Boyce E Griffith

List of Publications by Year in descending order

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88	3,510	117625 34	144013 57
papers	citations	h-index	g-index

94	94	94	2581
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	An adaptive, formally second order accurate version of the immersed boundary method. Journal of Computational Physics, 2007, 223, 10-49.	3.8	278
2	On the order of accuracy of the immersed boundary method: Higher order convergence rates for sufficiently smooth problems. Journal of Computational Physics, 2005, 208, 75-105.	3.8	245
3	Immersed Methods for Fluidâ€“Structure Interaction. Annual Review of Fluid Mechanics, 2020, 52, 421-448.	25.0	151
4	Immersed boundary model of aortic heart valve dynamics with physiological driving and loading conditions. International Journal for Numerical Methods in Biomedical Engineering, 2012, 28, 317-345.	2.1	148
5	SIMULATING THE FLUID DYNAMICS OF NATURAL AND PROSTHETIC HEART VALVES USING THE IMMERSED BOUNDARY METHOD. International Journal of Applied Mechanics, 2009, 01, 137-177.	2.2	146
6	A unified mathematical framework and an adaptive numerical method for fluidâ€“structure interaction with rigid, deforming, and elastic bodies. Journal of Computational Physics, 2013, 250, 446-476.	3.8	119
7	An accurate and efficient method for the incompressible Navierâ€“Stokes equations using the projection method as a preconditioner. Journal of Computational Physics, 2009, 228, 7565-7595.	3.8	99
8	Hybrid finite difference/finite element immersed boundary method. International Journal for Numerical Methods in Biomedical Engineering, 2017, 33, e2888.	2.1	97
9	Staggered Schemes for Fluctuating Hydrodynamics. Multiscale Modeling and Simulation, 2012, 10, 1369-1408.	1.6	96
10	Verification of cardiac mechanics software: benchmark problems and solutions for testing active and passive material behaviour. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150641.	2.1	80
11	Emerging Trends in Heart Valve Engineering: Part I. Solutions for Future. Annals of Biomedical Engineering, 2015, 43, 833-843.	2.5	80
12	Mechanical strength of aneurysmatic and dissected human thoracic aortas at different shear loading modes. Journal of Biomechanics, 2016, 49, 2374-2382.	2.1	75
13	An immersed boundary method for rigid bodies. Communications in Applied Mathematics and Computational Science, 2016, 11, 79-141.	1.8	70
14	Hydrodynamics of suspensions of passive and active rigid particles: a rigid multiblob approach. Communications in Applied Mathematics and Computational Science, 2016, 11, 217-296.	1.8	63
15	A modified Holzapfel-Ogden law for a residually stressed finite strain model of the human left ventricle in diastole. Biomechanics and Modeling in Mechanobiology, 2014, 13, 99-113.	2.8	62
16	On the Volume Conservation of the Immersed Boundary Method. Communications in Computational Physics, 2012, 12, 401-432.	1.7	61
17	Bristles reduce the force required to â€˜flingâ€™ wings apart in the smallest insects. Journal of Experimental Biology, 2016, 219, 3759-3772.	1.7	61
18	A robust incompressible Navier-Stokes solver for high density ratio multiphase flows. Journal of Computational Physics, 2019, 390, 548-594.	3.8	60

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19	Role of body stiffness in undulatory swimming: Insights from robotic and computational models. Physical Review Fluids, 2016, 1, .	2.5	59
20	A coupled mitral valveâ€"left ventricle model with fluidâ€"structure interaction. Medical Engineering and Physics, 2017, 47, 128-136.	1.7	55
21	Fluidâ€"Structure Interaction Models of Bioprosthetic Heart Valve Dynamics in an Experimental Pulse Duplicator. Annals of Biomedical Engineering, 2020, 48, 1475-1490.	2.5	53
22	Emerging Trends in Heart Valve Engineering: Part II. Novel and Standard Technologies for Aortic Valve Replacement. Annals of Biomedical Engineering, 2015, 43, 844-857.	2.5	52
23	Quantifying performance in the medusan mechanospace with an actively swimming three-dimensional jellyfish model. Journal of Fluid Mechanics, 2017, 813, 1112-1155.	3.4	52
24	Immersed Boundary Method for Variable Viscosity and Variable Density Problems Using Fast Constant-Coefficient Linear Solvers I: Numerical Method and Results. SIAM Journal of Scientific Computing, 2013, 35, B1132-B1161.	2.8	51
25	Quasiâ€static imageâ€based immersed boundaryâ€finite element model of left ventricle under diastolic loading. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 1199-1222.	2.1	51
26	Temporal integrators for fluctuating hydrodynamics. Physical Review E, 2013, 87, .	2.1	50
27	Brownian dynamics without Green's functions. Journal of Chemical Physics, 2014, 140, 134110.	3.0	48
28	Lift vs. drag based mechanisms for vertical force production in the smallest flying insects. Journal of Theoretical Biology, 2015, 384, 105-120.	1.7	48
29	Image-based fluidâ€"structure interaction model of the human mitral valve. Computers and Fluids, 2013, 71, 417-425.	2.5	47
30	A Forced Damped Oscillation Framework for Undulatory Swimming Provides New Insights into How Propulsion Arises in Active and Passive Swimming. PLoS Computational Biology, 2013, 9, e1003097.	3.2	47
31	Dynamic finite-strain modelling of the human left ventricle in health and disease using an immersed boundary-finite element method. IMA Journal of Applied Mathematics, 2014, 79, 978-1010.	1.6	46
32	Inertial coupling method for particles in an incompressible fluctuating fluid. Computer Methods in Applied Mechanics and Engineering, 2014, 269, 139-172.	6.6	41
33	Efficient Variable-Coefficient Finite-Volume Stokes Solvers. Communications in Computational Physics, 2014, 16, 1263-1297.	1.7	41
34	Analysis of a coupled fluidâ€structure interaction model of the left atrium and mitral valve. International Journal for Numerical Methods in Biomedical Engineering, 2019, 35, e3254.	2.1	38
35	An Immersed Boundary method with divergence-free velocity interpolation and force spreading. Journal of Computational Physics, 2017, 347, 183-206.	3.8	36
36	Emerging Trends in Heart Valve Engineering: Part III. Novel Technologies for Mitral Valve Repair and Replacement. Annals of Biomedical Engineering, 2015, 43, 858-870.	2.5	35

