Jean-Luc Guermond

List of Publications by Year
in descending order

137	5,156	101496	98753
papers	citations	36 h-index	67 g-index

139	139	139	2559
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Quasi-optimal Nonconforming Approximation of Elliptic PDEs with Contrasted Coefficients and $$H^{1+{r}}$$, $${r}>0$$, Regularity. Foundations of Computational Mathematics, 2022, 22, 1273-1308.	1.5	4
2	Invariant Domain-Preserving Approximations for the Euler Equations with Tabulated Equation of State. SIAM Journal of Scientific Computing, 2022, 44, A444-A470.	1.3	2
3	Turbulence in realistic geometries with moving boundaries: When simulations meet experiments. Computers and Fluids, 2021, 214, 104750.	1.3	2
4	Second-order invariant domain preserving approximation of the compressible Navierâ€“Stokes equations. Computer Methods in Applied Mechanics and Engineering, 2021, 375, 113608.	3.4	19
5	Efficient mixing by swirling electrovortex flows in liquid metal batteries. Journal of Fluid Mechanics, 2021, 915, .	1.4	13
6	Feasibility of Metal Pad Roll Instability Experiments at Room Temperature. Physical Review Letters, 2021, 126, 184501.	2.9	2
7	Hyperbolic relaxation technique for solving the dispersive Serreâ€“Greenâ€“Naghdi equations with topography. Journal of Computational Physics, 2021, 450, 110809.	1.9	2
8	On the implementation of a robust and efficient finite element-based parallel solver for the compressible Navierâ€“Stokes equations. Computer Methods in Applied Mechanics and Engineering, 2021, , 114250.	3.4	3
9	Second-order invariant domain preserving ALE approximation of hyperbolic systems. Journal of Computational Physics, 2020, 401, 108927.	1.9	5
10	Positive and Asymptotic Preserving Approximation of the Radiation Transport Equation. SIAM Journal on Numerical Analysis, 2020, 58, 519-540.	1.1	4
11	Solutal buoyancy and electrovortex flow in liquid metal batteries. Physical Review Fluids, 2020, 5, .	1.0	27
12	Influence of thermomagnetic convection and ferrofluid thermophysical properties on heat transfers in a cylindrical container heated by a solenoid. Journal of Magnetism and Magnetic Materials, 2019, 469, 52-63.	1.0	25
13	Perturbation theory for metal pad roll instability in cylindrical reduction cells. Journal of Fluid Mechanics, 2019, 878, 598-646.	1.4	20
14	Robust explicit relaxation technique for solving the Green-Naghdi equations. Journal of Computational Physics, 2019, 399, 108917.	1.9	9
15	The Suliciu approximate Riemann solver is not invariant domain preserving. Journal of Hyperbolic Differential Equations, 2019, 16, 59-72.	0.3	2
16	Invariant domain preserving discretization-independent schemes and convex limiting for hyperbolic systems. Computer Methods in Applied Mechanics and Engineering, 2019, 347, 143-175.	3.4	47
17	High-Order Adaptive Time Stepping for the Incompressible Navier–Stokes Equations. SIAM Journal of Scientific Computing, 2019, 41, A770-A788.	1.3	19
18	A Massively Parallel, Direction-Splitting Solver for DNS in Complex Geometries. ERCOFTAC Series, 2019, , 23-29.	0.1	0

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19	Numerical simulation of electrovortex flows in cylindrical fluid layers and liquid metal batteries. Physical Review Fluids, 2019, 4, .	1.0	23
20	Study of Magnetoconvection Impact on a Coil Cooling by Ferrofluid with a Spectral/Finite-Element Method. IEEE Transactions on Magnetics, 2018, 54, 1-4.	1.2	7
21	Abstract Nonconforming Error Estimates and Application to Boundary Penalty Methods for Diffusion Equations and Time-Harmonic Maxwellâ€™s Equations. Computational Methods in Applied Mathematics, 2018, 18, 451-475.	0.4	7
