Ricardo Ruiz Baier

List of Publications by Year
in descending order

110 papers	1,952 citations	304743 22 h-index	330143 37 g-index
111 all docs	111 docs citations	111 times ranked	1045 citing authors

#	Article	IF	Citations
1	Integrated Heartâ€”Coupling multiscale and multiphysics models for the simulation of the cardiac function. Computer Methods in Applied Mechanics and Engineering, 2017, 314, 345-407.	6.6	179
2	Thermodynamically consistent orthotropic activation model capturing ventricular systolic wall thickening in cardiac electromechanics. European Journal of Mechanics, A/Solids, 2014, 48, 129-142.	3.7	82
3	Orthotropic active strain models for the numerical simulation of cardiac biomechanics. International Journal for Numerical Methods in Biomedical Engineering, 2012, 28, 761-788.	2.1	76
4	Locking-Free Finite Element Methods for Poroelasticity. SIAM Journal on Numerical Analysis, 2016, 54, 2951-2973.	2.3	72
5	ANALYSIS OF A FINITE VOLUME METHOD FOR A CROSS-DIFFUSION MODEL IN POPULATION DYNAMICS. Mathematical Models and Methods in Applied Sciences, 2011, 21, 307-344.	3.3	70
6	An active strain electromechanical model for cardiac tissue. International Journal for Numerical Methods in Biomedical Engineering, 2012, 28, 52-71.	2.1	69
7	Mathematical analysis and numerical simulation of pattern formation under cross-diffusion. Nonlinear Analysis: Real World Applications, 2013, 14, 601-612.	1.7	56
8	Mathematical modelling of active contraction in isolated cardiomyocytes. Mathematical Medicine and Biology, 2014, 31, 259-283.	1.2	52
9	Sensitivity analysis of a strongly-coupled human-based electromechanical cardiac model: Effect of mechanical parameters on physiologically relevant biomarkers. Computer Methods in Applied Mechanics and Engineering, 2020, 361, 112762.	6.6	52
10	New fully-mixed finite element methods for the Stokesâ€“Darcy coupling. Computer Methods in Applied Mechanics and Engineering, 2015, 295, 362-395.	6.6	48
11	A note on stress-driven anisotropic diffusion and its role in active deformable media. Journal of Theoretical Biology, 2017, 430, 221-228.	1.7	38
12	A Stabilized Finite Volume Element Formulation for Sedimentation-Consolidation Processes. SIAM Journal of Scientific Computing, 2012, 34, B265-B289.	2.8	37
13	An augmented velocityâ€“vorticityâ€“pressure formulation for the Brinkman equations. International Journal for Numerical Methods in Fluids, 2015, 79, 109-137.	1.6	36
14	An augmented mixed-primal finite element method for a coupled flow-transport problem. ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 1399-1427.	1.9	33
15	A fully adaptive numerical approximation for a two-dimensional epidemic model with nonlinear cross-diffusion. Nonlinear Analysis: Real World Applications, 2011, 12, 2888-2903.	1.7	30
16	Competing Mechanisms of Stress-Assisted Diffusivity and Stretch-Activated Currents in Cardiac Electromechanics. Frontiers in Physiology, 2018, 9, 1714.	2.8	29
17	A multiresolution spaceâ€time adaptive scheme for the bidomain model in electrocardiology. Numerical Methods for Partial Differential Equations, 2010, 26, 1377-1404.	3.6	28
18	A priori and a posteriori error analysis of a mixed scheme for the Brinkman problem. Numerische Mathematik, 2016, 133, 781-817.	1.9	27