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37	Emerging Trends in Heart Valve Engineering: Part IV. Computational Modeling and Experimental Studies. Annals of Biomedical Engineering, 2015, 43, 2314-2333.	2.5	34
38	Deriving Macroscopic Myocardial Conductivities byÂHomogenization of Microscopic Models. Bulletin of Mathematical Biology, 2009, 71, 1707-1726.	1.9	33
39	A fully resolved active musculo-mechanical model for esophageal transport. Journal of Computational Physics, 2015, 298, 446-465.	3.8	31
40	Immersed boundary-finite element model of fluidâ€“structure interaction in the aortic root. Theoretical and Computational Fluid Dynamics, 2016, 30, 139-164.	2.2	30
41	An immersed interface method for discrete surfaces. Journal of Computational Physics, 2020, 400, 108854.	3.8	30
42	Multiscale temporal integrators for fluctuating hydrodynamics. Physical Review E, 2014, 90, 063312.	2.1	28
43	Failure properties and microstructure of healthy and aneurysmatic human thoracic aortas subjected to uniaxial extension with a focus on the media. Acta Biomaterialia, 2019, 99, 443-456.	8.3	26
44	The immersed boundary method for advectionâ€“electrodiffusion with implicit timestepping and local mesh refinement. Journal of Computational Physics, 2010, 229, 5208-5227.	3.8	25
45	A finite strain nonlinear human mitral valve model with fluidâ€structure interaction. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 1597-1613.	2.1	25
46	Fully resolved immersed electrohydrodynamics for particle motion, electrolocation, and self-propulsion. Journal of Computational Physics, 2014, 256, 88-108.	3.8	25
47	Adaptive multiscale model for simulating cardiac conduction. Proceedings of the National Academy of Sciences of the United States of America, 2010, 107, 14603-14608.	7.1	23
48	Electrophysiology. Communications on Pure and Applied Mathematics, 2013, 66, 1837-1913.	3.1	23
49	Transition in swimming direction in a model self-propelled inertial swimmer. Physical Review Fluids, 2019, 4, .	2.5	23
50	Recovering quasi-active properties of dendritic neurons from dual potential recordings. Journal of Computational Neuroscience, 2001, 11, 95-110.	1.0	21
51	A continuum mechanics-based musculo-mechanical model for esophageal transport. Journal of Computational Physics, 2017, 348, 433-459.	3.8	21
52	Simulating an Elastic Ring with Bend and Twist by an Adaptive Generalized Immersed Boundary Method. Communications in Computational Physics, 2012, 12, 433-461.	1.7	20
53	Bioprosthetic aortic valve diameter and thickness are directly related to leaflet fluttering: Results from a combined experimental and computational modeling study. JTCVS Open, 2021, 6, 60-81.	0.5	19
54	Stabilization approaches for the hyperelastic immersed boundary method for problems of large-deformation incompressible elasticity. Computer Methods in Applied Mechanics and Engineering, 2020, 365, 112978.	6.6	18

