

# Anthony M Bloch

## List of Publications by Year in descending order

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130  
papers

3,251  
citations

201674

27  
h-index

189892

50  
g-index

130  
all docs

130  
docs citations

130  
times ranked

1873  
citing authors

#	ARTICLE	IF	CITATIONS
1	Nonholonomic mechanical systems with symmetry. <i>Archive for Rational Mechanics and Analysis</i> , 1996, 136, 21-99.	2.4	504
2	The Euler-Poincaré equations and double bracket dissipation. <i>Communications in Mathematical Physics</i> , 1996, 175, 1-42.	2.2	154
3	Stabilization and tracking in the nonholonomic integrator via sliding modes. <i>Systems and Control Letters</i> , 1996, 29, 91-99.	2.3	141
4	Endpoint Force Fluctuations Reveal Flexible Rather Than Synergistic Patterns of Muscle Cooperation. <i>Journal of Neurophysiology</i> , 2008, 100, 2455-2471.	1.8	121
5	The Equivalence of Controlled Lagrangian and Controlled Hamiltonian Systems. <i>ESAIM - Control, Optimisation and Calculus of Variations</i> , 2002, 8, 393-422.	1.3	116
6	Completely integrable gradient flows. <i>Communications in Mathematical Physics</i> , 1992, 147, 57-74.	2.2	101
7	Optimal Control of Underactuated Nonholonomic Mechanical Systems. <i>IEEE Transactions on Automatic Control</i> , 2008, 53, 668-682.	5.7	94
8	Turbulence Implies that Mean Motion Resonances are Rare. <i>Astrophysical Journal</i> , 2008, 683, 1117-1128.	4.5	89
9	Stabilization of rigid body dynamics by the Energy-Casimir method. <i>Systems and Control Letters</i> , 1990, 14, 341-346.	2.3	82
10	Quasivelocities and symmetries in non-holonomic systems. <i>Dynamical Systems</i> , 2009, 24, 187-222.	0.4	77
11	EVOLUTION OF PLANETARY ORBITS WITH STELLAR MASS LOSS AND TIDAL DISSIPATION. <i>Astrophysical Journal Letters</i> , 2013, 777, L30.	8.3	66
12	The energy-momentum method for the stability of non-holonomic systems. <i>Dynamical Systems</i> , 1998, 13, 123-165.	0.7	60
13	Controlled Lagrangians and the stabilization of Euler-Poincaré mechanical systems. <i>International Journal of Robust and Nonlinear Control</i> , 2001, 11, 191-214.	3.7	54
14	Controlled Lagrangian Systems with Gyroscopic Forcing and Dissipation. <i>European Journal of Control</i> , 2004, 10, 478-496.	2.6	54
15	Finite Controllability of Infinite-Dimensional Quantum Systems. <i>IEEE Transactions on Automatic Control</i> , 2010, 55, 1797-1805.	5.7	49
16	Evolution of planetary systems with time-dependent stellar mass-loss. <i>Monthly Notices of the Royal Astronomical Society</i> , 2013, 432, 438-454.	4.4	48
17	Geometric Mechanics Based Nonlinear Model Predictive Spacecraft Attitude Control with Reaction Wheels. <i>Journal of Guidance, Control, and Dynamics</i> , 2017, 40, 309-319.	2.8	46
18	GENERAL ANALYSIS OF TYPE I PLANETARY MIGRATION WITH STOCHASTIC PERTURBATIONS. <i>Astrophysical Journal</i> , 2009, 701, 1381-1397.	4.5	43