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19	Finite volume element approximation of an inhomogeneous Brusselator model with cross-diffusion. Journal of Computational Physics, 2014, 256, 806-823.	3.8	25
20	Discontinuous finite volume element discretization for coupled flowâ€“transport problems arising in models of sedimentation. Journal of Computational Physics, 2015, 299, 446-471.	3.8	25
21	Conservative discontinuous finite volume and mixed schemes for a new four-field formulation in poroelasticity. ESAIM: Mathematical Modelling and Numerical Analysis, 2020, 54, 273-299.	1.9	25
22	Adaptive multiresolution schemes with local time stepping for two-dimensional degenerate reactionâ€“diffusion systems. Applied Numerical Mathematics, 2009, 59, 1668-1692.	2.1	24
23	Adaptive Multiresolution Methods for the Simulation ofÂWaves in Excitable Media. Journal of Scientific Computing, 2010, 43, 261-290.	2.3	24
24	<i>A posteriori</i>error analysis for a viscous flow-transport problem. ESAIM: Mathematical Modelling and Numerical Analysis, 2016, 50, 1789-1816.	1.9	22
25	An adaptive finite-volume method for a model of two-phase pedestrian flow. Networks and Heterogeneous Media, 2011, 6, 401-423.	1.1	22
26	Fully adaptive multiresolution schemes for strongly degenerate parabolic equations in one space dimension. ESAIM: Mathematical Modelling and Numerical Analysis, 2008, 42, 535-563.	1.9	21
27	Numerical solution of a multidimensional sedimentation problem using finite volume-element methods. Applied Numerical Mathematics, 2015, 95, 280-291.	2.1	21
28	Nonlinear diffusion and thermo-electric coupling in a two-variable model of cardiac action potential. Chaos, 2017, 27, 093919.	2.5	21
29	Analysis of a finite volume element method for the Stokes problem. Numerische Mathematik, 2011, 118, 737-764.	1.9	20
30	Fully Eulerian finite element approximation of a fluidâ€structure interaction problem in cardiac cells. International Journal for Numerical Methods in Engineering, 2013, 96, 712-738.	2.8	20
31	A posteriori error analysis of an augmented mixed method for the Navierâ€“Stokes equations with nonlinear viscosity. Computers and Mathematics With Applications, 2016, 72, 2289-2310.	2.7	20
32	Stabilized mixed approximation of axisymmetric Brinkman flows. ESAIM: Mathematical Modelling and Numerical Analysis, 2015, 49, 855-874.	1.9	19
33	Mixed finite element â€“ discontinuous finite volume element discretization of a general class of multicontinuum models. Journal of Computational Physics, 2016, 322, 666-688.	3.8	19
34	Stability and finite element approximation of phase change models for natural convection in porous media. Journal of Computational and Applied Mathematics, 2019, 360, 117-137.	2.0	19
35	A vorticity-based fully-mixed formulation for the 3D Brinkmanâ€“Darcy problem. Computer Methods in Applied Mechanics and Engineering, 2016, 307, 68-95.	6.6	18
36	A mixed-primal finite element approximation of a sedimentationâ€“consolidation system. Mathematical Models and Methods in Applied Sciences, 2016, 26, 867-900.	3.3	18

