

Martin Vohralik

List of Publications by Year in descending order

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696
citing authors

#	ARTICLE	IF	CITATIONS
1	Equivalence of local- and global-best approximations, a simple stable local commuting projector, and optimal hp approximation estimates in $H(\text{div})$. IMA Journal of Numerical Analysis, 2022, 42, 1023-1049.	2.9	13
2	Inexpensive guaranteed and efficient upper bounds on the algebraic error in finite element discretizations. Numerical Algorithms, 2022, 89, 371-407.	1.9	1
3	Post-processing of the planewave approximation of Schrödinger equations. Part I: linear operators. IMA Journal of Numerical Analysis, 2021, 41, 2423-2455.	2.9	3
4	Guaranteed and robust L2-norm a posteriori error estimates for 1D linear advection problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2021, 55, S447-S474.	1.9	2
5	Convergence and quasi-optimal cost of adaptive algorithms for nonlinear operators including iterative linearization and algebraic solver. Numerische Mathematik, 2021, 147, 679-725.	1.9	10
6	Contractive Local Adaptive Smoothing Based on Dörfler's Marking in A-Posteriori-Steered p-Robust Multigrid Solvers. Computational Methods in Applied Mathematics, 2021, 21, 445-468.	0.8	1
7	A-Posteriori-Steered p-Robust Multigrid with Optimal Step-Sizes and Adaptive Number of Smoothing Steps. SIAM Journal of Scientific Computing, 2021, 43, S117-S145.	2.8	3
8	Equivalence of local-best and global-best approximations in $H(\text{curl})$. Calcolo, 2021, 58, 1.	1.1	13
9	Localization of the $W^{-1,q}$ norm for local a posteriori efficiency. IMA Journal of Numerical Analysis, 2020, 40, 914-950.	2.9	10
10	Goal-oriented a posteriori error estimation for conforming and nonconforming approximations with inexact solvers. Journal of Computational and Applied Mathematics, 2020, 366, 112367.	2.0	21
11	A posteriori error estimates for a compositional two-phase flow with nonlinear complementarity constraints. Computational Geosciences, 2020, 24, 1031-1055.	2.4	3
12	An adaptive hp-refinement strategy with inexact solvers and computable guaranteed bound on the error reduction factor. Computer Methods in Applied Mechanics and Engineering, 2020, 359, 112607.	6.6	4
13	A posteriori estimates distinguishing the error components and adaptive stopping criteria for numerical approximations of parabolic variational inequalities. Computer Methods in Applied Mechanics and Engineering, 2020, 367, 113105.	6.6	10
14	Guaranteed a posteriori bounds for eigenvalues and eigenvectors: Multiplicities and clusters. Mathematics of Computation, 2020, 89, 2563-2611.	2.1	10
15	Adaptive Inexact Semismooth Newton Methods for the Contact Problem Between Two Membranes. Journal of Scientific Computing, 2020, 84, 1.	2.3	5
16	Polynomial-degree-robust $H(\text{curl})$ discrete minimization in a tetrahedron. Comptes Rendus Mathématique, 2020, 358, 1101-1110.	0.3	3
17	Sharp algebraic and total a posteriori error bounds for h and p finite elements via a multilevel approach. Recovering mass balance in any situation. Computer Methods in Applied Mechanics and Engineering, 2020, 371, 113243.	6.6	8
18	Simple and robust equilibrated flux a posteriori estimates for singularly perturbed reaction-diffusion problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2020, 54, 1951-1973.	1.9	6

