.9	16

#	ARTICLE	IF	CITATIONS
19	Class of Generalized Kapchinskij-Vladimirskij Solutions and Associated Envelope Equations for High-Intensity Charged-Particle Beams. Physical Review Letters, 2013, 110, 064803.	2.9	12
20	Foreword to Special Issue: Papers from the 54th Annual Meeting of the APS Division of Plasma Physics, Providence, Rhode Island, USA, 2012. Physics of Plasmas, 2013, 20, 055301.	0.7	0
21	Announcement: The 2012 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2013, 20, 055401.	0.7	0
22	Analysis of continuously rotating quadrupole focusing channels using generalized Courant-Snyder theory. Physics of Plasmas, 2013, 20, 083121.	0.7	9
23	Referee acknowledgment for 2011. Physics of Plasmas, 2012, 19, 039801.	0.7	0
24	Announcement: The 2011 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2012, 19, 055401.	0.7	0
25	Foreword to Special Issue: Papers from the 53rd Annual Meeting of the APS Division of Plasma Physics, Salt Lake City, Utah, USA, 2011. Physics of Plasmas, 2012, 19, 055301.	0.7	0
26	Thermodynamic bounds on nonlinear electrostatic perturbations in intense charged particle beams. Physics of Plasmas, 2012, 19, 073113.	0.7	0
27	Centroid and envelope dynamics of charged particle beams in an oscillating wobbler and external focusing lattice for heavy ion fusion applications. Laser and Particle Beams, 2011, 29, 365-372.	0.4	7
28	Announcement: The 2010 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2011, 18, 010201.	0.7	0
29	Novel Hamiltonian method for collective dynamics analysis of an intense charged particle beam propagating through a periodic focusing quadrupole lattice. Physics of Plasmas, 2011, 18, .	0.7	0
30	Foreword to Special Issue: Papers from the 52nd Annual Meeting of the APS Division of Plasma Physics, Chicago, Illinois, USA, 2010. Physics of Plasmas, 2011, 18, .	0.7	0
31	Self-similar nonlinear dynamical solutions for one-component nonneutral plasma in a time-dependent linear focusing field. Physics of Plasmas, 2011, 18, .	0.7	0
32	Generalized Courant–Snyder theory and Kapchinskij–Vladimirskij distribution for high-intensity beams in a coupled transverse focusing lattice. Physics of Plasmas, 2011, 18, 056708.	0.7	12
33	Announcement: The 2009 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2010, 17, 010201.	0.7	0
34	Twiss parameters and beam matrix formulation of generalized Courant–Snyder theory for coupled transverse beam dynamics. Physics of Plasmas, 2010, 17, .	0.7	12
35	Studies of emittance growth and halo particle production in intense charged particle beams using the Paul Trap Simulator Experiment. Physics of Plasmas, 2010, 17, .	0.7	8
36	Foreword to Special Issue: Papers from the 51st Annual Meeting of the APS Division of Plasma Physics, Atlanta, Georgia, 2009. Physics of Plasmas, 2010, 17, 055301.	0.7	1

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37	Adiabatic formation of a matched-beam distribution for an alternating-gradient quadrupole lattice. Physics of Plasmas, 2009, 16, 123107.	0.7	1
38	Generalized Kapchinskij-Vladimirskij Distribution and Envelope Equation for High-Intensity Beams in a Coupled Transverse Focusing Lattice. Physical Review Letters, 2009, 103, 224802.	2.9	26
39	Two-stream stability properties of the return-current layer for intense ion beam propagation through background plasma. Physics of Plasmas, 2009, 16, 092101.	0.7	11
40	Foreword to Special Issue: Papers from the 50th Annual Meeting of the APS Division of Plasma Physics, Dallas, Texas, 2008. Physics of Plasmas, 2009, 16, 055301.	0.7	1
41	Generalized Courant-Snyder theory for coupled transverse dynamics of charged particles in electromagnetic focusing lattices. Physical Review Special Topics: Accelerators and Beams, 2009, 12, .	1.8	22
42	A physical parametrization of coupled transverse dynamics based on generalized Courant–Snyder theory and its applications. Physics of Plasmas, 2009, 16, 050705.	0.7	16