#	ARTICLE	IF	CITATIONS
19	Nonholonomic Hamilton-Jacobi theory via Chaplygin Hamiltonization. <i>Journal of Geometry and Physics</i> , 2011, 61, 1263-1291.	1.4	43
20	On the stability of extrasolar planetary systems and other closely orbiting pairs. <i>Monthly Notices of the Royal Astronomical Society</i> , 2015, 446, 3676-3686.	4.4	43
21	MPC on manifolds with an application to the control of spacecraft attitude on $SO(3)$ . <i>Automatica</i> , 2017, 76, 293-300.	5.0	43
22	Controllability and motion planning of a multibody Chaplygin's sphere and Chaplygin's top. <i>International Journal of Robust and Nonlinear Control</i> , 2008, 18, 905-945.	3.7	41
23	Invariant measures of nonholonomic flows with internal degrees of freedom. <i>Nonlinearity</i> , 2003, 16, 1793-1807.	1.4	36
24	Double Bracket Equations and Geodesic Flows on Symmetric Spaces. <i>Communications in Mathematical Physics</i> , 1997, 187, 357-373.	2.2	35
25	Dynamics of the n-dimensional Suslov problem. <i>Journal of Geometry and Physics</i> , 2000, 34, 121-136.	1.4	34
26	Algorithm for cellular reprogramming. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2017, 114, 11832-11837.	7.1	34
27	Stabilizability of nonholonomic control systems. <i>Automatica</i> , 1992, 28, 431-435.	5.0	33
28	Orbital Instabilities in a Triaxial Cusp Potential. <i>Astrophysical Journal</i> , 2007, 670, 1027-1047.	4.5	33
29	The symmetric representation of the rigid body equations and their discretization. <i>Nonlinearity</i> , 2002, 15, 1309-1341.	1.4	32
30	The stability of tidal equilibrium for hierarchical star-planet-moon systems. <i>Monthly Notices of the Royal Astronomical Society</i> , 2016, 462, 2527-2541.	4.4	32
31	Optimal control and geodesic flows. <i>Systems and Control Letters</i> , 1996, 28, 65-72.	2.3	31
32	Stability and Stabilization of Relative Equilibria of Dumbbell Bodies in Central Gravity. <i>Journal of Guidance, Control, and Dynamics</i> , 2005, 28, 833-842.	2.8	30
33	Discrete Hamilton-Jacobi theory and discrete optimal control. , 2010, , .		29
34	Dynamic interpolation for obstacle avoidance on Riemannian manifolds. <i>International Journal of Control</i> , 2021, 94, 588-600.	1.9	26
35	The Lyapunov-Malkin theorem and stabilization of the unicycle with rider. <i>Systems and Control Letters</i> , 2002, 45, 293-302.	2.3	25
36	A variational problem on Stiefel manifolds. <i>Nonlinearity</i> , 2006, 19, 2247-2276.	1.4	25

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37	Symmetry in legged locomotion: a new method for designing stable periodic gaits. <i>Autonomous Robots</i> , 2017, 41, 1119-1142.	4.8	25
38	Equivalence of the dynamics of nonholonomic and variational nonholonomic systems for certain initial data. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2008, 41, 344005.	2.1	24
39	Optimal Control and Geodesics on Quadratic Matrix Lie Groups. <i>Foundations of Computational Mathematics</i> , 2008, 8, 469-500.	2.5	23
40	Constrained spacecraft attitude control on $SO(3)$ using fast nonlinear model predictive control. , 2015, , .		23
41	An infinite-dimensional classical integrable system and the Heisenberg and Schrödinger representations. <i>Physics Letters, Section A: General, Atomic and Solid State Physics</i> , 1986, 116, 353-355.	2.1	20
42	Stability analysis of a rotating flexible system. <i>Acta Applicandae Mathematicae</i> , 1989, 15, 211-234.	1.0	20
43	Controlled Lagrangians and Potential Shaping for Stabilization of Discrete Mechanical Systems. , 2006, , .		20
44	Energy optimization in extrasolar planetary systems: the transition from peas-in-a-pod to runaway growth. <i>Monthly Notices of the Royal Astronomical Society</i> , 2020, 493, 5520-5531.	4.4	19
45	Controllability of Hypergraphs. <i>IEEE Transactions on Network Science and Engineering</i> , 2021, 8, 1646-1657.	6.4	19
46	Hamiltonian and gradient structures in the Toda flows. <i>Journal of Geometry and Physics</i> , 1998, 27, 230-248.	1.4	18
47	Quantization of a Nonholonomic System. <i>Physical Review Letters</i> , 2008, 101, 030402.	7.8	18
48	The rolling sphere, the quantum spin, and a simple view of the Landau-Zener problem. <i>American Journal of Physics</i> , 2010, 78, 1014-1022.	0.7	18
49	Asymptotic Hamiltonian dynamics: the Toda lattice, the three-wave interaction and the non-holonomic Chaplygin sleigh. <i>Physica D: Nonlinear Phenomena</i> , 2000, 141, 297-315.	2.8	17
50	Orbits in Extended Mass Distributions: General Results and the Spirographic Approximation. <i>Astrophysical Journal</i> , 2005, 629, 204-218.	4.5	16
51	MEAN MOTION RESONANCES IN EXTRASOLAR PLANETARY SYSTEMS WITH TURBULENCE, INTERACTIONS, AND DAMPING. <i>Astrophysical Journal</i> , 2009, 692, 659-676.	4.5	16
52	The Boltzmann-Hamel equations for the optimal control of mechanical systems with nonholonomic constraints. <i>International Journal of Robust and Nonlinear Control</i> , 2011, 21, 373-386.	3.7	15
53	Hamel's Formalism for Infinite-Dimensional Mechanical Systems. <i>Journal of Nonlinear Science</i> , 2017, 27, 241-283.	2.1	15
54	On an Isospectral Lie-Poisson System and Its Lie Algebra. <i>Foundations of Computational Mathematics</i> , 2006, 6, 121-144.	2.5	14