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19	A Multilevel Algebraic Error Estimator and the Corresponding Iterative Solver with p -Robust Behavior. SIAM Journal on Numerical Analysis, 2020, 58, 2856-2884.	2.3	9
20	Equilibrated flux a posteriori error estimates in $L^2(H^1)$ -norms for high-order discretizations of parabolic problems. IMA Journal of Numerical Analysis, 2019, 39, 1158-1179.	2.9	10
21	Stable broken H^1 and $H(\mathrm{div})$ polynomial extensions for polynomial-degree-robust potential and flux reconstruction in three space dimensions. Mathematics of Computation, 2019, 89, 551-594.	2.1	25
22	A simple a posteriori estimate on general polytopal meshes with applications to complex porous media flows. Computer Methods in Applied Mechanics and Engineering, 2018, 331, 728-760.	6.6	10
23	Adaptive inexact iterative algorithms based on polynomial-degree-robust a posteriori estimates for the Stokes problem. Numerische Mathematik, 2018, 138, 1027-1065.	1.9	4
24	Estimating and localizing the algebraic and total numerical errors using flux reconstructions. Numerische Mathematik, 2018, 138, 681-721.	1.9	21
25	Localization of global norms and robust a posteriori error control for transmission problems with sign-changing coefficients. ESAIM: Mathematical Modelling and Numerical Analysis, 2018, 52, 2037-2064.	1.9	9
26	Guaranteed and robust a posteriori bounds for Laplace eigenvalues and eigenvectors: a unified framework. Numerische Mathematik, 2018, 140, 1033-1079.	1.9	19
27	An adaptive $\langle \mathrm{mml}:\mathrm{math} \ \mathrm{xmlns}:\mathrm{mml}=\text{"http://www.w3.org/1998/Math/MathML"} \ \mathrm{id}=\text{"mml77"} \ \mathrm{display}=\text{"inline"} \ \mathrm{overflow}=\text{"scroll"} \ \mathrm{altimg}=\text{"si5.gif"} \rangle \langle \mathrm{mml}:\mathrm{mi} \rangle \mathrm{h} \langle \mathrm{mml}:\mathrm{mi} \rangle \langle \mathrm{mml}:\mathrm{mi} \rangle \mathrm{p} \langle \mathrm{mml}:\mathrm{mi} \rangle \langle \mathrm{mml}:\mathrm{math} \rangle \text{-refinement strategy with computable guaranteed bound on the error reduction factor. Computers and Mathematics With Applications. 2018, 76, 967-983.$	2.7	14
28	A Posteriori Stopping Criteria for Optimized Schwarz Domain Decomposition Algorithms in Mixed Formulations. Computational Methods in Applied Mathematics, 2018, 18, 495-519.	0.8	7
29	Discrete p -robust $\mathbb{H}(\mathrm{div})$ $H(\mathrm{div})$ -liftings and a posteriori estimates for elliptic problems with H^{-1} source terms. Calcolo, 2017, 54, 1009-1025.	1.1	15
30	Guaranteed and Robust a Posteriori Bounds for Laplace Eigenvalues and Eigenvectors: Conforming Approximations. SIAM Journal on Numerical Analysis, 2017, 55, 2228-2254.	2.3	24
31	Guaranteed, Locally Space-Time Efficient, and Polynomial-Degree Robust a Posteriori Error Estimates for High-Order Discretizations of Parabolic Problems. SIAM Journal on Numerical Analysis, 2017, 55, 2811-2834.	2.3	29
32	p -Adaptation Driven by Polynomial-Degree-Robust A Posteriori Error Estimates for Elliptic Problems. SIAM Journal of Scientific Computing, 2016, 38, A3220-A3246.	2.8	35
33	A perturbation-method-based post-processing for the planewave discretization of Kohn-Sham models. Journal of Computational Physics, 2016, 307, 446-459.	3.8	11
34	Adaptive regularization, linearization, and discretization and a posteriori error control for the two-phase Stefan problem. Mathematics of Computation, 2015, 84, 153-186.	2.1	22
35	Algebraic and Discretization Error Estimation by Equilibrated Fluxes for Discontinuous Galerkin Methods on Nonmatching Grids. Journal of Scientific Computing, 2015, 64, 1-34.	2.3	8
36	Polynomial-Degree-Robust A Posteriori Estimates in a Unified Setting for Conforming, Nonconforming, Discontinuous Galerkin, and Mixed Discretizations. SIAM Journal on Numerical Analysis, 2015, 53, 1058-1081.	2.3	117

