Steven M Tobias

List of Publications by Year
in descending order

137	4,061	101496	133188
papers	citations	36 h-index	59 g-index

142	142	142	1676
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Characterising the shape, size, and orientation of cloudâ€feeding coherent boundaryâ€layer structures. Quarterly Journal of the Royal Meteorological Society, 2022, 148, 499-519.	1.0	5
2	Ion heat and parallel momentum transport by stochastic magnetic fields and turbulence. Plasma Physics and Controlled Fusion, 2022, 64, 015006.	0.9	2
3	Efficiency gains of a multi-scale integration method applied to a scale-separated model for rapidly rotating dynamos. Computer Physics Communications, 2022, 273, 108253.	3.0	3
4	An Idealized 1Â½-Layer Isentropic Model with Convection and Precipitation for Satellite Data Assimilation Research. Part I: Model Dynamics. Journals of the Atmospheric Sciences, 2022, 79, 859-873.	0.6	1
5	An Idealized 1Â½-Layer Isentropic Model with Convection and Precipitation for Satellite Data Assimilation Research. Part II: Model Derivation. Journals of the Atmospheric Sciences, 2022, 79, 875-886.	0.6	1
6	Direct statistical simulation of the Lorenz63 system. Chaos, 2022, 32, 043111.	1.0	3
7	Optimizing the control of transition to turbulence using a Bayesian method. Journal of Fluid Mechanics, 2022, 941, .	1.4	1
8	The turbulent dynamo. Journal of Fluid Mechanics, 2021, 912, .	1.4	51
9	Scaling behaviour of small-scale dynamos driven by Rayleighâ€“BÃ©nard convection. Journal of Fluid Mechanics, 2021, 915, .	1.4	10
10	Potential vorticity transport in weakly and strongly magnetized plasmas. Physics of Plasmas, 2021, 28, 042301.	0.7	9
11	Observations of large-scale coherent structures in gravity currents: implications for flow dynamics. Experiments in Fluids, 2021, 62, 1.	1.1	5
12	Direct statistical simulation of low-order dynamosystems. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2021, 477, .	1.0	5
13	The effect of Schmidt number on gravity current flows: The formation of large-scale three-dimensional structures. Physics of Fluids, 2021, 33, .	1.6	11
14	Angular momentum transport, layering, and zonal jet formation by the GSF instability: non-linear simulations at a general latitude. Monthly Notices of the Royal Astronomical Society, 2020, 495, 1468-1490.	1.6	9
15	Performance of parallel-in-time integration for Rayleigh BÃ©nard convection. Computing and Visualization in Science, 2020, 23, 1.	1.2	4
16	On magnetic helicity generation and transport in a nonlinear dynamo driven by a helical flow. Journal of Plasma Physics, 2020, 86, .	0.7	4
17	Solitary magnetostrophic Rossby waves in spherical shells. Journal of Fluid Mechanics, 2020, 904, .	1.4	4
18	Nigel Weiss (1936â€“2020). Astronomy and Geophysics, 2020, 61, 5.11-5.11.	0.1	0

