

# Michael A Shay

## List of Publications by Year in descending order

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111  
papers

11,440  
citations

28274

55  
h-index

26613

107  
g-index

113  
all docs

113  
docs citations

113  
times ranked

2913  
citing authors

#	ARTICLE	IF	CITATIONS
1	Geospace Environmental Modeling (GEM) Magnetic Reconnection Challenge. Journal of Geophysical Research, 2001, 106, 3715-3719.	3.3	1,071
2	Electron acceleration from contracting magnetic islands during reconnection. Nature, 2006, 443, 553-556.	27.8	793
3	Electron-scale measurements of magnetic reconnection in space. Science, 2016, 352, aaf2939.	12.6	545
4	Scaling of asymmetric magnetic reconnection: General theory and collisional simulations. Physics of Plasmas, 2007, 14, .	1.9	401
5	Alfvénic collisionless magnetic reconnection and the Hall term. Journal of Geophysical Research, 2001, 106, 3759-3772.	3.3	389
6	Formation of Electron Holes and Particle Energization During Magnetic Reconnection. Science, 2003, 299, 873-877.	12.6	374
7	Structure of the dissipation region during collisionless magnetic reconnection. Journal of Geophysical Research, 1998, 103, 9165-9176.	3.3	331
8	Two-Scale Structure of the Electron Dissipation Region during Collisionless Magnetic Reconnection. Physical Review Letters, 2007, 99, 155002.	7.8	275
9	Electron magnetic reconnection without ion coupling in Earth's turbulent magnetosheath. Nature, 2018, 557, 202-206.	27.8	263
10	Temporal structure of the fast convective flow in the plasma sheet: Comparison between observations and two-fluid simulations. Journal of Geophysical Research, 2004, 109, .	3.3	241
11	The scaling of collisionless, magnetic reconnection for large systems. Geophysical Research Letters, 1999, 26, 2163-2166.	4.0	237
12	Role of Dispersive Waves in Collisionless Magnetic Reconnection. Physical Review Letters, 2001, 87, 195004.	7.8	231
13	Three-dimensional particle simulations of collisionless magnetic reconnection. Journal of Geophysical Research, 2002, 107, SMP 6-1.	3.3	231
14	Electron-scale dynamics of the diffusion region during symmetric magnetic reconnection in space. Science, 2018, 362, 1391-1395.	12.6	221
15	Diamagnetic suppression of component magnetic reconnection at the magnetopause. Journal of Geophysical Research, 2003, 108, .	3.3	220
16	Magnetic Reconnection in Two-Dimensional Magnetohydrodynamic Turbulence. Physical Review Letters, 2009, 102, 115003.	7.8	205
17	The role of electron dissipation on the rate of collisionless magnetic reconnection. Geophysical Research Letters, 1998, 25, 3759-3762.	4.0	195
18	Production of Energetic Electrons during Magnetic Reconnection. Physical Review Letters, 2005, 94, 095001.	7.8	190

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19	Average properties of the magnetic reconnection ion diffusion region in the Earth's magnetotail: The 2001–2005 Cluster observations and comparison with simulations. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	182
20	The Hall fields and fast magnetic reconnection. <i>Physics of Plasmas</i> , 2008, 15, .	1.9	168
21	A MAGNETIC RECONNECTION MECHANISM FOR ION ACCELERATION AND ABUNDANCE ENHANCEMENTS IN IMPULSIVE FLARES. <i>Astrophysical Journal</i> , 2009, 700, L16-L20.	4.5	153
22	Ion heating resulting from pickup in magnetic reconnection exhausts. <i>Journal of Geophysical Research</i> , 2009, 114, .	3.3	151
23	Evidence for an Elongated ( $\tau_{\text{diff}} \approx 10^{-3}$ s) Ion Diffusion Region during Fast Magnetic Reconnection. <i>Physical Review Letters</i> , 2007, 99, 255002.	7.8	150
24	INTERMITTENT HEATING IN SOLAR WIND AND KINETIC SIMULATIONS. <i>Astrophysical Journal Letters</i> , 2013, 763, L30.	8.3	130
25	Multi-point observations of the Hall electromagnetic field and secondary island formation during magnetic reconnection. <i>Journal of Geophysical Research</i> , 2007, 112, n/a-n/a.	3.3	128
26	The scaling of embedded collisionless reconnection. <i>Physics of Plasmas</i> , 2004, 11, 2199-2213.	1.9	126
27	Statistics of magnetic reconnection in two-dimensional magnetohydrodynamic turbulence. <i>Physics of Plasmas</i> , 2010, 17, .	1.9	113
28	Why does Steady-State Magnetic Reconnection have a Maximum Local Rate of Order 0.1?. <i>Physical Review Letters</i> , 2017, 118, 085101.	7.8	112
29	Kinetic dissipation and anisotropic heating in a turbulent collisionless plasma. <i>Physics of Plasmas</i> , 2009, 16, .	1.9	109
30	Kinetic signatures of the region surrounding the $X$ line in asymmetric (magnetopause) reconnection. <i>Geophysical Research Letters</i> , 2016, 43, 4145-4154.	4.0	106
31	Scaling of Sweet-Parker reconnection with secondary islands. <i>Physics of Plasmas</i> , 2009, 16, 120702.	1.9	104
32	Electron bulk heating in magnetic reconnection at Earth's magnetopause: Dependence on the inflow Alfvén speed and magnetic shear. <i>Geophysical Research Letters</i> , 2013, 40, 4475-4480.	4.0	101
33	MMS observations of electron-scale filamentary currents in the reconnection exhaust and near the X line. <i>Geophysical Research Letters</i> , 2016, 43, 6060-6069.	4.0	99
34	Ion-scale secondary flux ropes generated by magnetopause reconnection as resolved by MMS. <i>Geophysical Research Letters</i> , 2016, 43, 4716-4724.	4.0	95
35	A review of the 0.1 reconnection rate problem. <i>Journal of Plasma Physics</i> , 2017, 83, .	2.1	93
36	Three-Species Collisionless Reconnection: Effect of $O^+$ on Magnetotail Reconnection. <i>Physical Review Letters</i> , 2004, 93, 175001.	7.8	92

