Aslak Tveito

List of Publications by Year
in descending order

96 papers	1,952 citations	218381 26 h-index	301761 39 g-index
118 all docs	118 docs citations	118 times ranked	1061 citing authors

#	Article	IF	Citations
1	Arrhythmogenic influence of mutations in a myocyte-based computational model of the pulmonary vein sleeve. Scientific Reports, 2022, 12, 7040.	1.6	4
2	Metabolically driven maturation of human-induced-pluripotent-stem-cell-derived cardiac microtissues on microfluidic chips. Nature Biomedical Engineering, 2022, 6, 372-388.	11.6	42
3	Efficient Numerical Solution of the EMI Model Representing the Extracellular Space (E), Cell Membrane (M) and Intracellular Space (I) of a Collection of Cardiac Cells. Frontiers in Physics, 2021, 8, .	1.0	19
4	Computational prediction of drug response in short QT syndrome type 1 based on measurements of compound effect in stem cell-derived cardiomyocytes. PLoS Computational Biology, 2021, 17, e1008089.	1.5	12
5	A computational method for identifying an optimal combination of existing drugs to repair the action potentials of SQT1 ventricular myocytes. PLoS Computational Biology, 2021, 17, e1009233.	1.5	5
6	Derivation of a Cell-Based Mathematical Model of Excitable Cells. Simula SpringerBriefs on Computing, 2021, , 1-13.	0.8	11
7	Operator Splitting and Finite Difference Schemes for Solving the EMI Model. Simula SpringerBriefs on Computing, 2021, , 44-55.	0.8	7
8	From Millimeters to Micrometers; Re-introducing Myocytes in Models of Cardiac Electrophysiology. Frontiers in Physiology, 2021, 12, 763584.	1.3	16
9	Deriving the Bidomain Model of Cardiac Electrophysiology From a Cell-Based Model; Properties and Comparisons. Frontiers in Physiology, 2021, 12, 811029.	1.3	9
10	Computational translation of drug effects from animal experiments to human ventricular myocytes. Scientific Reports, 2020, 10, 10537.	1.6	9
11	Identifying Drug Response by Combining Measurements of the Membrane Potential, the Cytosolic Calcium Concentration, and the Extracellular Potential in Microphysiological Systems. Frontiers in Pharmacology, 2020, 11, 569489.	1.6	11
12	Detecting undetectables: Can conductances of action potential models be changed without appreciable change in the transmembrane potential?. Chaos, 2019, 29, 073102.	1.0	20
13	How does the presence of neural probes affect extracellular potentials?. Journal of Neural Engineering, 2019, 16, 026030.	1.8	24
14	Properties of cardiac conduction in a cell-based computational model. PLoS Computational Biology, 2019, 15, e1007042.	1.5	44
15	Improved Computational Identification of Drug Response Using Optical Measurements of Human Stem Cell Derived Cardiomyocytes in Microphysiological Systems. Frontiers in Pharmacology, 2019, 10, 1648.	1.6	39
16	Inversion and computational maturation of drug response using human stem cell derived cardiomyocytes in microphysiological systems. Scientific Reports, 2018, 8, 17626.	1.6	41
17	Computing Optimal Properties of Drugs Using Mathematical Models of Single Channel Dynamics. Computational and Mathematical Biophysics, 2018, 6, 41-64.	0.6	8
18	Pleiotropic effects of schizophrenia-associated genetic variants in neuron firing and cardiac pacemaking revealed by computational modeling. Translational Psychiatry, 2017, 7, 5.	2.4	24

