Matt Landreman

List of Publications by Year
in descending order

106 papers	2,582 citations	186265 28 h-index	233421 45 g-index
107 all docs	107 docs citations	107 times ranked	1683 citing authors

#	ARTICLE	IF	CITATIONS
1	Improving the stellarator through advances in plasma theory. Nuclear Fusion, 2022, 62, 042012.	3.5	5
2	Experimental confirmation of efficient island divertor operation and successful neoclassical transport optimization in Wendelstein 7-X. Nuclear Fusion, 2022, 62, 042022.	3.5	24
3	Magnetic Fields with Precise Quasisymmetry for Plasma Confinement. Physical Review Letters, 2022, 128, 035001.	7.8	56
4	Single-stage gradient-based stellarator coil design: stochastic optimization. Nuclear Fusion, 2022, 62, 076034.	3.5	14
5	Precise stellarator quasi-symmetry can be achieved with electromagnetic coils. Proceedings of the National Academy of Sciences of the United States of America, 2022, 119, e2202084119.	7.1	18
6	Single-stage gradient-based stellarator coil design: Optimization for near-axis quasi-symmetry. Journal of Computational Physics, 2022, 459, 111147.	3.8	16
7	Stellarator optimization for nested magnetic surfaces at finite <i>Î²</i> and toroidal current. Physics of Plasmas, 2022, 29, .	1.9	2
8	Direct computation of magnetic surfaces in Boozer coordinates and coil optimization for quasisymmetry. Journal of Plasma Physics, 2022, 88, .	2.1	8
9	Calculation of permanent magnet arrangements for stellarators: a linear least-squares method. Plasma Physics and Controlled Fusion, 2021, 63, 035001.	2.1	14
10	Figures of merit for stellarators near the magnetic axis. Journal of Plasma Physics, 2021, 87, .	2.1	8
11	Heat pulse propagation and anomalous electron heat transport measurements on the optimized stellarator W7-X. Nuclear Fusion, 2021, 61, 056001.	3.5	3
12	Gradient-based optimization of 3D MHD equilibria. Journal of Plasma Physics, 2021, 87, .	2.1	8
13	An adjoint method for determining the sensitivity of island size to magnetic field variations. Journal of Plasma Physics, 2021, 87, .	2.1	6
14	Ion-temperature-gradient stability near the magnetic axis of quasisymmetric stellarators. Plasma Physics and Controlled Fusion, 2021, 63, 074002.	2.1	3
15	Demonstration of reduced neoclassical energy transport in Wendelstein 7-X. Nature, 2021, 596, 221-226.	27.8	69
16	Stellarator optimization for good magnetic surfaces at the same time as quasisymmetry. Physics of Plasmas, 2021, 28, .	1.9	12
17	Modeling of energetic particle transport in optimized stellarators. Nuclear Fusion, 2021, 61, 116060.	3.5	20
18	A neoclassically optimized compact stellarator with four planar coils. Physics of Plasmas, 2021, 28, .	1.9	3