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37	Asymmetry of the Ion Diffusion Region Hall Electric and Magnetic Fields during Guide Field Reconnection: Observations and Comparison with Simulations. <i>Physical Review Letters</i> , 2010, 104, 205001.	7.8	91
38	Inherently three dimensional magnetic reconnection: A mechanism for bursty bulk flows?. <i>Geophysical Research Letters</i> , 2003, 30, .	4.0	84
39	MMS observations of large guide field symmetric reconnection between colliding reconnection jets at the center of a magnetic flux rope at the magnetopause. <i>Geophysical Research Letters</i> , 2016, 43, 5536-5544.	4.0	84
40	Properties of the Turbulence Associated with Electron-only Magnetic Reconnection in Earth's Magnetosheath. <i>Astrophysical Journal Letters</i> , 2019, 877, L37.	8.3	80
41	Direct Evidence for a Three-Dimensional Magnetic Flux Rope Flanked by Two Active Magnetic Reconnection Lines at Earth's Magnetopause. <i>Physical Review Letters</i> , 2011, 107, 165007.	7.8	78
42	Transition from antiparallel to component magnetic reconnection. <i>Journal of Geophysical Research</i> , 2005, 110, .	3.3	76
43	Energy Partition in Magnetic Reconnection in Earth's Magnetotail. <i>Physical Review Letters</i> , 2013, 110, 225001.	7.8	75
44	Electron heating during magnetic reconnection: A simulation scaling study. <i>Physics of Plasmas</i> , 2014, 21, .	1.9	74
45	Magnetospheric Multiscale Observations of the Electron Diffusion Region of Large Guide Field Magnetic Reconnection. <i>Physical Review Letters</i> , 2016, 117, 015001.	7.8	74
46	Ion bulk heating in magnetic reconnection exhausts at Earth's magnetopause: Dependence on the inflow Alfvén speed and magnetic shear angle. <i>Geophysical Research Letters</i> , 2014, 41, 7002-7010.	4.0	73
47	A Model for Spontaneous Onset of Fast Magnetic Reconnection. <i>Astrophysical Journal</i> , 2006, 644, L145-L148.	4.5	72
48	The competition of electron and ion heating during magnetic reconnection. <i>Geophysical Research Letters</i> , 2015, 42, 9657-9665.	4.0	70
49	Super-Alfvénic Propagation of Substorm Reconnection Signatures and Poynting Flux. <i>Physical Review Letters</i> , 2011, 107, 065001.	7.8	66
50	Magnetospheric Multiscale observations of large amplitude, parallel, electrostatic waves associated with magnetic reconnection at the magnetopause. <i>Geophysical Research Letters</i> , 2016, 43, 5626-5634.	4.0	66
51	Parker Solar Probe In Situ Observations of Magnetic Reconnection Exhausts during Encounter 1. <i>Astrophysical Journal, Supplement Series</i> , 2020, 246, 34.	7.7	65
52	Scaling of asymmetric magnetic reconnection: Kinetic particle-in-cell simulations. <i>Journal of Geophysical Research</i> , 2010, 115, .	3.3	61
53	Magnetospheric Multiscale Satellites Observations of Parallel Electric Fields Associated with Magnetic Reconnection. <i>Physical Review Letters</i> , 2016, 116, 235102.	7.8	61
54	Transition from ion-coupled to electron-only reconnection: Basic physics and implications for plasma turbulence. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	61