22	Momentumâ€based approximation of incompressible multiphase fluid flows. International Journal for Numerical Methods in Fluids, 2018, 86, 541-563.	0.9	11
23	Analysis of the edge finite element approximation of the Maxwell equations with low regularity solutions. Computers and Mathematics With Applications, 2018, 75, 918-932.	1.4	24
24	Second-Order Invariant Domain Preserving Approximation of the Euler Equations Using Convex Limiting. SIAM Journal of Scientific Computing, 2018, 40, A3211-A3239.	1.3	67
25	Well-Balanced Second-Order Finite Element Approximation of the Shallow Water Equations with Friction. SIAM Journal of Scientific Computing, 2018, 40, A3873-A3901.	1.3	17
26	Numerical simulation of the von KÃ¡rmÃ¡n sodium dynamo experiment. Journal of Fluid Mechanics, 2018, 854, 164-195.	1.4	16
27	High-order time stepping for the Navierâ€“Stokes equations with minimal computational complexity. Journal of Computational and Applied Mathematics, 2017, 310, 92-103.	1.1	27
28	An conservative anti-diffusion technique for the level set method. Journal of Computational and Applied Mathematics, 2017, 321, 448-468.	1.1	17
29	Invariant Domains Preserving Arbitrary Lagrangian Eulerian Approximation of Hyperbolic Systems with Continuous Finite Elements. SIAM Journal of Scientific Computing, 2017, 39, A385-A414.	1.3	6
30	Finite element quasi-interpolation and best approximation. ESAIM: Mathematical Modelling and Numerical Analysis, 2017, 51, 1367-1385.	0.8	111
31	The Effect of the Consistent Mass Matrix on the Maximum-Principle for Scalar Conservation Equations. Journal of Scientific Computing, 2017, 70, 1358-1366.	1.1	10
32	Invariant Domains and Second-Order Continuous Finite Element Approximation for Scalar Conservation Equations. SIAM Journal on Numerical Analysis, 2017, 55, 3120-3146.	1.1	31
33	Well-Balanced Second-Order Approximation of the Shallow Water Equation with Continuous Finite Elements. SIAM Journal on Numerical Analysis, 2017, 55, 3203-3224.	1.1	15
34	Direct numerical simulation of the axial dipolar dynamo in the Von KÃ¡rmÃ¡n Sodium experiment. Europhysics Letters, 2016, 114, 65002.	0.7	15
35	An Interior Penalty Method with C⁰Finite Elements for the Approximation of the Maxwell Equations in Heterogeneous Media: Convergence Analysis with Minimal Regularity. ESAIM: Mathematical Modelling and Numerical Analysis, 2016, 50, 1457-1489.	0.8	15
36	A converse to Fortin's Lemma in Banach spaces. Comptes Rendus Mathematique, 2016, 354, 1092-1095.	0.1	9

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37	Fast estimation from above of the maximum wave speed in the Riemann problem for the Euler equations. Journal of Computational Physics, 2016, 321, 908-926.	1.9	37
38	Invariant Domains and First-Order Continuous Finite Element Approximation for Hyperbolic Systems. SIAM Journal on Numerical Analysis, 2016, 54, 2466-2489.	1.1	76
39	Two spinning ways for precession dynamo. Physical Review E, 2016, 93, 043113.	0.8	10
40	Linear Stabilization for First-Order PDEs. Handbook of Numerical Analysis, 2016, 17, 265-288.	0.9	0
41	Mollification in Strongly Lipschitz Domains with Application to Continuous and Discrete De Rham Complexes. Computational Methods in Applied Mathematics, 2016, 16, 51-75.	0.4	33
42	Numerical simulations of bouncing jets. International Journal for Numerical Methods in Fluids, 2016, 80, 53-75.	0.9	20
43	Performance benchmarks for a next generation numerical dynamo model. Geochemistry, Geophysics, Geosystems, 2016, 17, 1586-1607.	1.0	66
44	Error Estimates of a First-order Lagrange Finite Element Technique for Nonlinear Scalar Conservation Equations. SIAM Journal on Numerical Analysis, 2016, 54, 57-85.	1.1	3
