

François J M Gay-Balmaz

List of Publications by Year in descending order

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Version: 2024-02-01

106
papers

1,281
citations

361413

20
h-index

454955

30
g-index

109
all docs

109
docs citations

109
times ranked

415
citing authors

#	ARTICLE	IF	CITATIONS
1	A finite element method for MHD that preserves energy, cross-helicity, magnetic helicity, incompressibility, and $\text{div} \mathbf{E} = 0$. Journal of Computational Physics, 2022, 450, 110847.	3.8	10
2	Evolution of hybrid quantum-classical wavefunctions. Physica D: Nonlinear Phenomena, 2022, 440, 133450.	2.8	9
3	A Variational Finite Element Discretization of Compressible Flow. Foundations of Computational Mathematics, 2021, 21, 961-1001.	2.5	14
4	On computing the analytic-signal backbone of the unforced harmonic oscillator. Journal of Computational and Applied Mathematics, 2021, 385, 113206.	2.0	0
5	Dirac Structures in Thermodynamics of Non-simple Systems. Lecture Notes in Computer Science, 2021, , 918-925.	1.3	0
6	Multisymplectic Variational Integrators for Fluid Models with Constraints. Lecture Notes in Computer Science, 2021, , 283-291.	1.3	4
7	Connecting mem-models with classical theories. Nonlinear Dynamics, 2021, 103, 1321-1344.	5.2	3
8	From Quantum Hydrodynamics to Koopman Wavefunctions II. Lecture Notes in Computer Science, 2021, , 311-319.	1.3	3
9	Thermodynamically consistent semi-compressible fluids: a variational perspective. Journal of Physics A: Mathematical and Theoretical, 2021, 54, 345701.	2.1	6
10	A structure-preserving finite element method for compressible ideal and resistive magnetohydrodynamics. Journal of Plasma Physics, 2021, 87, .	2.1	6
11	Actively deforming porous media in an incompressible fluid: A variational approach. Physica D: Nonlinear Phenomena, 2021, 426, 132984.	2.8	4
12	A Variational Perspective on the Thermodynamics of Non-isothermal Reacting Open Systems. Lecture Notes in Computer Science, 2021, , 900-908.	1.3	1
13	From Quantum Hydrodynamics to Koopman Wavefunctions I. Lecture Notes in Computer Science, 2021, , 302-310.	1.3	4
14	Geometric Variational Finite Element Discretizations for Fluids. IFAC-PapersOnLine, 2021, 54, 8-12.	0.9	0
15	A variational perspective on the thermodynamics of non-isothermal reacting open systems. IFAC-PapersOnLine, 2021, 54, 58-63.	0.9	0
16	Selective decay for the rotating shallow-water equations with a structure-preserving discretization. Physics of Fluids, 2021, 33, 116604.	4.0	3
17	A port-Dirac formulation for thermodynamics of non-simple systems. IFAC-PapersOnLine, 2021, 54, 32-37.	0.9	0
18	From variational to bracket formulations in nonequilibrium thermodynamics of simple systems. Journal of Geometry and Physics, 2020, 158, 103812.	1.4	5

