Jay Gopalakrishnan

List of Publications by Year
in descending order

Version: 2024-02-01

80 papers	4,045 citations	159585 30 h-index	118850 62 g-index
85 all docs	85 docs citations	85 times ranked	1241 citing authors

#	Article	IF	Citations
1	Unified Hybridization of Discontinuous Galerkin, Mixed, and Continuous Galerkin Methods for Second Order Elliptic Problems. SIAM Journal on Numerical Analysis, 2009, 47, 1319-1365.	2.3	830
2	A projection-based error analysis of HDG methods. Mathematics of Computation, 2010, 79, 1351-1367.	2.1	202
3	A class of discontinuous Petrovâ€“Galerkin methods. II. Optimal test functions. Numerical Methods for Partial Differential Equations, 2011, 27, 70-105.	3.6	195
4	A class of discontinuous Petrovâ€“Galerkin methods. Part I: The transport equation. Computer Methods in Applied Mechanics and Engineering, 2010, 199, 1558-1572.	6.6	174
5	Analysis of HDG methods for Stokes flow. Mathematics of Computation, 2011, 80, 723-723.	2.1	133
6	A Characterization of Hybridized Mixed Methods for Second Order Elliptic Problems. SIAM Journal on Numerical Analysis, 2004, 42, 283-301.	2.3	124
7	A multilevel discontinuous Galerkin method. Numerische Mathematik, 2003, 95, 527-550.	1.9	120
8	Breaking spaces and forms for the DPG method and applications including Maxwell equations. Computers and Mathematics With Applications, 2016, 72, 494-522.	2.7	117
9	A class of discontinuous Petrovâ€“Galerkin methods. Part IV: The optimal test norm and time-harmonic wave propagation in 1D. Journal of Computational Physics, 2011, 230, 2406-2432.	3.8	115
10	Analysis of the DPG Method for the Poisson Equation. SIAM Journal on Numerical Analysis, 2011, 49, 1788-1809.	2.3	107
11	An analysis of the practical DPG method. Mathematics of Computation, 2013, 83, 537-552.	2.1	104
12	The Derivation of Hybridizable Discontinuous Galerkin Methods for Stokes Flow. SIAM Journal on Numerical Analysis, 2009, 47, 1092-1125.	2.3	102
13	A new elasticity element made for enforcing weak stress symmetry. Mathematics of Computation, 2010, 79, 1331-1349.	2.1	96
14	A class of discontinuous Petrovâ€“Galerkin methods. Part III: Adaptivity. Applied Numerical Mathematics, 2012, 62, 396-427.	2.1	92
15	An Efficient Method for Band Structure Calculations in 3D Photonic Crystals. Journal of Computational Physics, 2000, 161, 668-679.	3.8	70
16	A Posteriori Error Control for DPG Methods. SIAM Journal on Numerical Analysis, 2014, 52, 1335-1353.	2.3	69
17	Wavenumber explicit analysis of a DPG method for the multidimensional Helmholtz equation. Computer Methods in Applied Mechanics and Engineering, 2012, 213-216, 126-138.	6.6	68
18	A second elasticity element using the matrix bubble. IMA Journal of Numerical Analysis, 2012, 32, 352-372.	2.9	66