45	Approximation of the time-dependent induction equation with advection using Whitney elements. COMPEL - the International Journal for Computation and Mathematics in Electrical and Electronic Engineering, 2016, 35, 326-338.	0.5	7
46	Entropyâ€“viscosity method for the single material Euler equations in Lagrangian frame. Computer Methods in Applied Mechanics and Engineering, 2016, 300, 402-426.	3.4	26
47	Tayler instability in liquid metal columns and liquid metal batteries. Journal of Fluid Mechanics, 2015, 771, 79-114.	1.4	41
48	Canonical Models of Geophysical and Astrophysical Flows: Turbulent Convection Experiments in Liquid Metals. Metals, 2015, 5, 289-335.	1.0	14
49	Numerical dynamo action in cylindrical containers. EPJ Applied Physics, 2015, 70, 31101.	0.3	1
50	Modified Pressure-Correction Projection Methods: Open Boundary and Variable Time Stepping. Lecture Notes in Computational Science and Engineering, 2015, , 623-631.	0.1	2
51	High-Order Time Stepping for the Incompressible Navier--Stokes Equations. SIAM Journal of Scientific Computing, 2015, 37, A2656-A2681.	1.3	41
52	Mean-field model of the von KÃ¡rmÃ¡n sodium dynamo experiment using soft iron impellers. Physical Review E, 2015, 91, 013008.	0.8	10
53	A spherical shell numerical dynamo benchmark with pseudo-vacuum magnetic boundary conditions. Geophysical Journal International, 2014, 196, 712-723.	1.0	25
54	Full sphere hydrodynamic and dynamo benchmarks. Geophysical Journal International, 2014, 197, 119-134.	1.0	41

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55	A maximum-principle preserving finite element method for scalar conservation equations. Computer Methods in Applied Mechanics and Engineering, 2014, 272, 198-213.	3.4	39
56	Viscous Regularization of the Euler Equations and Entropy Principles. SIAM Journal on Applied Mathematics, 2014, 74, 284-305.	0.8	75
57	A Second-Order Maximum Principle Preserving Lagrange Finite Element Technique for Nonlinear Scalar Conservation Equations. SIAM Journal on Numerical Analysis, 2014, 52, 2163-2182.	1.1	61
58	Discontinuous Galerkin for the Radiative Transport Equation. The IMA Volumes in Mathematics and Its Applications, 2014, , 181-193.	0.5	4
59	Remarks on the stability of the Navierâ€“Stokes equations supplemented with stress boundary conditions. European Journal of Mechanics, B/Fluids, 2013, 39, 1-10.	1.2	8
60	Weighting the Edge Stabilization. SIAM Journal on Numerical Analysis, 2013, 51, 1655-1677.	1.1	21
61	Regularity of the Maxwell equations in heterogeneous media and Lipschitz domains. Journal of Mathematical Analysis and Applications, 2013, 408, 498-512.	0.5	61
62	Implementation of the entropy viscosity method with the discontinuous Galerkin method. Computer Methods in Applied Mechanics and Engineering, 2013, 253, 479-490.	3.4	46
63	A correction technique for the dispersive effects of mass lumping for transport problems. Computer Methods in Applied Mechanics and Engineering, 2013, 253, 186-198.	3.4	36
64	Stability analysis of explicit entropy viscosity methods for non-linear scalar conservation equations. Mathematics of Computation, 2013, 83, 1039-1062.	1.1	15
65	Efficient Parallel Algorithms for Unsteady Incompressible Flows. Springer Proceedings in Mathematics and Statistics, 2013, , 185-201.	0.1	2
66	Influence of high-permeability discs in an axisymmetric model of the Cadarache dynamo experiment. New Journal of Physics, 2012, 14, 053005.	1.2	34
67	Convergence analysis of a class of massively parallel direction splitting algorithms for the Navier-Stokes equations in simple domains. Mathematics of Computation, 2012, 81, 1951-1977.	1.1	8