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37	Partitioned coupling of advectionâ€“diffusionâ€“reaction systems and Brinkman flows. Journal of Computational Physics, 2017, 344, 281-302.	3.8	18
38	A mixed finite element method for Darcyâ€™s equations with pressure dependent porosity. Mathematics of Computation, 2015, 85, 1-33.	2.1	17
39	An orthotropic electro-viscoelastic model for the heart with stress-assisted diffusion. Biomechanics and Modeling in Mechanobiology, 2020, 19, 633-659.	2.8	17
40	On a doubly nonlinear diffusion model of chemotaxis with prevention of overcrowding. Mathematical Methods in the Applied Sciences, 2009, 32, 1704-1737.	2.3	16
41	Equal Order Discontinuous Finite Volume Element Methods for the Stokes Problem. Journal of Scientific Computing, 2015, 65, 956-978.	2.3	16
42	Virtual element methods for the three-field formulation of time-dependent linear poroelasticity. Advances in Computational Mathematics, 2021, 47, 1.	1.6	16
43	Turing pattern dynamics and adaptive discretization for a super-diffusive Lotka-Volterra model. Journal of Mathematical Biology, 2016, 72, 1441-1465.	1.9	15
44	An augmented stressâ€based mixed finite element method for the steady state Navierâ€Stokes equations with nonlinear viscosity. Numerical Methods for Partial Differential Equations, 2017, 33, 1692-1725.	3.6	15
45	Fully adaptive multiresolution schemes for strongly degenerate parabolic equations with discontinuous flux. Journal of Engineering Mathematics, 2008, 60, 365-385.	1.2	14
46	Convergence of a stabilized discontinuous Galerkin method for incompressible nonlinear elasticity. Advances in Computational Mathematics, 2013, 39, 425-443.	1.6	14
47	On $H(div)$-conforming Methods for Double-diffusion Equations in Porous Media. SIAM Journal on Numerical Analysis, 2019, 57, 1318-1343.	2.3	14
48	Primal-mixed formulations for reactionâ€“diffusion systems on deforming domains. Journal of Computational Physics, 2015, 299, 320-338.	3.8	13
49	Discontinuous approximation of viscous two-phase flow in heterogeneous porous media. Journal of Computational Physics, 2016, 321, 126-150.	3.8	13
50	Analysis and mixed-primal finite element discretisations for stress-assisted diffusion problems. Computer Methods in Applied Mechanics and Engineering, 2018, 337, 411-438.	6.6	13
51	Error analysis of an augmented mixed method for the Navierâ€“Stokes problem with mixed boundary conditions. IMA Journal of Numerical Analysis, 2018, 38, 1452-1484.	2.9	13
52	Banach spaces-based analysis of a fully-mixed finite element method for the steady-state model of fluidized beds. Computers and Mathematics With Applications, 2021, 84, 244-276.	2.7	13
53	Analysis of an optimal control problem for the tridomain model in cardiac electrophysiology. Journal of Mathematical Analysis and Applications, 2012, 388, 231-247.	1.0	12
54	Finite element and finite volume-element simulation of pseudo-ECGs and cardiac alternans. Mathematical Methods in the Applied Sciences, 2015, 38, 1046-1058.	2.3	12

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55	Stability analysis for a new model of multi-species convection-diffusion-reaction in poroelastic tissue. Applied Mathematical Modelling, 2020, 84, 425-446.	4.2	12
56	Robust Preconditioners for Perturbed Saddle-Point Problems and Conservative Discretizations of Biot's Equations Utilizing Total Pressure. SIAM Journal of Scientific Computing, 2021, 43, B961-B983.	2.8	12
57	On a vorticity-based formulation for reaction-diffusion-Brinkman systems. Networks and Heterogeneous Media, 2018, 13, 69-94.	1.1	12
58	The Biotâ€“Stokes coupling using total pressure: Formulation, analysis and application to interfacial flow in the eye. Computer Methods in Applied Mechanics and Engineering, 2022, 389, 114384.	6.6	12
59	A finite volume scheme for cardiac propagation in media with isotropic conductivities. Mathematics and Computers in Simulation, 2010, 80, 1821-1840.	4.4	11
60	A posteriori error estimation for an augmented mixed-primal method applied to sedimentationâ€“consolidation systems. Journal of Computational Physics, 2018, 367, 322-346.	3.8	11
61	Modelling Thermo-Electro-Mechanical Effects in Orthotropic Cardiac Tissue. Communications in Computational Physics, 2020, 27, 87-115.	1.7	11
62	Solvability analysis and numerical approximation of linearized cardiac electromechanics. Mathematical Models and Methods in Applied Sciences, 2015, 25, 959-993.	3.3	10
63	Analysis and Approximation of a Vorticityâ€“Velocityâ€“Pressure Formulation for the Oseen Equations. Journal of Scientific Computing, 2019, 80, 1577-1606.	2.3	10
64	New Mixed Finite Element Methods for Natural Convection with Phase-Change in Porous Media. Journal of Scientific Computing, 2019, 80, 141-174.	2.3	10
65	An augmented mixed finite element method for the vorticityâ€“velocityâ€“pressure formulation of the Stokes equations. Computer Methods in Applied Mechanics and Engineering, 2013, 267, 261-274.	6.6	9
66	Stability analysis and finite volume element discretization for delay-driven spatio-temporal patterns in a predatorâ€“prey model. Mathematics and Computers in Simulation, 2017, 132, 28-52.	4.4	9
67	Rotation-Based Mixed Formulations for an Elasticity-Poroelasticity Interface Problem. SIAM Journal of Scientific Computing, 2020, 42, B225-B249.	2.8	9
68	Mixed Kirchhoff stressâ€“displacementâ€“pressure formulations for incompressible hyperelasticity. Computer Methods in Applied Mechanics and Engineering, 2021, 374, 113562.	6.6	9
69	An L<i>p</i>spaces-based formulation yielding a new fully mixed finite element method for the coupled Darcy and heat equations. IMA Journal of Numerical Analysis, 2022, 42, 3154-3206.	2.9	9
70	A fully-mixed finite element method for the steady state Oberbeckâ€“Boussinesq system. SMAI Journal of Computational Mathematics, 0, 6, 125-157.	0.0	9
71	A new mixed finite element method for the <i>n</i>-dimensional Boussinesq problem with temperature-dependent viscosity. Networks and Heterogeneous Media, 2020, 15, 215-245.	1.1	8
72	A Three-dimensional Continuum Model of Active Contraction in Single Cardiomyocytes. Modeling, Simulation and Applications, 2015, , 157-176.	1.3	7