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19	A probabilistic protocol for the assessment of transition and control. Journal of Fluid Mechanics, 2020, 895, .	1.4	3
20	Topological Gaseous Plasmon Polariton in Realistic Plasma. Physical Review Letters, 2020, 124, 195001.	2.9	31
21	Parallel-in-time integration of kinematic dynamos. Journal of Computational Physics: X, 2020, 7, 100057.	1.1	6
22	Dimensional reduction of direct statistical simulation. Journal of Fluid Mechanics, 2020, 898, .	1.4	10
23	Scaling behaviour in spherical shell rotating convection with fixed-flux thermal boundary conditions. Journal of Fluid Mechanics, 2020, 889, .	1.4	31
24	Generation of shear flows and vortices in rotating anelastic convection. Physical Review Fluids, 2020, 5, .	1.0	2
25	Thermal boundary layer structure in convection with and without rotation. Physical Review Fluids, 2020, 5, .	1.0	3
26	Heat transfer and flow regimes in quasi-static magnetoconvection with a vertical magnetic field. Journal of Fluid Mechanics, 2019, 877, 1186-1206.	1.4	27
27	Angular momentum transport by the GSF instability: non-linear simulations at the equator. Monthly Notices of the Royal Astronomical Society, 2019, 487, 1777-1794.	1.6	14
28	Dynamics of spatially localized states in transitional plane Couette flow. Journal of Fluid Mechanics, 2019, 867, 414-437.	1.4	4
29	Scale Selection in the Stratified Convection of the Solar Photosphere. Astrophysical Journal, 2019, 874, 103.	1.6	4
30	Direct Statistical Simulation of a Jet. , 2019, , 332-346.		9
31	Joint instability and abrupt nonlinear transitions in a differentially rotating plasma. Journal of Plasma Physics, 2019, 85, .	0.7	4
32	A simple system for moist convection: theÂRainyâ€“BÃ©nard model. Journal of Fluid Mechanics, 2019, 862, 162-199.	1.4	26
33	Torsional waves driven by convection and jets in Earthâ€™s liquid core. Geophysical Journal International, 2019, 216, 123-129.	1.0	9
34	Convection-driven kinematic dynamos with a self-consistent shear flow. Geophysical and Astrophysical Fluid Dynamics, 2019, 113, 131-148.	0.4	6
35	On long-term modulation of the Sun's magnetic cycle. Monthly Notices of the Royal Astronomical Society, 2018, 473, 1596-1602.	1.6	34
36	Generalized quasilinear approximation of the interaction of convection and mean flows in a thermal annulus. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2018, 474, 20180422.	1.0	4

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37	Circulation conservation and vortex breakup in magnetohydrodynamics at low magnetic PrandtlÂnumber. Journal of Fluid Mechanics, 2018, 857, 38-60.	1.4	5
38	Self-consistent single mode investigations of the quasi-geostrophic convection-driven dynamo model. Journal of Plasma Physics, 2018, 84, .	0.7	7
39	Data assimilation approach to analysing systems of ordinary differential equations. , 2018, , .		3
40	Three-dimensional rotating Couette flow via the generalised quasilinear approximation. Journal of Fluid Mechanics, 2017, 810, 412-428.	1.4	28
41	Inertia-less convectively-driven dynamo models in the limit of low Rossby number and large Prandtl number. Physics of the Earth and Planetary Interiors, 2017, 266, 54-59.	0.7	11
42	Rotating magnetic shallow water waves and instabilities in a sphere. Geophysical and Astrophysical Fluid Dynamics, 2017, 111, 282-322.	0.4	31
43	Direct statistical simulation of jets and vortices in 2D flows. Physics of Fluids, 2017, 29, .	1.6	5
44	What is a large-scale dynamo?. Monthly Notices of the Royal Astronomical Society: Letters, 2017, 464, L119-L123.	1.2	18
45	Dynamics of an idealized fluid model for investigating convective-scale data assimilation. Tellus, Series A: Dynamic Meteorology and Oceanography, 2017, 69, 1369332.	0.8	5
46	SHEAR-DRIVEN DYNAMO WAVES IN THE FULLY NONLINEAR REGIME. Astrophysical Journal, 2016, 825, 23.	1.6	14
47	Mean flow generation in rotating anelastic two-dimensional convection. Physics of Fluids, 2016, 28, .	1.6	10
48	Forcing-dependent dynamics and emergence of helicity in rotating turbulence. Journal of Fluid Mechanics, 2016, 798, 682-695.	1.4	13
49	Flux expulsion with dynamics. Journal of Fluid Mechanics, 2016, 791, 568-588.	1.4	33
50	Convection-driven kinematic dynamos at low Rossby and magnetic Prandtl numbers: Single mode solutions. Physical Review E, 2016, 93, 023115.	0.8	16
51	Generalized Quasilinear Approximation: Application to Zonal Jets. Physical Review Letters, 2016, 116, 214501.	2.9	61
52	Convective dynamo action in a spherical shell: symmetries and modulation. Journal of Fluid Mechanics, 2016, 799, .	1.4	36
53	Generalised quasilinear approximation of the helical magnetorotational instability. Journal of Plasma Physics, 2016, 82, .	0.7	10
54	Supermodulation of the Sun's magnetic activity: the effects of symmetry changes. Monthly Notices of the Royal Astronomical Society, 2016, 456, 2654-2661.	1.6	59