43	Long plasma source for heavy ion beam charge neutralization. Nuclear Instruments and Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors and Associated Equipment, 2009, 606, 124-127.	0.7	11
44	Streaming instabilities of intense charged particle beams propagating along a solenoidal magnetic field in a background plasma. Physics of Plasmas, 2008, 15, 062107.	0.7	6
45	Announcement: The 2007 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2008, 15, 010201.	0.7	0
46	Response to â€œComment on â€˜A new derivation of the plasma susceptibility tensor for a hot magnetized plasma without infinite sums of products of Bessel functionsâ€™â€•[Phys. Plasmas 15, 024701 (2008)]. Physics of Plasmas, 2008, 15, 024702.	0.7	2
47	Foreword: Papers from the 49th Annual Meeting of the APS Division of Plasma Physics, Orlando, Florida, 2007. Physics of Plasmas, 2008, 15, 055301.	0.7	1
48	Weight growth due to resonant simulation particles and a modified Î´f algorithm with smooth switching between Î´f and total-f methods. Physics of Plasmas, 2008, 15, 063101.	0.7	4
49	Meter-long plasma source for heavy ion beam space charge neutralization. , 2007, , .		1
50	Particle-In-Cell simulations of halo particle production in intense charged particle beams propagating through a quadrupole focusing field with varying lattice amplitude. , 2007, , .		0
51	Announcement: The 2006 James Clerk Maxwell Prize for Plasma Physics. Physics of Plasmas, 2007, 14, 010201.	0.7	0
52	Editorial: Announcement of editorial policy statement on verification and validation. Physics of Plasmas, 2007, 14, 060401.	0.7	3
53	Collective temperature anisotropy instabilities in intense charged particle beams. Physics of Plasmas, 2007, 14, 056705.	0.7	18
54	Foreword: Papers from the 48th Annual Meeting of the APS Division of Plasma Physics, Philadelphia, Pennsylvania, 2006. Physics of Plasmas, 2007, 14, 055301.	0.7	0

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55	Editorial: Announcement of editorial policy statement on verification and validation. Physics of Plasmas, 2007, 14, 050401.	0.7	4
56	Nonlinear Îf particle simulations of energy-anisotropy instabilities in high-intensity bunched beams. , 2007, , .		0
57	Kinetic description of nonlinear wave and soliton excitations in coasting charged particle beams. , 2007, , .		2
58	Numerical studies of the electromagnetic Weibel instability in intense charged particle beams with large temperature anisotropy using the nonlinear best Darwin Îf code. , 2007, , .		0
59	A new derivation of the plasma susceptibility tensor for a hot magnetized plasma without infinite sums of products of Bessel functions. Physics of Plasmas, 2007, 14, .	0.7	14
60	A Self-Organized Plasma with Induction, Reconnection, and Injection Techniques: the SPIRIT Concept for Field Reversed Configuration Research. Plasma and Fusion Research, 2007, 2, 004-004.	0.3	9
61	Two-stream instability for a longitudinally compressing charged particle beam. Physics of Plasmas, 2006, 13, 062108.	0.7	26
62	Energy amplification and beam bunching in a pulse line ion accelerator. Physical Review Special Topics: Accelerators and Beams, 2006, 9, .	1.8	13
63	Foreword: Papers from the 47th Annual Meeting of the APS Division of Plasma Physics, Denver, Colorado, 2005. Physics of Plasmas, 2006, 13, 055301.	0.7	0
64	Advances in the numerical modeling of field-reversed configurations. Physics of Plasmas, 2006, 13, 056115.	0.7	22
65	Experimental simulations of beam propagation over large distances in a compact linear Paul trap. Physics of Plasmas, 2006, 13, 056705.	0.7	7
66	Electron plasma expansion rate studies on the Electron Diffusion Gauge experimental device. Physics of Plasmas, 2005, 12, 072310.	0.7	2
67	Foreword: Papers from the 46th Annual Meeting of the APS Division of Plasma Physics, Savannah, Georgia, 2004. Physics of Plasmas, 2005, 12, 055301.	0.7	0