68	Nonlinear dynamo in a short Taylorâ€“Couette setup. Physics of Fluids, 2012, 24, .	1.6	6
69	A robust S-DG-approximation for radiation transport in optically thick and diffusive regimes. Journal of Computational Physics, 2012, 231, 1947-1962.	1.9	19
70	Startâ€up flow in a threeâ€dimensional lidâ€driven cavity by means of a massively parallel direction splitting algorithm. International Journal for Numerical Methods in Fluids, 2012, 68, 856-871.	0.9	17
71	Error Analysis of a Fractional Time-Stepping Technique for Incompressible Flows with Variable Density. SIAM Journal on Numerical Analysis, 2011, 49, 917-944.	1.1	52
72	Approximation of the eigenvalue problem for the time harmonic Maxwell system by continuous Lagrange finite elements. Mathematics of Computation, 2011, 80, 1887-1910.	1.1	45

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73	From Suitable Weak Solutions to Entropy Viscosity. Journal of Scientific Computing, 2011, 49, 35-50.	1.1	27
74	Effects of discontinuous magnetic permeability on magnetodynamic problems. Journal of Computational Physics, 2011, 230, 6299-6319.	1.9	18
75	A note on the Stokes operator and its powers. Journal of Applied Mathematics and Computing, 2011, 36, 241-250.	1.2	6
76	A new class of massively parallel direction splitting for the incompressible Navierâ€“Stokes equations. Computer Methods in Applied Mechanics and Engineering, 2011, 200, 2083-2093.	3.4	37
77	Entropy viscosity method for nonlinear conservation laws. Journal of Computational Physics, 2011, 230, 4248-4267.	1.9	259
78	From suitable weak solutions to entropy viscosity. ERCOFTAC Series, 2011, , 373-390.	0.1	4
79	A new class of fractional step techniques for the incompressible Navierâ€“Stokes equations using direction splitting. Comptes Rendus Mathematique, 2010, 348, 581-585.	0.1	27
80	Electromagnetic induction in non-uniform domains. Geophysical and Astrophysical Fluid Dynamics, 2010, 104, 505-529.	0.4	25
81	Generation of axisymmetric modes in cylindrical kinematic mean-field dynamos of VKS type. Geophysical and Astrophysical Fluid Dynamics, 2010, 104, 249-271.	0.4	13
82	Asymptotic Analysis of Upwind Discontinuous Galerkin Approximation of the Radiative Transport Equation in the Diffusive Limit. SIAM Journal on Numerical Analysis, 2010, 48, 53-78.	1.1	41
83	Surface Reconstruction and Image Enhancement via L^1-Minimization. SIAM Journal of Scientific Computing, 2010, 32, 1591-1616.	1.3	8
84	The LBB condition in fractional Sobolev spaces and applications. IMA Journal of Numerical Analysis, 2009, 29, 790-805.	1.5	13
85	A splitting method for incompressible flows with variable density based on a pressure Poisson equation. Journal of Computational Physics, 2009, 228, 2834-2846.	1.9	133
86	Nonlinear magnetohydrodynamics in axisymmetric heterogeneous domains using a Fourier/finite element technique and an interior penalty method. Journal of Computational Physics, 2009, 228, 2739-2757.	1.9	53
87	L^1-Approximation of Stationary Hamiltonâ€“Jacobi Equations. SIAM Journal on Numerical Analysis, 2009, 47, 339-362.	1.1	9
88	Surface Reconstruction via L 1-Minimization. Lecture Notes in Computer Science, 2009, , 32-43.	1.0	1
89	An optimal L1-minimization algorithm for stationary Hamilton-Jacobi equations. Communications in Mathematical Sciences, 2009, 7, 211-238.	0.5	3
90	Stability of Discrete Stokes Operators in Fractional Sobolev Spaces. Journal of Mathematical Fluid Mechanics, 2008, 10, 588-610.	0.4	8

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91	L 1-minimization methods for Hamiltonâ€“Jacobi equations: the one-dimensional case. Numerische Mathematik, 2008, 109, 269-284.	0.9	9