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55	Analysis of the effects of firing rate and synchronization on spike-triggered averaging of multidirectional motor unit torque. <i>Journal of Computational Neuroscience</i> , 2007, 22, 347-361.	1.0	13
56	A Class of Integrable Flows on the Space of Symmetric Matrices. <i>Communications in Mathematical Physics</i> , 2009, 290, 399-435.	2.2	13
57	Hamel's formalism and variational integrators on a sphere. , 2012, , .		13
58	A Fiber Bundle Approach to the Transpositional Relations in Nonholonomic Mechanics. <i>Journal of Nonlinear Science</i> , 2012, 22, 431-461.	2.1	13
59	Radiation Induced Instability. <i>SIAM Journal on Applied Mathematics</i> , 2004, 64, 484-524.	1.8	12
60	Variational obstacle avoidance problem on riemannian manifolds. , 2017, , .		12
61	Embedded geodesic problems and optimal control for matrix Lie groups. <i>Journal of Geometric Mechanics</i> , 2011, 3, 197-223.	0.8	12
62	Estimation, principal components and hamiltonian systems. <i>Systems and Control Letters</i> , 1985, 6, 103-108.	2.3	11
63	An infinite-dimensional Hamiltonian system on projective Hilbert space. <i>Transactions of the American Mathematical Society</i> , 1987, 302, 787-796.	0.9	11
64	Generalized Serret-Andoyer Transformation and Applications for the Controlled Rigid Body. <i>Journal of Dynamical and Control Systems</i> , 1999, 9, 39-66.	0.4	11
65	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2005, 15, 793-801.	1.7	11
66	Global Solution for the Optimal Feedback Control of the Underactuated Heisenberg System. <i>IEEE Transactions on Automatic Control</i> , 2008, 53, 2638-2642.	5.7	10
67	Hill's Equation with Random Forcing Terms. <i>SIAM Journal on Applied Mathematics</i> , 2008, 68, 947-980.	1.8	10
68	Variational Integrators for Hamiltonizable Nonholonomic Systems. <i>Journal of Geometric Mechanics</i> , 2012, 4, 137-163.	0.8	10
69	Neighboring extremal optimal control for mechanical systems on Riemannian manifolds. <i>Journal of Geometric Mechanics</i> , 2016, 8, 257-272.	0.8	10
70	Gyroscopically Stabilized Oscillators and Heat Baths. <i>Journal of Statistical Physics</i> , 2004, 115, 1073-1100.	1.2	9
71	Dynamics of Symplectic Subvolumes. <i>SIAM Journal on Applied Dynamical Systems</i> , 2009, 8, 180-201.	1.6	9
72	MPC on manifolds with an application to SE(3). , 2016, , .		9