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19	SIMSOPT: A flexible framework for stellarator optimization. Journal of Open Source Software, 2021, 6, 3525.	4.6	39
20	The use of near-axis magnetic fields for stellarator turbulence simulations. Plasma Physics and Controlled Fusion, 2021, 63, 014001.	2.1	10
21	Direct construction of optimized stellarator shapes. Part 3. Omnigenity near the magnetic axis â€“ ERRATUM. Journal of Plasma Physics, 2021, 87, .	2.1	2
22	Magnetic well and Mercier stability of stellarators near the magnetic axis. Journal of Plasma Physics, 2020, 86, .	2.1	14
23	Advancing the physics basis for quasi-helically symmetric stellarators. Journal of Plasma Physics, 2020, 86, .	2.1	17
24	Adjoint approach to calculating shape gradients for three-dimensional magnetic confinement equilibria. Part 2. Applications. Journal of Plasma Physics, 2020, 86, .	2.1	10
25	Construction of quasisymmetric stellarators using a direct coordinate approach. Nuclear Fusion, 2020, 60, 076021.	3.5	15
26	Impurity temperature screening in stellarators close to quasisymmetry. Journal of Plasma Physics, 2020, 86, .	2.1	5
27	Investigation of the neoclassical ambipolar electric field in ion-root plasmas on W7-X. Nuclear Fusion, 2020, 60, 036021.	3.5	16
28	Optimization of quasi-axisymmetric stellarators with varied elongation. Physics of Plasmas, 2020, 27, .	1.9	1
29	Near-axis expansion of stellarator equilibrium at arbitrary order in the distance to the axis. Journal of Plasma Physics, 2020, 86, .	2.1	20
30	Overview of first Wendelstein 7-X high-performance operation. Nuclear Fusion, 2019, 59, 112004.	3.5	165
31	An adjoint method for neoclassical stellaratorÂoptimization. Journal of Plasma Physics, 2019, 85, .	2.1	12
32	Direct construction of optimized stellarator shapes. Part 2. Numerical quasisymmetric solutions. Journal of Plasma Physics, 2019, 85, .	2.1	41
33	Optimized quasisymmetric stellarators are consistent with the Garrenâ€“Boozer construction. Plasma Physics and Controlled Fusion, 2019, 61, 075001.	2.1	10
34	Adjoint approach to calculating shape gradients for three-dimensional magnetic confinement equilibria. Journal of Plasma Physics, 2019, 85, .	2.1	12
35	stella: An operator-split, implicitâ€“explicit Î´f-gyrokinetic code for general magnetic field configurations. Journal of Computational Physics, 2019, 391, 365-380.	3.8	22
36	Direct construction of optimized stellarator shapes. Part 3. Omnigenity near the magneticÂaxis. Journal of Plasma Physics, 2019, 85, .	2.1	23

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37	Constructing stellarators with quasisymmetry to high order. Journal of Plasma Physics, 2019, 85, .	2.1	37
38	Stellarator Research Opportunities: A Report of the National Stellarator Coordinating Committee. Journal of Fusion Energy, 2018, 37, 51-94.	1.2	15
39	Core radial electric field and transport in Wendelstein 7-X plasmas. Physics of Plasmas, 2018, 25, .	1.9	47
40	Optimized upâ€"down asymmetry to drive fast intrinsic rotation in tokamaks. Nuclear Fusion, 2018, 58, 026003.	3.5	6
41	Flux-surface variations of the electrostatic potential in stellarators: impact on the radial electric field and neoclassical impurity transport. Plasma Physics and Controlled Fusion, 2018, 60, 084001.	2.1	27
42	Direct construction of optimized stellarator shapes. Part 1. Theory in cylindrical coordinates. Journal of Plasma Physics, 2018, 84, .	2.1	49
43	On-surface potential and radial electric field variations in electron root stellarator plasmas. Plasma Physics and Controlled Fusion, 2018, 60, 104002.	2.1	14
44	Computing local sensitivity and tolerances for stellarator physics properties using shape gradients. Nuclear Fusion, 2018, 58, 076023.	3.5	17
45	Laguerreâ€"Hermite pseudo-spectral velocity formulation of gyrokinetics. Journal of Plasma Physics, 2018, 84, .	2.1	32
46	An adjoint method for gradient-based optimization of stellarator coil shapes. Nuclear Fusion, 2018, 58, 076015.	3.5	26
47	The parallel boundary condition for turbulence simulations in low magnetic shear devices. Plasma Physics and Controlled Fusion, 2018, 60, 095008.	2.1	11
48	An improved current potential method for fast computation of stellarator coil shapes. Nuclear Fusion, 2017, 57, 046003.	3.5	57
49	Major results from the first plasma campaign of the Wendelstein 7-X stellarator. Nuclear Fusion, 2017, 57, 102020.	3.5	128
50	Electrostatic potential variation on the flux surface and its impact on impurity transport. Nuclear Fusion, 2017, 57, 056004.	3.5	39
51	NORSE: A solver for the relativistic non-linear Fokkerâ€"Planck equation for electrons in a homogeneous plasma. Computer Physics Communications, 2017, 212, 269-279.	7.5	16
52	Rotation and neoclassical ripple transport in ITER. Nuclear Fusion, 2017, 57, 116044.	3.5	11
53	Performance and properties of the first plasmas of Wendelstein 7-X. Plasma Physics and Controlled Fusion, 2017, 59, 014018.	2.1	103
54	Recent advances in stellarator optimization. Nuclear Fusion, 2017, 57, 126064.	3.5	31