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55	Convection-driven kinematic dynamos at low Rossby and magnetic Prandtl numbers. Physical Review Fluids, 2016, 1, .	1.0	40
56	THE DECAY OF A WEAK LARGE-SCALE MAGNETIC FIELD IN TWO-DIMENSIONAL TURBULENCE. Astrophysical Journal, 2016, 823, 111.	1.6	6
57	A multiscale dynamo model driven by quasi-geostrophic convection. Journal of Fluid Mechanics, 2015, 780, 143-166.	1.4	83
58	The electromotive force in multi-scale flows at high magnetic Reynolds number. Journal of Plasma Physics, 2015, 81, .	0.7	6
59	Large-Eddy Simulations of Magnetohydrodynamic Turbulence in Heliophysics and Astrophysics. Space Science Reviews, 2015, 194, 97-137.	3.7	56
60	Nonperturbative mean-field theory for minimum enstrophy relaxation. Physical Review E, 2015, 91, 053024.	0.8	2
61	The transition to Earth-like torsional oscillations in magnetoconvection simulations. Earth and Planetary Science Letters, 2015, 419, 22-31.	1.8	55
62	ENERGY DISSIPATION IN MAGNETOHYDRODYNAMIC TURBULENCE: COHERENT STRUCTURES OR â€œNANOFLARESâ€?. Astrophysical Journal, 2014, 795, 127.	1.6	40
63	ON LARGE-SCALE DYNAMO ACTION AT HIGH MAGNETIC REYNOLDS NUMBER. Astrophysical Journal, 2014, 789, 70.	1.6	30
64	The dynamics and excitation of torsional waves in geodynamo simulations. Geophysical Journal International, 2014, 196, 724-735.	1.0	30
65	Large-scale convective dynamos in a stratified rotating plane layer. Geophysical and Astrophysical Fluid Dynamics, 2013, 107, 218-243.	0.4	8
66	On the measurement of the turbulent diffusivity of a large-scale magnetic field. Journal of Fluid Mechanics, 2013, 717, 347-360.	1.4	11
67	Shear-driven dynamo waves at high magnetic Reynolds number. Nature, 2013, 497, 463-465.	13.7	64
68	Sensitivity of stratified turbulence to the buoyancy Reynolds number. Journal of Fluid Mechanics, 2013, 725, 1-22.	1.4	67
69	Direct Statistical Simulation of Out-of-Equilibrium Jets. Physical Review Letters, 2013, 110, 104502.	2.9	86
70	On the measurement of turbulent magnetic diffusivities: the three-dimensional case. Journal of Fluid Mechanics, 2013, 735, 457-472.	1.4	1
71	Two-dimensional magnetohydrodynamic turbulence in the small magnetic Prandtl number limit. Journal of Fluid Mechanics, 2012, 703, 85-98.	1.4	14
72	MHD Dynamos and Turbulence. , 2012, , 351-404.		13