#	ARTICLE	IF	CITATIONS
19	Dirac structures and variational formulation of port-Dirac systems in nonequilibrium thermodynamics. IMA Journal of Mathematical Control and Information, 2020, 37, 1298-1347.	1.7	5
20	Single and double generator bracket formulations of multicomponent fluids with irreversible processes. Journal of Physics A: Mathematical and Theoretical, 2020, 53, 395701.	2.1	10
21	Lie Group Cohomology and (Multi)Symplectic Integrators: New Geometric Tools for Lie Group Machine Learning Based on Souriau Geometric Statistical Mechanics. Entropy, 2020, 22, 498.	2.2	20
22	Geometric variational approach to the dynamics of porous medium, filled with incompressible fluid. Acta Mechanica, 2020, 231, 3897-3924.	2.1	5
23	A conservative finite element method for the incompressible Euler equations with variable density. Journal of Computational Physics, 2020, 412, 109439.	3.8	12
24	Dirac structures in nonequilibrium thermodynamics for simple open systems. Journal of Mathematical Physics, 2020, 61, .	1.1	7
25	Madelung transform and probability densities in hybrid quantum-classical dynamics. Nonlinearity, 2020, 33, 5383-5424.	1.4	20
26	Variational discretization of thermodynamical simple systems on Lie groups. Discrete and Continuous Dynamical Systems - Series S, 2020, 13, 1075-1102.	1.1	2
27	Predicting uncertainty in geometric fluid mechanics. Discrete and Continuous Dynamical Systems - Series S, 2020, 13, 1229-1242.	1.1	3
28	Variational Methods for Fluid-Structure Interactions. , 2020, , 175-205.		0
29	From Lagrangian Mechanics to Nonequilibrium Thermodynamics: A Variational Perspective. Entropy, 2019, 21, 8.	2.2	38
30	A free energy Lagrangian variational formulation of the Navier-Stokes-Fourier system. International Journal of Geometric Methods in Modern Physics, 2019, 16, 1940006.	2.0	3
31	Koopman wavefunctions and classical-quantum correlation dynamics. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2019, 475, 20180879.	2.1	39
32	A variational derivation of the thermodynamics of a moist atmosphere with rain process and its pseudoincompressible approximation. Geophysical and Astrophysical Fluid Dynamics, 2019, 113, 428-465.	1.2	12
33	Variational integrator for the rotating shallow-water equations on the sphere. Quarterly Journal of the Royal Meteorological Society, 2019, 145, 1070-1088.	2.7	14
34	Geometric Theory of Flexible and Expandable Tubes Conveying Fluid: Equations, Solutions and Shock Waves. Journal of Nonlinear Science, 2019, 29, 377-414.	2.1	5
35	On choosing state variables for piecewise-smooth dynamical system simulations. Nonlinear Dynamics, 2019, 95, 1165-1188.	5.2	8
36	From Variational to Bracket Formulations in Nonequilibrium Thermodynamics of Simple Systems. Lecture Notes in Computer Science, 2019, , 209-217.	1.3	2

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37	Variational integrators for anelastic and pseudo-incompressible flows. Journal of Geometric Mechanics, 2019, 11, 511-537.	0.8	5
38	Isotropic submanifolds and coadjoint orbits of the Hamiltonian group. Journal of Symplectic Geometry, 2019, 17, 663-702.	0.5	6
39	Variational Discretization Framework for Geophysical Flow Models. Lecture Notes in Computer Science, 2019, , 523-531.	1.3	2
40	Dirac Structures in Open Thermodynamics. Lecture Notes in Computer Science, 2019, , 199-208.	1.3	0
41	Stability of helical tubes conveying fluid. Journal of Fluids and Structures, 2018, 78, 146-174.	3.4	12
42	Stochastic Geometric Models with Non-stationary Spatial Correlations in Lagrangian Fluid Flows. Journal of Nonlinear Science, 2018, 28, 873-904.	2.1	28
43	A Variational Formulation of Nonequilibrium Thermodynamics for Discrete Open Systems with Mass and Heat Transfer. Entropy, 2018, 20, 163.	2.2	25
44	A Lagrangian variational formulation for nonequilibrium thermodynamics. F.G.B. is partially supported by the ANR project GEOMFLUID, ANR-14-CE23-0002-01; H.Y. is partially supported by JSPS Grant-in-Aid for Scientific Research (26400408, 16KT0024, 24224004), Waseda University (SR2017K-167), and the MEXT "Top Global University Project". IFAC-PapersOnLine, 2018, 51, 25-30.	0.9	0
45	Dirac structures in nonequilibrium thermodynamics. H.Y. is partially supported by JSPS Grant-in-Aid for Scientific Research (26400408, 16KT0024, 24224004), Waseda University Grant for Special Research Project (2017K-167), and the MEXT "Top Global University Project". F.G.B. is partially supported by the ANR project GEOMFLUID, ANR-14-CE23-0002-01.. IFAC-PapersOnLine, 2018, 51, 31-37.	0.9	0
46	Variational discretization of the nonequilibrium thermodynamics of simple systems. Nonlinearity, 2018, 31, 1673-1705.	1.4	8
47	Dirac structures in nonequilibrium thermodynamics. Journal of Mathematical Physics, 2018, 59, 012701.	1.1	16
48	Towards a geometric variational discretization of compressible fluids: The rotating shallow water equations. Journal of Computational Dynamics, 2018, .	1.1	6
49	The Clebsch Representation in Optimal Control and Low Rank Integrable Systems. Abel Symposia, 2018, , 129-158.	0.3	0
50	The Geometric Nature of the Flaschka Transformation. Communications in Mathematical Physics, 2017, 352, 457-517.	2.2	7
51	A multisymplectic integrator for elastodynamic frictionless impact problems. Computer Methods in Applied Mechanics and Engineering, 2017, 315, 1025-1052.	6.6	5
52	Geometric Analysis of Noisy Perturbations to Nonholonomic Constraints. Springer Proceedings in Mathematics and Statistics, 2017, , 57-75.	0.2	0
53	Dual input-output pairs for modeling hysteresis inspired by mem-models. Nonlinear Dynamics, 2017, 88, 2435-2455.	5.2	9
54	A Lagrangian variational formulation for nonequilibrium thermodynamics. Part I: Discrete systems. Journal of Geometry and Physics, 2017, 111, 169-193.	1.4	55