92	A fully discrete nonlinear Galerkin method for the 3D Navierâ€“Stokes equations. Numerical Methods for Partial Differential Equations, 2008, 24, 759-775.	2.0	7
93	On the use of the notion of suitable weak solutions in CFD. International Journal for Numerical Methods in Fluids, 2008, 57, 1153-1170.	0.9	29
94	Entropy-based nonlinear viscosity for Fourier approximations of conservation laws. Comptes Rendus Mathematique, 2008, 346, 801-806.	0.1	51
95	A fractional step method based on a pressure Poisson equation for incompressible flows with variable density. Comptes Rendus Mathematique, 2008, 346, 913-918.	0.1	12
96	Discontinuous Galerkin Methods for Friedrichs' Systems. Part III. Multifield Theories with Partial Coercivity. SIAM Journal on Numerical Analysis, 2008, 46, 776-804.	1.1	30
97	Discontinuous Galerkin Methods for Anisotropic Semidefinite Diffusion with Advection. SIAM Journal on Numerical Analysis, 2008, 46, 805-831.	1.1	58
98	Impact of Impellers on the Axisymmetric Magnetic Mode in the VKS2 Dynamo Experiment. Physical Review Letters, 2008, 101, 104501.	2.9	40
99	A fast algorithm for solving first-order PDEs by L1-minimization. Communications in Mathematical Sciences, 2008, 6, 199-216.	0.5	16
100	An Intrinsic Criterion for the Bijectivity of Hilbert Operators Related to Friedrich' Systems. Communications in Partial Differential Equations, 2007, 32, 317-341.	1.0	34
101	Faedoâ€“Galerkin weak solutions of the Navierâ€“Stokes equations with Dirichlet boundary conditions are suitable. Journal Des Mathematiques Pures Et Appliquees, 2007, 88, 87-106.	0.8	34
102	An interior penalty Galerkin method for the MHD equations in heterogeneous domains. Journal of Computational Physics, 2007, 221, 349-369.	1.9	58
103	Effects of conductivity jumps in the envelope of a kinematic dynamo flow. Comptes Rendus - Mecanique, 2006, 334, 593-598.	2.1	17
104	Subgrid stabilized projection method for 2D unsteady flows at high Reynolds numbers. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 5857-5876.	3.4	51
105	Finite-element-based Faedoâ€“Galerkin weak solutions to the Navierâ€“Stokes equations in the three-dimensional torus are suitable. Journal Des Mathematiques Pures Et Appliquees, 2006, 85, 451-464.	0.8	27
106	On the construction of suitable solutions to the Navierâ€“Stokes equations and questions regarding the definition of large eddy simulation. Physica D: Nonlinear Phenomena, 2005, 207, 64-78.	1.3	17
107	A locally DIV-free projection scheme for incompressible flows based on non-conforming finite elements. International Journal for Numerical Methods in Fluids, 2005, 49, 549-568.	0.9	12
108	Mathematical Perspectives on Large Eddy Simulation Models for Turbulent Flows. Journal of Mathematical Fluid Mechanics, 2004, 6, 194-248.	0.4	86

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109	Accurate numerical simulation of radiative heat transfer with application to crystal growth. International Journal for Numerical Methods in Engineering, 2004, 61, 559-583.	1.5	4
110	Theory and Practice of Finite Elements. Applied Mathematical Sciences (Switzerland), 2004, , .	0.4	1,021
111	3D VECTOR POISSON-LIKE PROBLEM WITH A TRIPLET OF INTRINSIC SCALAR BOUNDARY CONDITIONS. Mathematical Models and Methods in Applied Sciences, 2003, 13, 1725-1743.	1.7	2
112	Mathematical analysis of a spectral hyperviscosity LES model for the simulation of turbulent flows. ESAIM: Mathematical Modelling and Numerical Analysis, 2003, 37, 893-908.	0.8	23
113	Start-up flows in a three-dimensional rectangular driven cavity of aspect ratio 1:1:2 at Re = 1000. Journal of Fluid Mechanics, 2002, 450, 169-199.	1.4	54