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73	ASTROPHYSICAL FLUID DYNAMICS VIA DIRECT STATISTICAL SIMULATION. Astrophysical Journal, 2011, 727, 127.	1.6	74
74	ON THE GENERATION OF ORGANIZED MAGNETIC FIELDS. Astrophysical Journal, 2011, 728, 153.	1.6	25
75	Skew-varicose instability in two-dimensional generalized Swift-Hohenberg equations. Physical Review E, 2011, 84, 036201.	0.8	2
76	The effect of stratification and compressibility on anelastic convection in a rotating plane layer. Geophysical and Astrophysical Fluid Dynamics, 2011, 105, 566-585.	0.4	9
77	The Effect of Small Scale Motion on an Essentially-Nonlinear Dynamo. Proceedings of the International Astronomical Union, 2010, 6, 367-368.	0.0	0
78	The Solar Dynamo. Space Science Reviews, 2010, 152, 591-616.	3.7	59
79	Transient spatio-temporal chaos in the complex Ginzburgâ€“Landau equation on long domains. Physics Letters, Section A: General, Atomic and Solid State Physics, 2010, 374, 2030-2034.	0.9	15
80	Comparison of the anelastic approximation with fully compressible equations for linear magnetoconvection and magnetic buoyancy. Geophysical and Astrophysical Fluid Dynamics, 2010, 104, 545-563.	0.4	18
81	Dynamo efficiency in compressible convective dynamos with and without penetration. Geophysical and Astrophysical Fluid Dynamics, 2010, 104, 565-576.	0.4	11
82	Nonlinear generation of large-scale magnetic fields in forced spherical shell dynamos. Physics of Fluids, 2010, 22, 037101.	1.6	7
83	An Introduction to Mean Field Dynamo Theory. , 2009, , 15-48.		0
84	The Solar Dynamo: The Role of Penetration, Rotation and Shear on Convective Dynamos. Space Science Reviews, 2009, 144, 77-86.	3.7	17
85	Bistability in the complex Ginzburgâ€“Landau equation with drift. Physica D: Nonlinear Phenomena, 2009, 238, 184-196.	1.3	4
86	Dynamo properties of the turbulent velocity field of a saturated dynamo. Journal of Fluid Mechanics, 2009, 621, 205-214.	1.4	65
87	Mean induction and diffusion: the influence of spatial coherence. Journal of Fluid Mechanics, 2009, 627, 403-421.	1.4	9
88	The Solar Dynamo. Space Sciences Series of ISSI, 2009, , 591-616.	0.0	3
89	The effects of flux transport on interface dynamos. Monthly Notices of the Royal Astronomical Society, 2008, 391, 467-480.	1.6	11
90	Limited Role of Spectra in Dynamo Theory: Coherent versus Random Dynamos. Physical Review Letters, 2008, 101, 125003.	2.9	25

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91	For how long will the current grand maximum of solar activity persist?. Geophysical Research Letters, 2008, 35, .	1.5	99
92	Dynamo action in complex flows: the quick and the fast. Journal of Fluid Mechanics, 2008, 601, 101-122.	1.4	40
93	Convective Dynamos with Penetration, Rotation, and Shear. Astrophysical Journal, 2008, 685, 596-605.	1.6	36
94	Hydrodynamic instabilities in the solar tachocline. Astronomy and Astrophysics, 2008, 488, 819-827.	2.1	10
95	Flux Pumping and Magnetic Fields in the Outer Penumbra of a Sunspot. Astrophysical Journal, 2008, 686, 1454-1465.	1.6	26
96	The Solar Dynamo: The Role of Penetration, Rotation and Shear on Convective Dynamos. Space Sciences Series of ISSI, 2008, , 77-86.	0.0	1
97	The role of helicity and stretching in forced kinematic dynamos in a spherical shell. Physics of Fluids, 2007, 19, 057101.	1.6	15
98	The solar dynamo and the tachocline. , 2007, , 319-350.		40
99	The Nonlinear Evolution of Instabilities Driven by Magnetic Buoyancy: A New Mechanism for the Formation of Coherent Magnetic Structures. Astrophysical Journal, 2007, 663, L113-L116.	1.6	23
100	Î²-Plane Magnetohydrodynamic Turbulence in the Solar Tachocline. Astrophysical Journal, 2007, 667, L113-L116.	1.6	79
101	On Predicting the Solar Cycle Using Mean-Field Models. Astrophysical Journal, 2007, 661, 1289-1296.	1.6	86
102	Global Magnetorotational Instability with Inflow. II. The Nonlinear Development of Axisymmetric Wall Modes. Astrophysical Journal, 2006, 638, 382-390.	1.6	4
103	Unpredictable Sun leaves researchers in the dark. Nature, 2006, 442, 26-26.	13.7	32
104	Î±Effect in a Family of Chaotic Flows. Physical Review Letters, 2006, 96, 034503.	2.9	51
105	On the fine structure of magnetic fields in sunspot penumbrae. Astronomy and Astrophysics, 2006, 452, 1089-1090.	2.1	9
106	Low-order stellar dynamo models. Monthly Notices of the Royal Astronomical Society, 2005, 363, 1167-1172.	1.6	28
107	Interaction between dynamos at different scales. Physics of Fluids, 2005, 17, 127105.	1.6	18
108	THE SOLAR DYNAMO. Series on Iraq War and Its Consequences, 2005, , 355-373.	0.1	0