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55	Image-based immersed boundary model of the aortic root. Medical Engineering and Physics, 2017, 47, 72-84.	1.7	17
56	On the chordae structure and dynamic behaviour of the mitral valve. IMA Journal of Applied Mathematics, 2018, 83, 1066-1091.	1.6	16
57	Effect of bending rigidity in a dynamic model of a polyurethane prosthetic mitral valve. Biomechanics and Modeling in Mechanobiology, 2012, 11, 815-827.	2.8	15
58	An immersed interface-lattice Boltzmann method for fluid-structure interaction. Journal of Computational Physics, 2021, 428, 109807.	3.8	13
59	Immersed Boundary Method for Variable Viscosity and Variable Density Problems Using Fast Constant-Coefficient Linear Solvers II: Theory. SIAM Journal of Scientific Computing, 2014, 36, B589-B621.	2.8	12
60	Incorporating inductances in tissue-scale models of cardiac electrophysiology. Chaos, 2017, 27, 093926.	2.5	12
61	Bacterial flagellar bundling and unbundling via polymorphic transformations. Physical Review E, 2018, 98, .	2.1	11
62	A minimally-resolved immersed boundary model for reaction-diffusion problems. Journal of Chemical Physics, 2013, 139, 214112.	3.0	10
63	Analysis of multi-electron, multi-step homogeneous catalysis by rotating disc electrode voltammetry: theory, application, and obstacles. Analyst, The, 2020, 145, 1258-1278.	3.5	10
64	On the Lagrangian-Eulerian coupling in the immersed finite element/difference method. Journal of Computational Physics, 2022, 457, 111042.	3.8	9
65	Geometric multigrid for an implicit-time immersed boundary method. Advances in Computational Mathematics, 2015, 41, 635-662.	1.6	8
66	Muscle Thickness and Curvature Influence Atrial Conduction Velocities. Frontiers in Physiology, 2018, 9, 1344.	2.8	8
67	A hybrid semi-Lagrangian cut cell method for advection-diffusion problems with Robin boundary conditions in moving domains. Journal of Computational Physics, 2022, 449, 110805.	3.8	7
68	Empirical Study of an Adaptive Multiscale Model for Simulating Cardiac Conduction. Bulletin of Mathematical Biology, 2011, 73, 3071-3089.	1.9	6
69	Adherens junction engagement regulates functional patterning of the cardiac pacemaker cell lineage. Developmental Cell, 2021, 56, 1498-1511.e7.	7.0	6
70	Simulating the Dynamics of an Aortic Valve Prosthesis in a Pulse Duplicator: Numerical Methods and Initial Experience. Journal of Medical Devices, Transactions of the ASME, 2013, 7, 0409121-409122.	0.7	5
71	A poroelastic immersed finite element framework for modelling cardiac perfusion and fluidâ€"structure interaction. International Journal for Numerical Methods in Biomedical Engineering, 2021, 37, e3446.	2.1	5
72	Computer modeling and simulation of heart valve function and intervention. , 2019, , 177-211.		3

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73	Commentary: The mechanics of acute aortic dissection: Measured calculations and calculated measures. Journal of Thoracic and Cardiovascular Surgery, 2019, 158, 366-367.	0.8	3
74	Analyzing the effects of instillation volume on intravesical delivery using biphasic solute transport in a deformable geometry. Mathematical Medicine and Biology, 2019, 36, 139-156.	1.2	3
75	Simulating Cardiovascular Fluid Dynamics by the Immersed Boundary Method. , 2009, , .		2
76	Fluid-Structure Interaction Model of Human Mitral Valve within Left Ventricle. Lecture Notes in Computer Science, 2015, , 330-337.	1.3	2
77	The smooth forcing extension method: A high-order technique for solving elliptic equations on complex domains. Journal of Computational Physics, 2021, 439, 110390.	3.8	2
78	A one-sided direct forcing immersed boundary method using moving least squares. Journal of Computational Physics, 2021, 440, 110359.	3.8	2
79	Initial Experience with a Dynamic Imaging-Derived Immersed Boundary Model of Human Left Ventricle. Lecture Notes in Computer Science, 2013, , 11-18.	1.3	2
80	A sharp interface method for an immersed viscoelastic solid. Journal of Computational Physics, 2020, 409, 109217.	3.8	1
81	Reply: The stresses of cardiovascular mechanics. Journal of Thoracic and Cardiovascular Surgery, 2020, 159, e158-e159.	0.8	1
82	Mathematical modeling of the impact of recirculation on exchange kinetics in tandem extracorporeal membrane oxygenation and therapeutic plasma exchange. Journal of Clinical Apheresis, 2021, 36, 6-11.	1.3	1
83	Models for plasma kinetics during simultaneous therapeutic plasma exchange and extracorporeal membrane oxygenation. Mathematical Medicine and Biology, 2021, 38, 255-271.	1.2	0
84	Commentary: Diameter and wall stressâ€"Wrong Laplace, wrong time?. Journal of Thoracic and Cardiovascular Surgery, 2021, , .	0.8	0
85	Optimal Constitutive Parameters and Subject Specific Variability: An Application to the Aortic Sinuses. , 2013, , .		0
86	Simulating the Dynamics of an Aortic Valve Prosthesis in a Pulse Duplicator: Numerical Methods and Initial Experience. , 2013, , .		0
87	Poster: Steering and Maneuvering in Jellyfish Bells. , 0, , .		0
88	Abstract 1931: Mathematical modeling predicts exponential growth kinetics for metastases in the lymphatic vessels in the absence of vascularization. , 2015, , .		0