114	Role of the LBB Condition in Weak Spectral Projection Methods. Journal of Computational Physics, 2001, 174, 405-420.	1.9	15
115	Approximation of variable density incompressible flows by means of finite elements and finite volumes. Communications in Numerical Methods in Engineering, 2001, 17, 893-902.	1.3	19
116	Subgrid stabilization of Galerkin approximations of linear monotone operators. IMA Journal of Numerical Analysis, 2001, 21, 165-197.	1.5	46
117	A Projection FEM for Variable Density Incompressible Flows. Journal of Computational Physics, 2000, 165, 167-188.	1.9	223
118	A domain decomposition method for simulating advection dominated, external incompressible viscous flows. Computers and Fluids, 2000, 29, 525-546.	1.3	9
119	WEAK APPROXIMATION OF THE Ï^â€“Ï‰ EQUATIONS WITH EXPLICIT VISCOUS DIFFUSION. Mathematical Models and Methods in Applied Sciences, 2000, 10, 85-98.	1.7	5
120	Subgrid stabilization of Galerkin approximations of linear contraction semi-groups of class C0. Computing and Visualization in Science, 1999, 2, 131-138.	1.2	2
121	Vorticity-velocity formulations of the Stokes problem in 3D. Mathematical Methods in the Applied Sciences, 1999, 22, 531-546.	1.2	14
122	Un rÃ©sultat de convergence d'ordre deux en temps pour l'approximation des Ã©quations de Navierâ€“Stokes par une technique de projection incrÃ©mentale. ESAIM: Mathematical Modelling and Numerical Analysis, 1999, 33, 169-189.	0.8	55
123	Some remarks on the acoustic parameters of sharp-edged porous media. International Journal of Engineering Science, 1998, 36, 1035-1046.	2.7	14
124	On stability and convergence of projection methods based on pressure Poisson equation. International Journal for Numerical Methods in Fluids, 1998, 26, 1039-1053.	0.9	154
125	On the approximation of the unsteady Navier-Stokes equations by finite element projection methods. Numerische Mathematik, 1998, 80, 207-238.	0.9	139
126	Nonlinear corrections to Darcy's law at low Reynolds numbers. Journal of Fluid Mechanics, 1997, 343, 331-350.	1.4	181

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127	Calculation of Incompressible Viscous Flows by an Unconditionally Stable Projection FEM. Journal of Computational Physics, 1997, 132, 12-33.	1.9	83
128	Some implementations of projection methods for Navier-Stokes equations. ESAIM: Mathematical Modelling and Numerical Analysis, 1996, 30, 637-667.	0.8	63
129	Remarques sur les m'ethodes de projection pour l'approximation des 'equations de Navier--Stokes. Numerische Mathematik, 1994, 67, 465-473.	0.9	9
130	High order numerical quadratures for layer potentials over curved domains in â„3. Computer Methods in Applied Mechanics and Engineering, 1994, 116, 257-263.	3.4	1
131	Equivalence of u-p and Î¶-Ï formulations of the time-dependent Navier-Stokes equations. International Journal for Numerical Methods in Fluids, 1994, 18, 471-487.	0.9	10
132	Simulation of 2D External Viscous Flows by Means of a Domain Decomposition Method. Journal of Computational Physics, 1993, 108, 343-352.	1.9	20
133	Numerical Quadratures for Layer Potentials over Curved Domains in $mathbb{R}^3 $. SIAM Journal on Numerical Analysis, 1992, 29, 1347-1369.	1.1	16
134	A unified unsteady lifting-line theory. Journal of Fluid Mechanics, 1991, 229, 427.	1.4	34
135	A generalized lifting-line theory for curved and swept wings. Journal of Fluid Mechanics, 1990, 211, 497-513.	1.4	30
136	Second-Order Invariant Domain Preserving ALE Approximation of Euler Equations. Communications on Applied Mathematics and Computation, 0, , .	0.7	1
137	Well-Balanced Second-Order Convex Limiting Technique for Solving the Serreâ€“Greenâ€“Naghdi Equations. Water Waves, 0, , .	0.3	1