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55	A Lagrangian variational formulation for nonequilibrium thermodynamics. Part II: Continuum systems. <i>Journal of Geometry and Physics</i> , 2017, 111, 194-212.	1.4	49
56	Dirac Structures in Nonequilibrium Thermodynamics. <i>Lecture Notes in Computer Science</i> , 2017, , 410-417.	1.3	0
57	MULTISYMPLECTIC VARIATIONAL INTEGRATORS FOR NONSMOOTH LAGRANGIAN CONTINUUM MECHANICS. <i>Forum of Mathematics, Sigma</i> , 2016, 4, .	0.7	5
58	Multisymplectic variational integrators and space/time symplecticity. <i>Analysis and Applications</i> , 2016, 14, 341-391.	2.2	11
59	Variational discretizations for the dynamics of fluid-conveying flexible tubes. <i>Comptes Rendus - Mecanique</i> , 2016, 344, 769-775.	2.1	8
60	On Noisy Extensions of Nonholonomic Constraints. <i>Journal of Nonlinear Science</i> , 2016, 26, 1571-1613.	2.1	4
61	A dual pair for free boundary fluids. <i>International Journal of Geometric Methods in Modern Physics</i> , 2015, 12, 1550068.	2.0	6
62	Understanding memristors and memcapacitors in engineering mechanics applications. <i>Nonlinear Dynamics</i> , 2015, 80, 457-489.	5.2	33
63	Lagrangian Reductions and Integrable Systems in Condensed Matter. <i>Communications in Mathematical Physics</i> , 2015, 335, 609-636.	2.2	5
64	The geometry of the universal Teichmüller space and the Euler-Weil-Petersson equation. <i>Advances in Mathematics</i> , 2015, 279, 717-778.	1.1	28
65	On Flexible Tubes Conveying Fluid: Geometric Nonlinear Theory, Stability and Dynamics. <i>Journal of Nonlinear Science</i> , 2015, 25, 889-936.	2.1	12
66	Dynamics of elastic strands with rolling contact. <i>Physica D: Nonlinear Phenomena</i> , 2015, 294, 6-23.	2.8	4
67	Dynamics and optimal control of flexible solar updraft towers. <i>Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences</i> , 2015, 471, 20140539.	2.1	4
68	Dirac reduction for nonholonomic mechanical systems and semidirect products. <i>Advances in Applied Mathematics</i> , 2015, 63, 131-213.	0.7	12
69	Dual Pairs for Non-Abelian Fluids. <i>Fields Institute Communications</i> , 2015, , 107-135.	1.3	3
70	A geometric theory of selective decay with applications in MHD. <i>Nonlinearity</i> , 2014, 27, 1747-1777.	1.4	11
71	Integrable G-strands on semisimple Lie groups. <i>Journal of Physics A: Mathematical and Theoretical</i> , 2014, 47, 075201.	2.1	1
72	Exact geometric theory for flexible, fluid-conducting tubes. <i>Comptes Rendus - Mecanique</i> , 2014, 342, 79-84.	2.1	7