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55	Efficient magnetic fields for supporting toroidal plasmas. Physics of Plasmas, 2016, 23, .	1.9	20
56	Runaway-electron formation and electron slide-away in an ITER post-disruption scenario. Journal of Physics: Conference Series, 2016, 775, 012013.	0.4	4
57	Kinetic modelling of runaway electrons in dynamic scenarios. Nuclear Fusion, 2016, 56, 112009.	3.5	45
58	Transport and deceleration of fusion products in microturbulence. Physics of Plasmas, 2016, 23, .	1.9	13
59	Global effects on neoclassical transport in the pedestal with impurities. Plasma Physics and Controlled Fusion, 2016, 58, 085001.	2.1	4
60	Effect of 3D magnetic perturbations on the plasma rotation in ASDEX Upgrade. Plasma Physics and Controlled Fusion, 2016, 58, 074007.	2.1	18
61	Parallel impurity dynamics in the TJ-II stellarator. Plasma Physics and Controlled Fusion, 2016, 58, 074009.	2.1	10
62	Generalized universal instability: transient linear amplification and subcritical turbulence. Journal of Plasma Physics, 2015, 81, .	2.1	15
63	Impurities in a non-axisymmetric plasma: Transport and effect on bootstrap current. Physics of Plasmas, 2015, 22, 112508.	1.9	10
64	Universal Instability for Wavelengths below the Ion Larmor Scale. Physical Review Letters, 2015, 114, 095003.	7.8	25
65	Less constrained omnigeneous stellarators. Nuclear Fusion, 2015, 55, 033005.	3.5	18
66	Poloidal asymmetries in edge transport barriers. Physics of Plasmas, 2015, 22, .	1.9	26
67	Accurate spectral numerical schemes for kinetic equations with energy diffusion. Journal of Computational Physics, 2015, 294, 58-77.	3.8	6
68	Radially global<i>Î´</i><i>f</i>computation of neoclassical phenomena in a tokamak pedestal. Plasma Physics and Controlled Fusion, 2014, 56, 045005.	2.1	12
69	Radio Frequency Induced and Neoclassical Asymmetries and their Effects on Turbulent Impurity Transport in a Tokamak. Contributions To Plasma Physics, 2014, 54, 534-542.	1.1	4
70	Compressible impurity flow in the TJ-II stellarator. Nuclear Fusion, 2014, 54, 013008.	3.5	13
71	Comparison of particle trajectories and collision operators for collisional transport in nonaxisymmetric plasmas. Physics of Plasmas, 2014, 21, .	1.9	79
72	Numerical calculation of the runaway electron distribution function and associated synchrotron emission. Computer Physics Communications, 2014, 185, 847-855.	7.5	53