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55	von K&Auml;m&Auml;n Energy Decay and Heating of Protons and Electrons in a Kinetic Turbulent Plasma. Physical Review Letters, 2013, 111, 121105.	7.8	57
56	Scaling of asymmetric Hall magnetic reconnection. Geophysical Research Letters, 2008, 35, .	4.0	54
57	Magnetotail dipolarization front and associated ion reflection: Particle&#x2013;cell simulations. Geophysical Research Letters, 2012, 39, .	4.0	51
58	NONLINEAR AND LINEAR TIMESCALES NEAR KINETIC SCALES IN SOLAR WIND TURBULENCE. Astrophysical Journal, 2014, 790, 155.	4.5	50
59	Structure of the dissipation region in fluid simulations of asymmetric magnetic reconnection. Physics of Plasmas, 2009, 16, 055704.	1.9	48
60	Magnetic Reconnection for Coronal Conditions: Reconnection Rates, Secondary Islands and Onset. Space Science Reviews, 2012, 172, 283-302.	8.1	46
61	Drift waves, intense parallel electric fields, and turbulence associated with asymmetric magnetic reconnection at the magnetopause. Geophysical Research Letters, 2017, 44, 2978-2986.	4.0	46
62	Catastrophic onset of fast magnetic reconnection with a guide field. Physics of Plasmas, 2007, 14, 054502.	1.9	45
63	Kinetic driven turbulence: Structure in space and time. Physics of Plasmas, 2010, 17, .	1.9	44
64	Influence of asymmetries and guide fields on the magnetic reconnection diffusion region in collisionless space plasmas. Plasma Physics and Controlled Fusion, 2013, 55, 124001.	2.1	43
65	Effect of driving frequency on excitation of turbulence in a kinetic plasma. Physics of Plasmas, 2011, 18, .	1.9	42
66	Dependence of Kinetic Plasma Turbulence on Plasma $\beta^2$ . Astrophysical Journal Letters, 2018, 864, L21.	8.3	42
67	Incompressible Energy Transfer in the Earth&#x2019;s Magnetosheath: Magnetospheric Multiscale Observations. Astrophysical Journal, 2018, 866, 106.	4.5	42
68	New Electric Field in Asymmetric Magnetic Reconnection. Physical Review Letters, 2013, 111, 135001.	7.8	41
69	Localized Oscillatory Energy Conversion in Magnetopause Reconnection. Geophysical Research Letters, 2018, 45, 1237-1245.	4.0	41
70	TRANSITION FROM KINETIC TO MHD BEHAVIOR IN A COLLISIONLESS PLASMA. Astrophysical Journal, 2015, 811, 112.	4.5	40
71	Survival of flux transfer event (FTE) flux ropes far along the tail magnetopause. Journal of Geophysical Research, 2012, 117, .	3.3	39
72	Exploring the statistics of magnetic reconnection X-points in kinetic particle-in-cell turbulence. Physics of Plasmas, 2017, 24, .	1.9	37

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73	Reconnection With Magnetic Flux Pileup at the Interface of Converging Jets at the Magnetopause. Geophysical Research Letters, 2019, 46, 1937-1946.	4.0	36
74	Reconnection events in two-dimensional Hall magnetohydrodynamic turbulence. Physics of Plasmas, 2012, 19, .	1.9	35
75	Guide Field Reconnection: Exhaust Structure and Heating. Geophysical Research Letters, 2018, 45, 4569-4577.	4.0	34
76	Turbulence-driven magnetic reconnection and the magnetic correlation length: Observations from Magnetospheric Multiscale in Earth's magnetosheath. Physics of Plasmas, 2022, 29, .	1.9	30
77	Kinetic simulation of asymmetric magnetic reconnection with cold ions. Journal of Geophysical Research: Space Physics, 2017, 122, 5290-5306.	2.4	29
78	Turbulent heating due to magnetic reconnection. Physics of Plasmas, 2018, 25, .	1.9	29
79	The Effect of a Guide Field on Local Energy Conversion During Asymmetric Magnetic Reconnection: Particle-in-Cell Simulations. Journal of Geophysical Research: Space Physics, 2017, 122, 11,523.	2.4	27
80	Particle Acceleration in Strong Turbulence in the Earth's Magnetotail. Astrophysical Journal, 2020, 898, 153.	4.5	27
81	ON THE CAUSE OF SUPRA-ARCADE DOWNFLOWS IN SOLAR FLARES. Astrophysical Journal Letters, 2013, 775, L14.	8.3	26
82	Effect of inflow density on ion diffusion region of magnetic reconnection: Particle-in-cell simulations. Physics of Plasmas, 2011, 18, .	1.9	25
83	The hall effect in magnetic reconnection: Hybrid versus Hall-less hybrid simulations. Geophysical Research Letters, 2009, 36, .	4.0	24
84	Fast magnetic reconnection due to anisotropic electron pressure. Physics of Plasmas, 2015, 22, .	1.9	24
85	Prevalence of magnetic reconnection in the near-Sun heliospheric current sheet. Astronomy and Astrophysics, 2021, 650, A13.	5.1	23
86	Observations of Hall Reconnection Physics Far Downstream of the $X$ Line. Physical Review Letters, 2016, 117, 185102.	7.8	22
87	Energy dissipation in turbulent reconnection. Physics of Plasmas, 2021, 28, .	1.9	22
88	A saddle-node bifurcation model of magnetic reconnection onset. Physics of Plasmas, 2010, 17, .	1.9	21
89	Ion Larmor radius effects near a reconnection X line at the magnetopause: THEMIS observations and simulation comparison. Geophysical Research Letters, 2016, 43, 8844-8852.	4.0	21
90	MMS Observations of Beta-dependent Constraints on Ion Temperature Anisotropy in Earth's Magnetosheath. Astrophysical Journal, 2018, 866, 25.	4.5	21