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19	Analysis of a Multigrid Algorithm for Time Harmonic Maxwell Equations. SIAM Journal on Numerical Analysis, 2004, 42, 90-108.	2.3	64
20	Incompressible Finite Elements via Hybridization. Part I: The Stokes System in Two Space Dimensions. SIAM Journal on Numerical Analysis, 2005, 43, 1627-1650.	2.3	58
21	Symmetric Nonconforming Mixed Finite Elements for Linear Elasticity. SIAM Journal on Numerical Analysis, 2011, 49, 1504-1520.	2.3	57
22	Locally Conservative Fluxes for the Continuous Galerkin Method. SIAM Journal on Numerical Analysis, 2007, 45, 1742-1776.	2.3	56
23	Multigrid for an HDG method. IMA Journal of Numerical Analysis, 2014, 34, 1386-1425.	2.9	53
24	A locking-free $$hp$$ DPG method for linear elasticity with symmetric stresses. Numerische Mathematik, 2012, 122, 671-707.	1.9	49
25	A primal DPG method without a first-order reformulation. Computers and Mathematics With Applications, 2013, 66, 1058-1064.	2.7	48
26	Error analysis of variable degree mixed methods for elliptic problems via hybridization. Mathematics of Computation, 2005, 74, 1653-1678.	2.1	43
27	Incompressible Finite Elements via Hybridization. Part II: The Stokes System in Three Space Dimensions. SIAM Journal on Numerical Analysis, 2005, 43, 1651-1672.	2.3	42
28	A Spacetime DPG Method for the SchrÃ¶dinger Equation. SIAM Journal on Numerical Analysis, 2017, 55, 1740-1759.	2.3	40
29	Multigrid for the Mortar Finite Element Method. SIAM Journal on Numerical Analysis, 2000, 37, 1029-1052.	2.3	39
30	Overlapping Schwarz preconditioners for indefinite time harmonic Maxwell equations. Mathematics of Computation, 2001, 72, 1-16.	2.1	38
31	A Schwarz Preconditioner for a Hybridized Mixed Method. Computational Methods in Applied Mathematics, 2003, 3, 116-134.	0.8	34
32	Polynomial extension operators. Part III. Mathematics of Computation, 2012, 81, 1289-1326.	2.1	32
33	A Mathematical Model for Irrigated Epicardial Radiofrequency Ablation. Annals of Biomedical Engineering, 2002, 30, 884-893.	2.5	31
34	NÃ©dÃ©lec spaces in affine coordinates. Computers and Mathematics With Applications, 2005, 49, 1285-1294.	2.7	31
35	The convergence of V-cycle multigrid algorithms for axisymmetric Laplace and Maxwell equations. Mathematics of Computation, 2006, 75, 1697-1719.	2.1	30
36	Polynomial Extension Operators. Part I. SIAM Journal on Numerical Analysis, 2008, 46, 3006-3031.	2.3	28

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37	Determination of the electric field intensity and space charge density versus height prior to triggered lightning. Journal of Geophysical Research, 2011, 116, .	3.3	28
38	New hybridization techniques. GAMM Mitteilungen, 2005, 28, 154-182.	5.5	25
39	A mixed method for axisymmetric div-curl systems. Mathematics of Computation, 2008, 77, 1941-1965.	2.1	23
40	Polynomial Extension Operators. Part II. SIAM Journal on Numerical Analysis, 2009, 47, 3293-3324.	2.3	23
41	Dispersive and Dissipative Errors in the DPG Method with Scaled Norms for Helmholtz Equation. SIAM Journal of Scientific Computing, 2014, 36, A20-A39.	2.8	23
42	A convergent multigrid cycle for the hybridized mixed method. Numerical Linear Algebra With Applications, 2009, 16, 689-714.	1.6	21
43	Convergence rates of the DPG method with reduced test space degree. Computers and Mathematics With Applications, 2014, 68, 1550-1561.	2.7	21
44	Asymptotic and Numerical Techniques for Resonances of Thin Photonic Structures. SIAM Journal on Applied Mathematics, 2008, 69, 37-63.	1.8	20
45	MIXED FINITE ELEMENT APPROXIMATION OF THE VECTOR LAPLACIAN WITH DIRICHLET BOUNDARY CONDITIONS. Mathematical Models and Methods in Applied Sciences, 2012, 22, .	3.3	20
46	Mathematical model for bone mineralization. Frontiers in Cell and Developmental Biology, 2015, 3, 51.	3.7	19
47	Mapped Tent Pitching Schemes for Hyperbolic Systems. SIAM Journal of Scientific Computing, 2017, 39, B1043-B1063.	2.8	19
48	Quasioptimality of some spectral mixed methods. Journal of Computational and Applied Mathematics, 2004, 167, 163-182.	2.0	17
49	A multilevel discontinuous Galerkin method. Numerische Mathematik, 2003, 95, 551-551.	1.9	15
50	A tent pitching scheme motivated by Friedrichs theory. Computers and Mathematics With Applications, 2015, 70, 1114-1135.	2.7	15
51	Hybridization and Postprocessing Techniques for Mixed Eigenfunctions. SIAM Journal on Numerical Analysis, 2010, 48, 857-881.	2.3	14
52	A mass conserving mixed stress formulation for the Stokes equations. IMA Journal of Numerical Analysis, 2020, 40, 1838-1874.	2.9	14
53	Partial expansion of a Lipschitz domain and some applications. Frontiers of Mathematics in China, 2012, 7, 249-272.	0.7	13
54	Nonnegativity of exact and numerical solutions of some chemotactic models. Computers and Mathematics With Applications, 2013, 66, 356-375.	2.7	13