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73	A posteriori error analysis of a fully-mixed formulation for the Brinkmanâ€“Darcy problem. Calcolo, 2017, 54, 1491-1519.	1.1	7
74	Coupling of Discontinuous Galerkin Schemes for Viscous Flow in Porous Media with Adsorption. SIAM Journal of Scientific Computing, 2018, 40, B637-B662.	2.8	7
75	Incorporating variable viscosity in vorticity-based formulations for Brinkman equations. Comptes Rendus Mathematique, 2019, 357, 552-560.	0.3	7
76	Numerical approximation of a 3D mechanochemical interface model for skin patterning. Journal of Computational Physics, 2019, 384, 383-404.	3.8	7
77	Well-posedness and discrete analysis for advection-diffusion-reaction in poroelastic media. Applicable Analysis, 2022, 101, 4914-4941.	1.3	7
78	Mixed Methods for a Stream-Function â€“ Vorticity Formulation of the Axisymmetric Brinkman Equations. Journal of Scientific Computing, 2017, 71, 348-364.	2.3	6
79	Error Bounds for Discontinuous Finite Volume Discretisations of Brinkman Optimal Control Problems. Journal of Scientific Computing, 2019, 78, 64-93.	2.3	6
80	Mixed displacementâ€“rotationâ€“pressure formulations for linear elasticity. Computer Methods in Applied Mechanics and Engineering, 2019, 344, 71-94.	6.6	6
81	Activation Models for the Numerical Simulation of Cardiac Electromechanical Interactions. , 2013, , 189-201.		5
82	Formulation and analysis of fully-mixed methods for stress-assisted diffusion problems. Computers and Mathematics With Applications, 2019, 77, 1312-1330.	2.7	5
83	Pure vorticity formulation and Galerkin discretization for the Brinkman equations. IMA Journal of Numerical Analysis, 2016, , drw056.	2.9	4
84	Vorticityâ€pressure formulations for the Brinkmanâ€Darcy coupled problem. Numerical Methods for Partial Differential Equations, 2019, 35, 528-544.	3.6	4
85	Ultra-weak symmetry of stress for augmented mixed finite element formulations in continuum mechanics. Calcolo, 2020, 57, 1.	1.1	4
86	A mixed-primal finite element method for the coupling of Brinkmanâ€“Darcy flow and nonlinear transport. IMA Journal of Numerical Analysis, 2021, 41, 381-411.	2.9	4
87	Velocity-vorticity-pressure formulation for the Oseen problem with variable viscosity. Calcolo, 2021, 58, 1.	1.1	4
88	Parameter-robust methods for the Biotâ€“Stokes interfacial coupling without Lagrange multipliers. Journal of Computational Physics, 2022, 467, 111464.	3.8	4
89	Convergence of H(div)-conforming schemes for a new model of sedimentation in circular clarifiers with a rotating rake. Computer Methods in Applied Mechanics and Engineering, 2020, 367, 113130.	6.6	3
90	Conforming, Nonconforming and DG Methods for the Stationary Generalized Burgers-Huxley Equation. Journal of Scientific Computing, 2021, 88, 1.	2.3	3