68	Low-frequency flute instabilities of self-pinched ion beams. Physics of Plasmas, 2005, 12, 123105.	0.7	1
69	Kinetic effects on the stability properties of field-reversed configurations. II. Nonlinear evolution. Physics of Plasmas, 2004, 11, 2523-2531.	0.7	34
70	Scaling cross sections for ion-atom impact ionization. Physics of Plasmas, 2004, 11, 1229-1232.	0.7	13
71	Foreword: Papers from the 45th Annual Meeting of the APS Division of Plasma Physics, Albuquerque, New Mexico, 2003. Physics of Plasmas, 2004, 11, 2327-2327.	0.7	0
72	Nonlinear plasma waves excitation by intense ion beams in background plasma. Physics of Plasmas, 2004, 11, 3546-3552.	0.7	45

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73	Îf simulation studies of the ion–electron two-stream instability in heavy ion fusion beams. Laser and Particle Beams, 2003, 21, 21-26.	0.4	8
74	Electromagnetic Weibel instability in intense charged particle beams with large energy anisotropy. Physics of Plasmas, 2003, 10, 4829-4836.	0.7	32
75	Kinetic effects on the stability properties of field-reversed configurations. I. Linear stability. Physics of Plasmas, 2003, 10, 2361-2371.	0.7	27
76	ECR plasma source for heavy ion beam charge neutralization. Laser and Particle Beams, 2003, 21, 37-40.	0.4	6
77	The Paul Trap Simulator Experiment. Laser and Particle Beams, 2003, 21, 549-552.	0.4	11
78	Nonlinear Îf simulation studies of intense charged particle beams with large temperature anisotropy. Physics of Plasmas, 2002, 9, 3138-3146.	0.7	31
79	Implications of the electrostatic approximation in the beam frame on the nonlinear Vlasov–Maxwell equations for intense beam propagation. Physics of Plasmas, 2002, 9, 340-344.	0.7	8
80	Analytical and numerical studies of heavy ion beam transport in the fusion chamber. Laser and Particle Beams, 2002, 20, 497-502.	0.4	20
81	Nonlinear Îf simulation studies of intense charged particle beams with large temperature anisotropy. Laser and Particle Beams, 2002, 20, 585-588.	0.4	16
82	Study of drift compression for heavy ion beams. Laser and Particle Beams, 2002, 20, 565-568.	0.4	7
83	Large amplitude m=1 diocotron mode measurements in the Electron Diffusion Gauge experiment. AIP Conference Proceedings, 2002, , .	0.3	1
84	Investigation of the expansion rate scaling of plasmas in the Electron Diffusion Gauge experiment. AIP Conference Proceedings, 2002, , .	0.3	2
85	Paul Trap Simulator Experiment (PTSX) to simulate intense beam propagation through a periodic focusing quadrupole field. AIP Conference Proceedings, 2002, , .	0.3	0
86	Two-stream sausage and hollowing instabilities in high-intensity particle beams. Physics of Plasmas, 2001, 8, 4637-4646.	0.7	9
87	Nonlinear charge and current neutralization of an ion beam pulse in a pre-formed plasma. Physics of Plasmas, 2001, 8, 4180-4192.	0.7	81
88	Expansion rate measurements at moderate pressure of non-neutral electron plasmas in the Electron Diffusion Gauge (EDG) experiment. Physics of Plasmas, 2001, 8, 3506-3509.	0.7	3
89	Physics of Intense Charged Particle Beams in High Energy Accelerators. , 2001, , .		236
90	Title is missing!. Journal of Fusion Energy, 2000, 19, 229-244.	0.5	2

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91	Three-dimensional multispecies nonlinear perturbative particle simulations of collective processes in intense particle beams. Physical Review Special Topics: Accelerators and Beams, 2000, 3, .	1.8	34
92	Warm-fluid stability properties of intense non-neutral charged particle beams with pressure anisotropy. Physics of Plasmas, 2000, 7, 2657-2670.	0.7	14
93	Effects of background gas pressure on the dynamics of a nonneutral electron plasma confined in a Malmbergâ€"Penning trap. Physics of Plasmas, 2000, 7, 831-838.	0.7	19
94	A Paul trap configuration to simulate intense non-neutral beam propagation over large distances through a periodic focusing quadrupole magnetic field. Physics of Plasmas, 2000, 7, 1020-1025.	0.7	53
