Nicolas P Smith

List of Publications by Year
in descending order

64 papers	2,337 citations	172207 29 h-index	223531 46 g-index
64 all docs	64 docs citations	64 times ranked	2305 citing authors

#	Article	IF	Citations
1	Computational physiology and the physiome project. Experimental Physiology, 2004, 89, 1-26.	0.9	195
2	Length-dependent tension in the failing heart and the efficacy of cardiac resynchronization therapy. Cardiovascular Research, 2011, 89, 336-343.	1.8	133
3	Simulating Human Cardiac Electrophysiology on Clinical Time-Scales. Frontiers in Physiology, 2011, 2, 14.	1.3	105
4	An improved numerical method for strong coupling of excitation and contraction models in the heart. Progress in Biophysics and Molecular Biology, 2008, 96, 90-111.	1.4	98
5	A model of cardiac contraction based on novel measurements of tension development in human cardiomyocytes. Journal of Molecular and Cellular Cardiology, 2017, 106, 68-83.	0.9	94
6	Automatic segmentation of 3D micro-CT coronary vascular images. Medical Image Analysis, 2007, 11, 630-647.	7.0	82
7	New developments in a strongly coupled cardiac electromechanical model. Europace, 2005, 7, S118-S127.	0.7	80
8	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.	1.0	80
9	The Multi-Scale Modelling of Coronary Blood Flow. Annals of Biomedical Engineering, 2012, 40, 2399-2413.	1.3	73
10	An analysis of deformationâ€dependent electromechanical coupling in the mouse heart. Journal of Physiology, 2012, 590, 4553-4569.	1.3	73
11	Integration from proteins to organs: the IUPS Physiome Project. Mechanisms of Ageing and Development, 2005, 126, 187-192.	2.2	63
12	Theoretical models for coronary vascular biomechanics: Progress & challenges. Progress in Biophysics and Molecular Biology, 2011, 104, 49-76.	1.4	62
13	Beyond Bernoulli. Circulation: Cardiovascular Imaging, 2017, 10, .	1.3	60
14	Estimation of passive and active properties in the human heart using 3D tagged MRI. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1121-1139.	1.4	55
15	Non-invasive pressure difference estimation from PC-MRI using the work-energy equation. Medical Image Analysis, 2015, 26, 159-172.	7.0	53
16	Efficient Computational Methods for Strongly Coupled Cardiac Electromechanics. IEEE Transactions on Biomedical Engineering, 2012, 59, 1219-1228.	2.5	51
17	Estimation of Blood Flow Rates in Large Microvascular Networks. Microcirculation, 2012, 19, 530-538.	1.0	50
18	A computational study of the interaction between coronary blood flow and myocardial mechanics. Physiological Measurement, 2004, 25, 863-877.	1.2	47

#	Article	IF	Citations
19	Analysis of passive cardiac constitutive laws for parameter estimation using 3D tagged MRI. Biomechanics and Modeling in Mechanobiology, 2015, 14, 807-828.	1.4	47
20	Computational biology of cardiac myocytes: proposed standards for the physiome. Journal of Experimental Biology, 2007, 210, 1576-1583.	0.8	45
21	Coupling contraction, excitation, ventricular and coronary blood flow across scale and physics in the heart. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 2311-2331.	1.6	45
22	Catheter-Induced Errors in Pressure Measurements in Vessels: An In-Vitro and Numerical Study. IEEE Transactions on Biomedical Engineering, 2014, 61, 1844-1850.	2.5	44
23	Aortic relative pressure components derived from fourâ€dimensional flow cardiovascular magnetic resonance. Magnetic Resonance in Medicine, 2014, 72, 1162-1169.	1.9	43
24	Altered T Wave Dynamics in a Contracting Cardiac Model. Journal of Cardiovascular Electrophysiology, 2003, 14, S203-S209.	0.8	40
25	The relative role of patient physiology and device optimisation in cardiac resynchronisation therapy: A computational modelling study. Journal of Molecular and Cellular Cardiology, 2016, 96, 93-100.	0.9	38
26	The calciumâ€"frequency response in the rat ventricular myocyte: an experimental and modelling study. Journal of Physiology, 2016, 594, 4193-4224.	1.3	35
27	Non-invasive Model-Based Assessment of Passive Left-Ventricular Myocardial Stiffness in Healthy Subjects and in Patients with Non-ischemic Dilated Cardiomyopathy. Annals of Biomedical Engineering, 2017, 45, 605-618.	1.3	33
28	Multi-scale modelling and the IUPS physiome project. Journal of Molecular Histology, 2004, 35, 707-714.	1.0	32
29	A displacement-based finite element formulation for incompressible and nearly-incompressible cardiac mechanics. Computer Methods in Applied Mechanics and Engineering, 2014, 274, 213-236.	3.4	31
30	Multi-Scale Parameterisation of a Myocardial Perfusion Model Using Whole-Organ Arterial Networks. Annals of Biomedical Engineering, 2014, 42, 797-811.	1.3	31
31	Investigating a Novel Activation-Repolarisation Time Metric to Predict Localised Vulnerability to Reentry Using Computational Modelling. PLoS ONE, 2016, 11, e0149342.	1.1	30
32	Theoretical Modeling in Hemodynamics of Microcirculation. Microcirculation, 2008, 15, 699-714.	1.0	28
33	Parameterisation of multi-scale continuum perfusion models from discrete vascular networks. Medical and Biological Engineering and Computing, 2013, 51, 557-570.	1.6	28
34	Computational modeling of Takotsubo cardiomyopathy: effect of spatially varying Î²-adrenergic stimulation in the rat left ventricle. American Journal of Physiology - Heart and Circulatory Physiology, 2014, 307, H1487-H1496.	1.5	24
35	Computational analysis of the importance of flow synchrony for cardiac ventricular assist devices. Computers in Biology and Medicine, 2014, 49, 83-94.	3.9	24
36	Quantitative assessment of magnetic resonance derived myocardial perfusion measurements using advanced techniques: microsphere validation in an explanted pig heart system. Journal of Cardiovascular Magnetic Resonance, 2014, 16, 82.	1.6	23