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91	Second-order schemes for axisymmetric Navierâ€"Stokesâ€"Brinkman and transport equations modelling water filters. Numerische Mathematik, 2021, 147, 431-479.	1.9	3
92	Active strain and activation models in cardiac electromechanics. Proceedings in Applied Mathematics and Mechanics, 2011, 11, 119-120.	0.2	2
93	Mixed and discontinuous finite volume element schemes for the optimal control of immiscible flow in porous media. Computers and Mathematics With Applications, 2018, 76, 923-937.	2.7	2
94	New primal and dual-mixed finite element methods for stable image registration with singular regularization. Mathematical Models and Methods in Applied Sciences, 2021, 31, 979-1020.	3.3	2
95	Discontinuous Finite Volume Element Methods for the Optimal Control ofÂBrinkman Equations. Springer Proceedings in Mathematics and Statistics, 2017, , 307-315.	0.2	2
96	Adaptive Multiresolution Simulation of Waves in Electrocardiology. , 2010, , 199-207.		2
97	A posteriori error analysis of Banach spaces-based fully-mixed finite element methods for Boussinesq-type models. Journal of Numerical Mathematics, 2022, 30, 325-356.	3.5	2
98	Simulation of an epidemic model with nonlinear cross-diffusion. , 2012, , 331-338.		1
99	On Numerical Methods for Hyperbolic Conservation Laws and Related Equations Modelling Sedimentation of Solid-Liquid Suspensions. Springer Proceedings in Mathematics and Statistics, 2014, , 23-68.	0.2	1
100	Multiresolution schemes for an extended clarifierâ€thickener model. Proceedings in Applied Mathematics and Mechanics, 2007, 7, 1041803-1041804.	0.2	0
101	Adaptive multiresolution schemes for reaction-diffusion systems. Proceedings in Applied Mathematics and Mechanics, 2008, 8, 10969-10970.	0.2	0
102	A finite volume element method for simulating secondary settling tanks. Proceedings in Applied Mathematics and Mechanics, 2012, 12, 667-668.	0.2	0
103	A discontinuous method for oilâ€water flow in heterogeneous porous media. Proceedings in Applied Mathematics and Mechanics, 2016, 16, 763-764.	0.2	0
104	Discontinuous approximation of flow in porous media with adsorption. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800064.	0.2	0
105	Stability of a secondâ€order method for phase change in porous media flow. Proceedings in Applied Mathematics and Mechanics, 2018, 18, e201800021.	0.2	0
106	Adaptive Mesh Refinement in Deformable Image Registration: A Posteriori Error Estimates for Primal and Mixed Formulations. SIAM Journal on Imaging Sciences, 2021, 14, 1238-1272.	2.2	0
107	Error analysis for a vorticity/Bernoulli pressure formulation for the Oseen equations. Journal of Numerical Mathematics, 2021, .	3.5	0
108	A Two-dimensional Model of Pedestrian Flow Generating Pattern Formation. Series in Contemporary Applied Mathematics, 2012, , 304-311.	0.8	0

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109	CONVECTION-DIFFUSION-REACTION AND TRANSPORT-FLOW PROBLEMS MOTIVATED BY MODELS OF SEDIMENTATION: SOME RECENT ADVANCES. , 2019, , .		0
110	A posteriori error analysis of mixed finite element methods for stress-assisted diffusion problems. Journal of Computational and Applied Mathematics, 2022, 409, 114144.	2.0	0