95	Intense nonneutral beam propagation through a periodic focusing quadrupole field Iâ€"A compact Paul trap configuration to simulate beam propagation over large distances. , 1999, , .		0
96	Intense nonneutral beam propagation through a periodic focusing quadrupole field IIâ€"Hamiltonian averaging techniques in the smooth-focusing approximation. , 1999, , .		0
97	Kinetic description of electron-proton instability in high-intensity proton linacs and storage rings based on the Vlasov-Maxwell equations. Physical Review Special Topics: Accelerators and Beams, 1999, 2, .	1.8	36
98	Dynamics of the m=1 diocotron mode in the electron diffusion gauge experiment. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1999, 17, 2034-2040.	0.9	3
99	Nonlinear Î´â€‰Šfsimulation studies of high-intensity ion beam propagation in a periodic focusing field. Physics of Plasmas, 1999, 6, 298-315.	0.7	29
100	Phase space structure for matched intense charged-particle beams in periodic focusing transport systems. Physics of Plasmas, 1999, 6, 3647-3657.	0.7	8
101	Non-neutral plasma expansion induced by electron-neutral collisions in a Malmbergâ€"Penning trap. Journal of Vacuum Science and Technology A: Vacuum, Surfaces and Films, 1999, 17, 2050-2055.	0.9	8
102	Confinement of pure ion plasma in a cylindrical current sheet. , 1999, , .		0
103	Statistically averaged rate equations for intense non-neutral beam propagation through a periodic solenoidal focusing field based on the nonlinear Vlasovâ€"Maxwell equations. Physics of Plasmas, 1998, 5, 279-291.	0.7	22
104	Warm-fluid description of intense beam equilibrium and electrostatic stability properties. Physics of Plasmas, 1998, 5, 3028-3053.	0.7	55
105	Influence of profile shape on the diocotron instability in a non-neutral plasma column. Physics of Plasmas, 1998, 5, 3497-3511.	0.7	34
106	Three-dimensional kinetic stability theorem for high-intensity charged particle beams. Physics of Plasmas, 1998, 5, 3459-3468.	0.7	29
107	Nonlinear Î´f simulation studies of high-intensity matched-beam propagation in periodic-focusing transport systems. , 1998, , .		0
108	Nonlinear Î´f simulation studies of intense ion beam propagation through an alternating-gradient quadrupole focusing field. Physics of Plasmas, 1997, 4, 1915-1921.	0.7	26

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109	Expansion and nonlinear relaxation of a strongly magnetized non€neutral electron plasma due to elastic collisions with background neutral gas. Physics of Plasmas, 1996, 3, 218-225.	0.7	16
110	Nonlinear expansion and heating of a nonneutral electron plasma due to elastic collisions with background neutral gas. Physics of Plasmas, 1996, 3, 2615-2619.	0.7	10
111	l=1 electrostatic instability induced by electron€neutral collisions in a nonneutral electron plasma interacting with background neutral gas. Physics of Plasmas, 1996, 3, 3279-3287.	0.7	8
112	Nonlinear dynamics and chaoticity in an intense nonneutral heavy ion beam propagating through a periodic focussing field. AIP Conference Proceedings, 1995, , .	0.3	1
113	Thermal equilibrium properties of nonneutral plasma in the weak coupling approximation. AIP Conference Proceedings, 1994, , .	0.3	2
114	Phase advance for an intense charged particle beam propagating through a periodic quadrupole focusing field in the smooth€beam approximation. Physics of Plasmas, 1994, 1, 3104-3114.	0.7	15
115	Numerical study of relativistic magnetrons. Journal of Applied Physics, 1993, 73, 7053-7060.	1.1	29
116	Coherent structures in rotating non€neutral plasma. Physics of Fluids B, 1993, 5, 19-41.	1.7	7
117	A class of coherent vortex structures in rotating non€neutral plasma. Physics of Fluids B, 1993, 5, 1421-1429.	1.7	5
118	Comment on the stability theorem of Davidson and Lund. Physics of Fluids B, 1992, 4, 1373-1373.	1.7	5