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37	In silico coronary wave intensity analysis: application of an integrated one-dimensional and poromechanical model of cardiac perfusion. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1535-1555.	1.4	21
38	Beta-Adrenergic Stimulation Maintains Cardiac Function in Serca2 Knockout Mice. Biophysical Journal, 2013, 104, 1349-1356.	0.2	17
39	Transmural Variation and Anisotropy of Microvascular Flow Conductivity in the Rat Myocardium. Annals of Biomedical Engineering, 2014, 42, 1966-1977.	1.3	16
40	Factors determining the magnitude of the pre-ejection leftward septal motion in left bundle branch block. Europace, 2015, 18, euv381.	0.7	15
41	Measurement and modeling ofÂcoronary blood flow. Wiley Interdisciplinary Reviews: Systems Biology and Medicine, 2015, 7, 335-356.	6.6	14
42	Structureâ€Based Algorithms for Microvessel Classification. Microcirculation, 2015, 22, 99-108.	1.0	14
43	From sarcomere to cell: an efficient algorithm for linking mathematical models of muscle contraction. Bulletin of Mathematical Biology, 2003, 65, 1141-1162.	0.9	13
44	Speciesâ€dependent adaptation of the cardiac Na⁺/K⁺ pump kinetics to the intracellular Na⁺ concentration. Journal of Physiology, 2014, 592, 5355-5371.	1.3	13
45	A computational pipeline for quantification of mouse myocardial stiffness parameters. Computers in Biology and Medicine, 2014, 53, 65-75.	3.9	13
46	Cardiac electrical activity-from heart to body surface and back again. Journal of Electrocardiology, 2003, 36, 63-67.	0.4	12
47	Heterogeneous mechanics of the mouse pulmonary arterial network. Biomechanics and Modeling in Mechanobiology, 2016, 15, 1245-1261.	1.4	11
48	Compensatory and decompensatory alterations in cardiomyocyte Ca²⁺ dynamics in hearts with diastolic dysfunction following aortic banding. Journal of Physiology, 2017, 595, 3867-3889.	1.3	11
49	Integrating multi-scale data to create a virtual physiological mouse heart. Interface Focus, 2013, 3, 20120076.	1.5	10
50	The Cardiac Physiome Project. Journal of Physiology, 2016, 594, 6815-6816.	1.3	10
51	Computational Modeling of Ventricular Mechanics and Energetics. Applied Mechanics Reviews, 2005, 58, 77-90.	4.5	9
52	Enhancing coronary Wave Intensity Analysis robustness by high order central finite differences. Artery Research, 2014, 8, 98.	0.3	9
53	Microsphere skimming in the porcine coronary arteries: Implications for flow quantification. Microvascular Research, 2015, 100, 59-70.	1.1	9
54	Reconstruction of coronary circulation networks: A review of methods. Microcirculation, 2019, 26, e12542.	1.0	8

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55	Analysis of lead placement optimization metrics in cardiac resynchronization therapy with computational modelling. Europace, 2016, 18, iv113-iv120.	0.7	7
56	It's clearly the heart! Optical transparency, cardiac tissue imaging, and computer modelling. Progress in Biophysics and Molecular Biology, 2021, 168, 18-18.	1.4	6
57	Pressure mapping from flow imaging: Enhancing computation of the viscous term through velocity reconstruction in near-wall regions. , 2014, 2014, 5097-100.		5
58	Impact of coronary bifurcation morphology on wave propagation. American Journal of Physiology - Heart and Circulatory Physiology, 2016, 311, H855-H870.	1.5	5
59	Decreasing Compensatory Ability of Concentric Ventricular Hypertrophy in Aortic-Banded Rat Hearts. Frontiers in Physiology, 2018, 9, 37.	1.3	4
60	Modelling Parameter Role on Accuracy of Cardiac Perfusion Quantification. Lecture Notes in Computer Science, 2013, , 370-382.	1.0	3
61	Towards causally cohesive genotypeâ€“phenotype modelling for characterization of the soft-tissue mechanics of the heart in normal and pathological geometries. Journal of the Royal Society Interface, 2015, 12, 20141166.	1.5	2
62	Is computational modeling adding value for understanding the Heart?. Journal of Molecular and Cellular Cardiology, 2016, 96, 1.	0.9	2
63	Giving Form to the Function of the Heart: Embedding Cellular Models in an Anatomical Framework. The Japanese Journal of Physiology, 2004, 54, 541-544.	0.9	2
64	NEW DEVELOPMENTS IN AN ANATOMICAL FRAMEWORK FOR MODELING CARDIAC ISCHEMIA. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2003, 13, 3717-3722.	0.7	1