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73	Principal bundles of embeddings and nonlinear Grassmannians. <i>Annals of Global Analysis and Geometry</i> , 2014, 46, 293-312.	0.6	8
74	Multisymplectic Lie group variational integrator for a geometrically exact beam in. <i>Communications in Nonlinear Science and Numerical Simulation</i> , 2014, 19, 3492-3512.	3.3	31
75	Selective decay by Casimir dissipation in inviscid fluids. <i>Nonlinearity</i> , 2013, 26, 495-524.	1.4	20
76	Equivalent Theories of Liquid Crystal Dynamics. <i>Archive for Rational Mechanics and Analysis</i> , 2013, 210, 773-811.	2.4	17
77	Double bracket flows, toda flows and rigid body toda. , 2013, , .		0
78	Clebsch Variational Principles in Field Theories and Singular Solutions of Covariant Epdiff Equations. <i>Reports on Mathematical Physics</i> , 2013, 71, 231-277.	0.8	3
79	Asynchronous variational Lie group integration for geometrically exact beam dynamics. <i>Proceedings in Applied Mathematics and Mechanics</i> , 2013, 13, 45-46.	0.2	4
80	Variational discretization for rotating stratified fluids. <i>Discrete and Continuous Dynamical Systems</i> , 2013, 34, 477-509.	0.9	5
81	Geometric dynamics on the automorphism group of principal bundles: Geodesic flows, dual pairs and chromomorphism groups. <i>Journal of Geometric Mechanics</i> , 2013, 5, 39-84.	0.8	8
82	Geometric dynamics of optimization. <i>Communications in Mathematical Sciences</i> , 2013, 11, 163-231.	1.0	9
83	Vlasov moment flows and geodesics on the Jacobi group. <i>Journal of Mathematical Physics</i> , 2012, 53, .	1.1	14
84	Invariant Higher-Order Variational Problems II. <i>Journal of Nonlinear Science</i> , 2012, 22, 553-597.	2.1	27
85	Reduced Variational Formulations in Free Boundary Continuum Mechanics. <i>Journal of Nonlinear Science</i> , 2012, 22, 463-497.	2.1	26
86	Dynamics of Elastic Rods in Perfect Friction Contact. <i>Physical Review Letters</i> , 2012, 109, 244303.	7.8	8
87	Euler-Poincaré Approaches to Nematodynamics. <i>Acta Applicandae Mathematicae</i> , 2012, 120, 127-151.	1.0	8
88	Exact geometric theory of dendronized polymer dynamics. <i>Advances in Applied Mathematics</i> , 2012, 48, 535-574.	0.7	9
89	Invariant Higher-Order Variational Problems. <i>Communications in Mathematical Physics</i> , 2012, 309, 413-458.	2.2	44
90	Dual pairs in fluid dynamics. <i>Annals of Global Analysis and Geometry</i> , 2012, 41, 1-24.	0.6	19

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91	Higher order Lagrange-Poincaré and Hamilton-Poincaré reductions. Bulletin of the Brazilian Mathematical Society, 2011, 42, 579-606.	0.8	27
92	The Momentum Map Representation of Images. Journal of Nonlinear Science, 2011, 21, 115-150.	2.1	48
93	Lagrange-Poincaré field equations. Journal of Geometry and Physics, 2011, 61, 2120-2146.	1.4	25
94	The helicity and vorticity of liquid-crystal flows. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2011, 467, 1197-1213.	2.1	9
95	Un-reduction. Journal of Geometric Mechanics, 2011, 3, 363-387.	0.8	5
96	Clebsch optimal control formulation in mechanics. Journal of Geometric Mechanics, 2011, 3, 41-79.	0.8	30
97	Geometry of nonabelian charged fluids. Dynamics of Partial Differential Equations, 2011, 8, 5-19.	0.9	5
98	Symmetry Reduced Dynamics of Charged Molecular Strands. Archive for Rational Mechanics and Analysis, 2010, 197, 811-902.	2.4	47
99	Reduction theory for symmetry breaking with applications to nematic systems. Physica D: Nonlinear Phenomena, 2010, 239, 1929-1947.	2.8	31
100	A new Lagrangian dynamic reduction in field theory. Annales De L'Institut Fourier, 2010, 60, 1125-1160.	0.6	22
101	On the classification of the coadjoint orbits of the Sobolev Bott-Virasoro group. Journal of Functional Analysis, 2009, 256, 2815-2841.	1.4	2
102	The geometric structure of complex fluids. Advances in Applied Mathematics, 2009, 42, 176-275.	0.7	66
103	Affine Lie-Poisson reduction, Yang-Mills magnetohydrodynamics, and superfluids. Journal of Physics A: Mathematical and Theoretical, 2008, 41, 344007.	2.1	10
104	Reduced Lagrangian and Hamiltonian formulations of Euler-Yang-Mills fluids. Journal of Symplectic Geometry, 2008, 6, 189-237.	0.5	17
105	Group actions on chains of Banach manifolds and applications to fluid dynamics. Annals of Global Analysis and Geometry, 2007, 31, 287-328.	0.6	6
106	The Lie-Poisson structure of the LAE- \pm equation. Dynamics of Partial Differential Equations, 2005, 2, 25-57.	0.9	6