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73	Inboard and outboard radial electric field wells in the H- and I-mode pedestal of Alcator C-Mod and poloidal variations of impurity temperature. Nuclear Fusion, 2014, 54, 083017.	3.5	28
74	On collisional impurity transport in nonaxisymmetric plasmas. Journal of Physics: Conference Series, 2014, 561, 012012.	0.4	6
75	Synchrotron radiation from a runaway electron distribution in tokamaks. Physics of Plasmas, 2013, 20, .	1.9	34
76	New velocity-space discretization for continuum kinetic calculations and Fokkerâ€"Planck collisions. Journal of Computational Physics, 2013, 243, 130-150.	3.8	31
77	Comparison of edge turbulence imaging at two different poloidal locations in the scrape-off layer of Alcator C-Mod. Physics of Plasmas, 2013, 20, .	1.9	19
78	Conservation of energy and magnetic moment in neoclassical calculations for optimized stellarators. Plasma Physics and Controlled Fusion, 2013, 55, 095017.	2.1	5
79	Improved understanding of physics processes in pedestal structure, leading to improved predictive capability for ITER. Nuclear Fusion, 2013, 53, 093024.	3.5	59
80	Kinetic effects on a tokamak pedestal ion flow, ion heat transport and bootstrap current. Plasma Physics and Controlled Fusion, 2013, 55, 045009.	2.1	11
81	Ion Runaway in Lightning Discharges. Physical Review Letters, 2013, 111, 015006.	7.8	13
82	Omnigenity as generalized quasisymmetry. Physics of Plasmas, 2012, 19, .	1.9	50
83	Local and global Fokkerâ€"Planck neoclassical calculations showing flow and bootstrap current modification in a pedestal. Plasma Physics and Controlled Fusion, 2012, 54, 115006.	2.1	47
84	Neoclassical Theory of Pedestal Flows and Comparison with Alcator Câ€Mod Measurements. Contributions To Plasma Physics, 2012, 52, 365-371.	1.1	0
85	Neoclassical flow, current, and electric field in a quasi-isodynamic stellarator. Plasma Physics and Controlled Fusion, 2011, 53, 035016.	2.1	2
86	The effect of the radial electric field on neoclassical flows in a tokamak pedestal. Plasma Physics and Controlled Fusion, 2011, 53, 025008.	2.1	14
87	Effects of the radial electric field in a quasisymmetric stellarator. Plasma Physics and Controlled Fusion, 2011, 53, 015004.	2.1	10
88	A unified treatment of kinetic effects in a tokamak pedestal. Plasma Physics and Controlled Fusion, 2011, 53, 089501.	2.1	0
89	A unified treatment of kinetic effects in a tokamak pedestal. Plasma Physics and Controlled Fusion, 2011, 53, 054004.	2.1	8
90	The monoenergetic approximation in stellarator neoclassical calculations. Plasma Physics and Controlled Fusion, 2011, 53, 082003.	2.1	4

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91	Impurity flows and plateau-regime poloidal density variation in a tokamak pedestal. Physics of Plasmas, 2011, 18, .	1.9	19
92	Trajectories, orbit squeezing and residual zonal flow in a tokamak pedestal. Plasma Physics and Controlled Fusion, 2010, 52, 085003.	2.1	7
93	Comparison of Parallel and Perpendicular Polarized Counterpropagating Light for Quasi-Phase-Matching High Harmonic Generation. Springer Series in Chemical Physics, 2009, , 15-17.	0.2	0
94	Bright Quasi-Phase-Matched Soft-X-Ray Harmonic Radiation from Argon Ions. Physical Review Letters, 2007, 99, 143901.	7.8	109
95	Simple technique for generating trains of ultrashort pulses. Optics Letters, 2007, 32, 2203.	3.3	13
96	Comparison of parallel and perpendicular polarized counterpropagating light for suppressing high harmonic generation. Journal of the Optical Society of America B: Optical Physics, 2007, 24, 2421.	2.1	11
97	Quasi-phasematching of harmonic generation via multimode beating in waveguides. Optics Express, 2007, 15, 7894.	3.4	29
98	Generation of a train of ultrashort pulses from a compact birefringent crystal array. Applied Optics, 2007, 46, 5142.	2.1	67
99	A Nontrivial Manifesto. Physics Today, 2005, 58, 52-53.	0.3	0
100	Generalized Ohm's law in a 3-D reconnection experiment. Geophysical Research Letters, 2005, 32, .	4.0	43
101	Fluid and kinetic structure of magnetic merging in the Swarthmore Spheromak Experiment. Geophysical Research Letters, 2005, 32, .	4.0	22
102	Three-dimensional structure of magnetic reconnection in a laboratory plasma. Geophysical Research Letters, 2003, 30, n/a-n/a.	4.0	23
103	Spheromak merging and field reversed configuration formation at the Swarthmore Spheromak Experiment. Physics of Plasmas, 2003, 10, 1748-1754.	1.9	55
104	Rapid multiplexed data acquisition: Application to three-dimensional magnetic field measurements in a turbulent laboratory plasma. Review of Scientific Instruments, 2003, 74, 2361-2368.	1.3	18
105	Experimental Observation of Energetic Ions Accelerated by Three-dimensional Magnetic Reconnection in a Laboratory Plasma. Astrophysical Journal, 2002, 577, L63-L66.	4.5	28
106	Energetic particles from three-dimensional magnetic reconnection events in the Swarthmore Spheromak Experiment. Physics of Plasmas, 2002, 9, 2077-2084.	1.9	33