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55	Spectral approximations by the HDG method. Mathematics of Computation, 2014, 84, 1037-1059.	2.1	12
56	The DPG-star method. Computers and Mathematics With Applications, 2020, 79, 3092-3116.	2.7	12
57	Multigrid in a weighted space arising from axisymmetric electromagnetics. Mathematics of Computation, 2010, 79, 2033-2058.	2.1	10
58	Commuting Smoothed Projectors in Weighted Norms with an Application to Axisymmetric Maxwell Equations. Journal of Scientific Computing, 2012, 51, 394-420.	2.3	9
59	Spectral discretization errors in filtered subspace iteration. Mathematics of Computation, 2019, 89, 203-228.	2.1	9
60	A Mass Conserving Mixed Stress Formulation for Stokes Flow with Weakly Imposed Stress Symmetry. SIAM Journal on Numerical Analysis, 2020, 58, 706-732.	2.3	9
61	Integration of hp-adaptivity and a two grid solver for electromagnetic problems. Computer Methods in Applied Mechanics and Engineering, 2006, 195, 2533-2573.	6.6	8
62	Recent Advances in Least-Squares and Discontinuous Petrovâ€“Galerkin Finite Element Methods. Computational Methods in Applied Mathematics, 2019, 19, 395-397.	0.8	7
63	Dispersion Analysis of HDG Methods. Journal of Scientific Computing, 2018, 77, 1703-1735.	2.3	6
64	The Auxiliary Space Preconditioner for the de Rham Complex. SIAM Journal on Numerical Analysis, 2018, 56, 3196-3218.	2.3	6
65	Analysis of FEAST Spectral Approximations Using the DPG Discretization. Computational Methods in Applied Mathematics, 2019, 19, 251-266.	0.8	6
66	Stabilization in relation to wavenumber in HDG methods. Advanced Modeling and Simulation in Engineering Sciences, 2015, 2, .	1.7	5
67	A Scalable Preconditioner for a Primal Discontinuous Petrov–Galerkin Method. SIAM Journal of Scientific Computing, 2018, 40, A1187-A1203.	2.8	4
68	Multigrid convergence for second order elliptic problems with smooth complex coefficients. Computer Methods in Applied Mechanics and Engineering, 2008, 197, 4411-4418.	6.6	3
69	A Hybridized Discontinuous Petrov-Galerkin Method for Compresible Flows. , 2011, , .		3
70	4. A space-time DPG method for the wave equation in multiple dimensions. , 2019, , 117-140.		3
71	Simulation of optical fiber amplifier gain using equivalent short fibers. Computer Methods in Applied Mechanics and Engineering, 2020, 360, 112698.	6.6	3
72	Scattering of electromagnetic waves by thin high contrast dielectrics II: Asymptotics of the electric field and a method for inversion. Communications in Mathematical Sciences, 2017, 15, 1041-1053.	1.0	3

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73	Instability in a generalized Kellerâ€“Segel model. Journal of Biological Dynamics, 2012, 6, 974-991.	1.7	2
74	Convergence analysis of a multigrid algorithm for the acoustic single layer equation. Applied Numerical Mathematics, 2012, 62, 767-786.	2.1	2
75	Structure aware Rungeâ€“Kutta time stepping for spacetime tents. SN Partial Differential Equations and Applications, 2020, 1, 19.	0.6	2
76	Simulations of single- and two-tone Tm-doped optical fiber laser amplifiers. Optics Express, 2021, 29, 12599.	3.4	2
77	Computing leaky modes of optical fibers using a FEAST algorithm for polynomial eigenproblems. Wave Motion, 2021, 108, 102826.	2.0	2
78	Minimum Residual and Least Squares Finite Element Methods. Computers and Mathematics With Applications, 2014, 68, 1479.	2.7	1
79	Reduced test spaces for DPG methods using rectangular elements. Computers and Mathematics With Applications, 2017, 74, 1955-1963.	2.7	1
80	Recent Advances in Least-Squares and Discontinuous Petrovâ€“Galerkin Finite Element Methods. Computers and Mathematics With Applications, 2021, 95, 1-3.	2.7	1