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19	A Cell-Based Framework for Numerical Modeling of Electrical Conduction in Cardiac Tissue. Frontiers in Physics, 2017, 5, .	1.0	66
20	An Evaluation of the Accuracy of Classical Models for Computing the Membrane Potential and Extracellular Potential for Neurons. Frontiers in Computational Neuroscience, 2017, 11, 27.	1.2	55
21	Computing rates of Markov models of voltage-gated ion channels by inverting partial differential equations governing the probability density functions of the conducting and non-conducting states. Mathematical Biosciences, 2016, 277, 126-135.	0.9	12
22	Background: Problem and Methods. Lecture Notes in Computational Science and Engineering, 2016, , 1-22.	0.1	0
23	Action Potentials: Summing Up the Effect of Loads of Ion Channels. Lecture Notes in Computational Science and Engineering, 2016, , 237-255.	0.1	0
24	A Simple Model of the Sodium Channel. Lecture Notes in Computational Science and Engineering, 2016, , 177-191.	0.1	0
25	Models of Open and Closed State Blockers. Lecture Notes in Computational Science and Engineering, 2016, , 55-69.	0.1	0
26	Inactivated Ion Channels: Extending the Prototype Model. Lecture Notes in Computational Science and Engineering, 2016, , 165-175.	0.1	0
27	One-Dimensional Calcium Release. Lecture Notes in Computational Science and Engineering, 2016, , 23-54.	0.1	0
28	Properties of Probability Density Functions. Lecture Notes in Computational Science and Engineering, 2016, , 71-90.	0.1	0
29	Two-Dimensional Calcium Release. Lecture Notes in Computational Science and Engineering, 2016, , 91-107.	0.1	0
30	Calcium-Induced Calcium Release. Lecture Notes in Computational Science and Engineering, 2016, , 125-142.	0.1	0
31	The Burst Mode of the Mutant Sodium Channel. Lecture Notes in Computational Science and Engineering, 2016, , 223-236.	0.1	0
32	Mutations Affecting the Mean Open Time. Lecture Notes in Computational Science and Engineering, 2016, , 193-221.	0.1	0
33	Scientific Computing. , 2015, , 1302-1310.		1
34	Computational Partial Differential Equations. , 2015, , 271-278.		0
35	Mathematical models of cardiac pacemaking function. Frontiers in Physics, 2013, 1, .	1.0	13
36	Instabilities of the resting state in a mathematical model of calcium handling in cardiac myocytes. Mathematical Biosciences, 2012, 236, 97-107.	0.9	8

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37	Note on a Possible Proarrhythmic Property of Antiarrhythmic Drugs Aimed at Improving Gap-Junction Coupling. Biophysical Journal, 2012, 102, 231-237.	0.2	2
38	Slow Calcium-Depolarization-Calcium waves may initiate fast local depolarization waves in ventricular tissue. Progress in Biophysics and Molecular Biology, 2012, 110, 295-304.	1.4	13
39	Existence of excitation waves for a collection of cardiomyocytes electrically coupled to fibroblasts. Mathematical Biosciences, 2011, 230, 79-86.	0.9	8
40	Computing the stability of steady-state solutions of mathematical models of the electrical activity in the heart. Computers in Biology and Medicine, 2011, 41, 611-618.	3.9	2
41	Unstable eigenmodes are possible drivers for cardiac arrhythmias. Journal of the Royal Society Interface, 2011, 8, 1212-1216.	1.5	3
42	Defining candidate drug characteristics for Long-QT (LQT3) syndrome. Mathematical Biosciences and Engineering, 2011, 8, 861-873.	1.0	8
43	Nonlinear Algebraic Equations. Texts in Computational Science and Engineering, 2010, , 99-145.	0.1	0
44	Parameter Estimation and Inverse Problems. Texts in Computational Science and Engineering, 2010, , 411-421.	0.1	4
45	A method for analyzing the stability of the resting state for a model of pacemaker cells surrounded by stable cells. Mathematical Biosciences and Engineering, 2010, 7, 505-526.	1.0	8
46	Can ECG Recordings and Mathematics tell the Condition of Your Heart?. , 2010, , 287-319.		0
47	Are you Planning to Take a PhD?. , 2010, , 503-517.		0
48	Numerical solution of the bidomain equations. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2009, 367, 1931-1950.	1.6	45
49	A Second-Order Algorithm for Solving Dynamic Cell Membrane Equations. IEEE Transactions on Biomedical Engineering, 2009, 56, 2546-2548.	2.5	39
50	Synchronizing Computer Simulations with Measurement Data for a Case of Atrial Flutter. Annals of Biomedical Engineering, 2009, 37, 1287-1293.	1.3	11
51	A note on a method for determining advantageous properties of an anti-arrhythmic drug based on a mathematical model of cardiac cells. Mathematical Biosciences, 2009, 217, 167-173.	0.9	12
52	Towards a computational method for imaging the extracellular potassium concentration during regional ischemia. Mathematical Biosciences, 2009, 220, 118-130.	0.9	12
53	On the frequency of automaticity during ischemia in simulations based on stochastic perturbations of the Luoâ€“Rudy 1 model. Computers in Biology and Medicine, 2008, 38, 1218-1227.	3.9	3
54	Penalty methods for the numerical solution of American multi-asset option problems. Journal of Computational and Applied Mathematics, 2008, 222, 3-16.	1.1	67