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37	A Review of Recent Advances in Discretization Methods, a Posteriori Error Analysis, and Adaptive Algorithms for Numerical Modeling in Geosciences. Oil and Gas Science and Technology, 2014, 69, 701-729.	1.4	13
38	An a posteriori-based, fully adaptive algorithm with adaptive stopping criteria and mesh refinement for thermal multiphase compositional flows in porous media. Computers and Mathematics With Applications, 2014, 68, 2331-2347.	2.7	11
39	A perturbation-method-based a posteriori estimator for the planewave discretization of nonlinear Schrödinger equations. Comptes Rendus Mathematique, 2014, 352, 941-946.	0.3	16
40	A posteriori error estimates, stopping criteria, and adaptivity for multiphase compositional Darcy flows in porous media. Journal of Computational Physics, 2014, 276, 163-187.	3.8	24
41	Adaptive Inexact Newton Methods with A Posteriori Stopping Criteria for Nonlinear Diffusion PDEs. SIAM Journal of Scientific Computing, 2013, 35, A1761-A1791.	2.8	103
42	Four closely related equilibrated flux reconstructions for nonconforming finite elements. Comptes Rendus Mathematique, 2013, 351, 77-80.	0.3	13
43	From face to element unknowns by local static condensation with application to nonconforming finite elements. Computer Methods in Applied Mechanics and Engineering, 2013, 253, 517-529.	6.6	6
44	A posteriori error estimates, stopping criteria, and adaptivity for two-phase flows. Computational Geosciences, 2013, 17, 789-812.	2.4	42
45	A Framework for Robust A Posteriori Error Control in Unsteady Nonlinear Advection-Diffusion Problems. SIAM Journal on Numerical Analysis, 2013, 51, 773-793.	2.3	33
46	MIXED FINITE ELEMENT METHODS: IMPLEMENTATION WITH ONE UNKNOWN PER ELEMENT, LOCAL FLUX EXPRESSIONS, POSITIVITY, POLYGONAL MESHES, AND RELATIONS TO OTHER METHODS. Mathematical Models and Methods in Applied Sciences, 2013, 23, 803-838.	3.3	48
47	Robust a Posteriori Error Control and Adaptivity for Multiscale, Multinumerics, and Mortar Coupling. SIAM Journal on Numerical Analysis, 2013, 51, 526-554.	2.3	24
48	An a posteriori error estimate for vertex-centered finite volume discretizations of immiscible incompressible two-phase flow. Mathematics of Computation, 2013, 83, 153-188.	2.1	35
49	On the unilateral contact between membranes. Part 2: a posteriori analysis and numerical experiments. IMA Journal of Numerical Analysis, 2012, 32, 1147-1172.	2.9	13
50	A unified framework for a posteriori error estimation for the Stokes problem. Numerische Mathematik, 2012, 122, 725-769.	1.9	54
51	A Unified Framework for a posteriori Error Estimation in Elliptic and Parabolic Problems with Application to Finite Volumes. Springer Proceedings in Mathematics, 2011, , 821-837.	0.5	5
52	Guaranteed and Fully Robust a posteriori Error Estimates for Conforming Discretizations of Diffusion Problems with Discontinuous Coefficients. Journal of Scientific Computing, 2011, 46, 397-438.	2.3	52
53	A posteriori error estimates for combined finite volume–finite element discretizations of reactive transport equations on nonmatching grids. Computer Methods in Applied Mechanics and Engineering, 2011, 200, 597-613.	6.6	12
54	Guaranteed and robust a posteriori error estimates and balancing discretization and linearization errors for monotone nonlinear problems. Computer Methods in Applied Mechanics and Engineering, 2011, 200, 2782-2795.	6.6	69