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109	Vortex dynamos. Journal of Fluid Mechanics, 2004, 498, 1-21.	1.4	16
110	The puzzling structure of a sunspot. Astronomy and Geophysics, 2004, 45, 4.28-4.33.	0.1	9
111	The Origin of Penumbral Structure in Sunspots: Downward Pumping of Magnetic Flux. Astrophysical Journal, 2004, 600, 1073-1090.	1.6	86
112	The Influence of Velocity Shear on Magnetic Buoyancy Instability in the Solar Tachocline. Astrophysical Journal, 2004, 603, 785-802.	1.6	32
113	Global Magnetorotational Instability with Inflow. I. Linear Theory and the Role of Boundary Conditions. Astrophysical Journal, 2004, 602, 892-903.	1.6	26
114	Nonlinear magnetoconvection in the presence of a strong oblique field. , 2003, , 345-356.		1
115	The solar dynamo. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2002, 360, 2741-2756.	1.6	55
116	Magnetic flux pumping and the structure of a sunspot penumbra. Astronomische Nachrichten, 2002, 323, 383-386.	0.6	8
117	Modulation of solar and stellar dynamos. Astronomische Nachrichten, 2002, 323, 417-423.	0.6	27
118	Downward pumping of magnetic flux as the cause of filamentary structures in sunspot penumbrae. Nature, 2002, 420, 390-393.	13.7	97
119	The Competition in the Solar Dynamo between Surface and Deep-seated Î±-Effects. Astrophysical Journal, 2002, 580, L89-L92.	1.6	58
120	On the instability of magnetohydrodynamic shear flows. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2001, 457, 1365-1384.	1.0	38
121	Magnetic Pumping at the Base of the Solar Convection Zone. Symposium - International Astronomical Union, 2001, 203, 156-158.	0.1	0
122	Transport and Storage of Magnetic Field by Overshooting Turbulent Compressible Convection. Astrophysical Journal, 2001, 549, 1183-1203.	1.6	214
123	Linear and nonlinear dynamo properties of time-dependent ABC flows. Fluid Dynamics Research, 2001, 28, 237-265.	0.6	63
124	Modulation and Symmetry-Breaking in Low-Order Models of the Solar Dynamo. , 2001, , 381-390.		1
125	Nonlinear magnetoconvection in the presence of strong oblique fields. Journal of Fluid Mechanics, 2000, 410, 285-322.	1.4	17
126	Noise-sustained structures due to convective instability in finite domains. Physica D: Nonlinear Phenomena, 2000, 145, 191-206.	1.3	16

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127	Resonance in a coupled solar-climate model. Space Science Reviews, 2000, 94, 153-160.	3.7	3
128	Physical Causes of Solar Activity. Space Science Reviews, 2000, 94, 99-112.	3.7	51
129	An Active Sun Throughout the Maunder Minimum. Solar Physics, 1998, 181, 237-249.	1.0	351
130	Modulation and symmetry changes in stellar dynamos. Monthly Notices of the Royal Astronomical Society, 1998, 297, 1123-1138.	1.6	112
131	Linear and nonlinear dynamo action. Physics Letters, Section A: General, Atomic and Solid State Physics, 1998, 249, 437-442.	0.9	21
132	Convective and absolute instabilities of fluid flows in finite geometry. Physica D: Nonlinear Phenomena, 1998, 113, 43-72.	1.3	99
133	Breakup of Spiral Waves into Chemical Turbulence. Physical Review Letters, 1998, 80, 4811-4814.	2.9	49
134	Pumping of Magnetic Fields by Turbulent Penetrative Convection. Astrophysical Journal, 1998, 502, L177-L180.	1.6	106
135	Asymptotic properties of a nonlinÃ©ar Î±Ï‰-dynamo wave: Period, amplitude and latitude dependence. Geophysical and Astrophysical Fluid Dynamics, 1997, 86, 249-285.	0.4	41
136	Diffusivity Quenching as a Mechanism for Parker's Surface Dynamo. Astrophysical Journal, 1996, 467, 870.	1.6	52
137	Chaotically modulated stellar dynamos. Monthly Notices of the Royal Astronomical Society, 1995, 273, 1150-1166.	1.6	124