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91	The reduction of magnetic reconnection outflow jets to sub-Alfvénic speeds. <i>Physics of Plasmas</i> , 2018, 25, .	1.9	20
92	Decomposition of plasma kinetic entropy into position and velocity space and the use of kinetic entropy in particle-in-cell simulations. <i>Physics of Plasmas</i> , 2019, 26, .	1.9	20
93	Magnetic Reconnection in Three Dimensions: Modeling and Analysis of Electromagnetic Drift Waves in the Adjacent Current Sheet. <i>Journal of Geophysical Research: Space Physics</i> , 2019, 124, 10085-10103.	2.4	18
94	Reconnection from a turbulence perspective. <i>Physics of Plasmas</i> , 2020, 27, .	1.9	17
95	Energy Flux Densities near the Electron Dissipation Region in Asymmetric Magnetopause Reconnection. <i>Physical Review Letters</i> , 2020, 125, 265102.	7.8	17
96	Magnetospheric Multiscale analysis of intense field-aligned Poynting flux near the Earth's plasma sheet boundary. <i>Geophysical Research Letters</i> , 2017, 44, 7106-7113.	4.0	16
97	Energy transfer in reconnection and turbulence. <i>Physical Review E</i> , 2021, 104, 065206.	2.1	16
98	On the Collisionless Asymmetric Magnetic Reconnection Rate. <i>Geophysical Research Letters</i> , 2018, 45, 3311-3318.	4.0	15
99	Establishing the Context for Reconnection Diffusion Region Encounters and Strategies for the Capture and Transmission of Diffusion Region Burst Data by MMS. <i>Space Science Reviews</i> , 2016, 199, 631-650.	8.1	14
100	THEMIS multispacecraft observations of a reconnecting magnetosheath current sheet with symmetric boundary conditions and a large guide field. <i>Geophysical Research Letters</i> , 2017, 44, 7598-7606.	4.0	14
101	Faster Form of Electron Magnetic Reconnection with a Finite Length X-Line. <i>Physical Review Letters</i> , 2021, 127, 155101.	7.8	13
102	Super-Alfvénic Propagation and Damping of Reconnection Onset Signatures. <i>Journal of Geophysical Research: Space Physics</i> , 2018, 123, 341-349.	2.4	9
103	The scaling of forced collisionless reconnection. <i>Physics of Plasmas</i> , 2005, 12, 122312.	1.9	6
104	Solar Orbiter observations of an ion-scale flux rope confined to a bifurcated solar wind current sheet. <i>Astronomy and Astrophysics</i> , 2021, 656, A27.	5.1	6
105	Structure of Exhausts in Magnetic Reconnection with an X-line of Finite Extent. <i>Astrophysical Journal</i> , 2017, 848, 90.	4.5	5
106	Relativistic Asymmetric Magnetic Reconnection. <i>Physical Review Letters</i> , 2022, 128, 145101.	7.8	4
107	Scaling theory of three-dimensional magnetic reconnection spreading. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	3
108	Spatial evolution of magnetic reconnection diffusion region structures with distance from the X-line. <i>Physics of Plasmas</i> , 2021, 28, .	1.9	3

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109	Response to "Comment on "Scaling of asymmetric magnetic reconnection: General theory and collisional simulations" [Phys. Plasmas 16, 034701 (2009)]. Physics of Plasmas, 2009, 16, 034702.	1.9	2
110	Effects of a Guide Field on the Larmor Electric Field and Upstream Electron Temperature Anisotropy in Collisionless Asymmetric Magnetic Reconnection. Astrophysical Journal, 2017, 845, 113.	4.5	2
111	Overview on numerical studies of reconnection and dissipation in the solar wind. , 2013, , .		0