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91	Optical mechanical analogy and nonlinear nonholonomic constraints. <i>Physical Review E</i> , 2016, 93, 023005.	2.1	5
92	Quasivelocities and symmetries in simple hybrid systems. , 2017, , .		5
93	The Bouncing Penny and Nonholonomic Impacts. , 2019, , .		5
94	A Poincaré-Bendixson theorem for hybrid dynamical systems on directed graphs. <i>Mathematics of Control, Signals, and Systems</i> , 2020, 32, 1-18.	2.3	5
95	Kinematics of the Rolling Sphere and Quantum Spin. <i>Communications in Information and Systems</i> , 2010, 10, 221-238.	0.5	5
96	Stability and equilibria of deformable systems. , 1987, , .		4
97	Nonlinear Dynamical Control Systems (H. Nijmeijer and A. J. van der Schaft). <i>SIAM Review</i> , 1991, 33, 292-294.	9.5	4
98	Dynamics of multibody systems in planar motion in a central gravitational field. <i>Dynamical Systems</i> , 2004, 19, 303-343.	0.4	4
99	Hill's Equation with Random Forcing Parameters: Determination of Growth Rates Through Random Matrices. <i>Journal of Statistical Physics</i> , 2010, 139, 139-158.	1.2	4
100	ACCRETION OF ROCKY PLANETS BY HOT JUPITERS. <i>Astrophysical Journal Letters</i> , 2011, 741, L2.	8.3	4
101	An Extension to the Theory of Controlled Lagrangians Using the Helmholtz Conditions. <i>Journal of Nonlinear Science</i> , 2019, 29, 345-376.	2.1	4
102	Optimal control of manifold filling during VDE mode transitions. , 2013, , .		3
103	Variational discretization for optimal control problems of nonholonomic mechanical systems. , 2015, , .		3
104	Stability of a Class of Coupled Hill's Equations and the Lorentz Oscillator Model. <i>SIAM Journal on Applied Dynamical Systems</i> , 2016, 15, 1104-1123.	1.6	3
105	Combined homotopy and neighboring extremal optimal control. <i>Optimal Control Applications and Methods</i> , 2017, 38, 459-469.	2.1	3
106	Stable Orbits for a Simple Passive walker Experiencing Foot Slip. , 2018, , .		3
107	Control of Squeezed Phonon and Spin States. <i>European Journal of Control</i> , 2004, 10, 469-477.	2.6	2
108	Globally Optimal Feedback Control Law of the Underactuated Heisenberg System by Generating Functions. , 2006, , .		2

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109	Quasivelocities and stabilization of relative equilibria of underactuated nonholonomic systems. , 2009, , .		2
110	Time reversal symmetries and zero dynamics for simple hybrid Hamiltonian control systems. , 2018, , .		2
111	Solution to the HJB equation for LQR-type problems on compact connected Lie groups. Automatica, 2018, 95, 525-528.	5.0	2
112	Reduction by Symmetries of Simple Hybrid Mechanical Systems. IFAC-PapersOnLine, 2021, 54, 94-99.	0.9	2
113	Use of linear feedback to control relaxation oscillations in a metal-passivation model. Modelling and Simulation in Materials Science and Engineering. 1996, 4, 641-653.	2.0	1
114	Control strategies for the improvement of corrosion resistance. Materials Science & Engineering A: Structural Materials: Properties, Microstructure and Processing, 1999, 270, 254-259.	5.6	1
115	Qualitative behavior of non-Abelian Toda-like flows. Physica D: Nonlinear Phenomena, 2004, 199, 317-338.	2.8	1
116	Baryonic Collapse within Dark Matter Halos and the Formation of Gaseous Galactic Disks. Astrophysical Journal, 2006, 653, 905-921.	4.5	1
117	Matching and stabilization of discrete mechanical systems. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1030603-1030604.	0.2	1
118	The eccentric frame decomposition of central force fields. Celestial Mechanics and Dynamical Astronomy, 2008, 100, 43-62.	1.4	1
119	Embedded optimal control problems. , 2011, , .		1
120	Guest Editorial: Special Issue on Control of Quantum Mechanical Systems. IEEE Transactions on Automatic Control, 2012, 57, 1893-1895.	5.7	1
121	Optimal control of quantum purity for $n = 2$ systems. , 2017, , .		1
122	Families of periodic orbits: Closed 1-forms and global continuability. Journal of Differential Equations, 2021, 285, 211-257.	2.2	1
123	Variational and Hamiltonian Control Systems (P. E. Crouch and A. J. van der Schaft). SIAM Review, 1989, 31, 334-336.	9.5	0
124	Identification and estimation of dynamic errors-in-variables models. Journal of Econometrics, 1989, 41, 145-158.	6.5	0
125	The pontryagin maximum principle applied to nonholonomic mechanics. , 2008, , .		0
126	Controlled Lagrangians and stabilization of discrete spacecraft with rotor. , 2012, , .		0



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127	Discrete Clebsch optimal control. , 2012, , .		0
128	Double bracket flows, toda flows and rigid body toda. , 2013, , .		0
129	COMMUTATORS OF SKEW-SYMMETRIC MATRICES. World Scientific Series on Nonlinear Science, Series B, 2006, , 97-105.	0.2	0
130	Analytical and Numerical Solution of a Sub-Riemannian Optimal Control Problem with Applications to Quantum Spin Systems. Communications in Information and Systems, 2009, 9, 59-76.	0.5	0