#	ARTICLE	IF	CITATIONS
55	A Posteriori Error Estimates for Unsteady Convection–Diffusion–Reaction Problems and the Finite Volume Method. Springer Proceedings in Mathematics, 2011, , 215-223.	0.5	0
56	A combined finite volume–finite element scheme for the discretization of strongly nonlinear convection–diffusion–reaction problems on nonmatching grids. Numerical Methods for Partial Differential Equations, 2010, 26, 612-646.	3.6	8
57	Unified primal formulation-based a priori and a posteriori error analysis of mixed finite element methods. Mathematics of Computation, 2010, 79, 2001-2032.	2.1	47
58	Guaranteed and robust discontinuous Galerkin a posteriori error estimates for convection–diffusion–reaction problems. Journal of Computational and Applied Mathematics, 2010, 234, 114-130.	2.0	98
59	A Posteriori Error Estimation Based on Potential and Flux Reconstruction for the Heat Equation. SIAM Journal on Numerical Analysis, 2010, 48, 198-223.	2.3	61
60	A Posteriori Error Estimates Including Algebraic Error and Stopping Criteria for Iterative Solvers. SIAM Journal of Scientific Computing, 2010, 32, 1567-1590.	2.8	75
61	On the Unilateral Contact Between Membranes. Part 1: Finite Element Discretization and Mixed Reformulation. Mathematical Modelling of Natural Phenomena, 2009, 4, 21-43.	2.4	8
62	Guaranteed and robust a posteriori error estimates for singularly perturbed reaction–diffusion problems. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 867-888.	1.9	36
63	Flux reconstruction and a posteriori error estimation for discontinuous Galerkin methods on general nonmatching grids. Comptes Rendus Mathematique, 2009, 347, 441-444.	0.3	35
64	A finite element discretization of the contact between two membranes. ESAIM: Mathematical Modelling and Numerical Analysis, 2009, 43, 33-52.	1.9	8
65	Residual flux-based a posteriori error estimates for finite volume and related locally conservative methods. Numerische Mathematik, 2008, 111, 121-158.	1.9	55
66	A posteriori error estimation in the conforming finite element method based on its local conservativity and using local minimization. Comptes Rendus Mathematique, 2008, 346, 687-690.	0.3	22
67	Computable a posteriori error estimates in the finite element method based on its local conservativity: improvements using local minimization. ESAIM: Proceedings and Surveys, 2008, 24, 77-96.	0.4	8
68	A Posteriori Error Estimates for Lowest-Order Mixed Finite Element Discretizations of Convection-Diffusion-Reaction Equations. SIAM Journal on Numerical Analysis, 2007, 45, 1570-1599.	2.3	106
69	A posteriori error estimates for finite volume and mixed finite element discretizations of convection–diffusion–reaction equations. ESAIM: Proceedings and Surveys, 2007, 18, 57-69.	0.4	3
70	Mixed and nonconforming finite element methods on a system of polygons. Applied Numerical Mathematics, 2007, 57, 176-193.	2.1	29
71	An accurate flux reconstruction for discontinuous Galerkin approximations of elliptic problems. Comptes Rendus Mathematique, 2007, 345, 709-712.	0.3	70
72	Equivalence between lowest-order mixed finite element and multi-point finite volume methods on simplicial meshes. ESAIM: Mathematical Modelling and Numerical Analysis, 2006, 40, 367-391.	1.9	37

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73	Numerical modelling of radionuclide transport through a water saturated rock massif. European Physical Journal D, 2006, 56, D87-D94.	0.4	0
74	A combined finite volume–nonconforming/mixed-hybrid finite element scheme for degenerate parabolic problems. Numerische Mathematik, 2006, 105, 73-131.	1.9	85
75	Numerical simulation of fracture flow with a mixed-hybrid FEM stochastic discrete fracture network model. Computational Geosciences, 2005, 8, 217-234.	2.4	71
76	On the Discrete Poincaré–Friedrichs Inequalities for Nonconforming Approximations of the Sobolev Space H^1 . Numerical Functional Analysis and Optimization, 2005, 26, 925-952.	1.4	43
77	Equivalence between mixed finite element and multi-point finite volume methods. Comptes Rendus Mathematique, 2004, 339, 525-528.	0.3	6
78	A posteriori stopping criteria for space-time domain decomposition for the heat equation in mixed formulations. Electronic Transactions on Numerical Analysis, 0, 49, 151-181.	0.0	8
79	A posteriori error estimates and stopping criteria for space-time domain decomposition for two-phase flow between different rock types. SMAI Journal of Computational Mathematics, 0, 5, 195-227.	0.0	12