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55	A condition for setting off ectopic waves in computational models of excitable cells. Mathematical Biosciences, 2008, 213, 141-150.	0.9	26
56	Preconditioning by inverting the Laplacian: an analysis of the eigenvalues. IMA Journal of Numerical Analysis, 2008, 29, 24-42.	1.5	12
57	An unconditionally stable numerical method for the Luoâ€“Rudy 1 model used in simulations of defibrillation. Mathematical Biosciences, 2007, 208, 375-392.	0.9	6
58	A linear system of partial differential equations modeling the resting potential of a heart with regional ischemia. Mathematical Biosciences, 2007, 210, 238-252.	0.9	8
59	On the accuracy of operator splitting for the monodomain model of electrophysiology. International Journal of Computer Mathematics, 2007, 84, 871-885.	1.0	11
60	An order optimal solver for the discretized bidomain equations. Numerical Linear Algebra With Applications, 2007, 14, 83-98.	0.9	44
61	A note on the efficiency of the conjugate gradient method for a class of time-dependent problems. Numerical Linear Algebra With Applications, 2007, 14, 459-467.	0.9	1
62	Optimal monodomain approximations of the bidomain equations. Applied Mathematics and Computation, 2007, 184, 276-290.	1.4	41
63	On the use of the resting potential and level set methods for identifying ischemic heart disease: An inverse problem. Journal of Computational Physics, 2007, 220, 772-790.	1.9	28
64	On the Computational Complexity of the Bidomain and the Monodomain Models of Electrophysiology. Annals of Biomedical Engineering, 2006, 34, 1088-1097.	1.3	96
65	Computing the Size and Location of Myocardial Ischemia Using Measurements of ST-Segment Shift. IEEE Transactions on Biomedical Engineering, 2006, 53, 1024-1031.	2.5	21
66	Solving Systems of ODEs. , 2006, , 149-173.		1
67	A Maximum Principle for an Explicit Finite Difference Scheme Approximating the Hodgkin-Huxley Model. BIT Numerical Mathematics, 2005, 45, 725-741.	1.0	9
68	An operator splitting method for solving the bidomain equations coupled to a volume conductor model for the torso. Mathematical Biosciences, 2005, 194, 233-248.	0.9	133
69	Multigrid Block Preconditioning for a Coupled System of Partial Differential Equations Modeling the Electrical Activity in the Heart. Computer Methods in Biomechanics and Biomedical Engineering, 2002, 5, 397-409.	0.9	73
70	Modeling the electrical activity of the heart: A Bidomain Model of the ventricles embedded in a torso. Computing and Visualization in Science, 2002, 5, 195-213.	1.2	54
71	Penalty and front-fixing methods for the numerical solution of American option problems. Journal of Computational Finance, 2002, 5, 69-97.	0.3	134
72	Efficient solution of ordinary differential equations modeling electrical activity in cardiac cells. Mathematical Biosciences, 2001, 172, 55-72.	0.9	56

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73	On the Zero Relaxation Limit for a System Modeling the Motions of a Viscoelastic Solid. SIAM Journal on Mathematical Analysis, 1999, 30, 1115-1135.	0.9	11
74	A Finite Element Method for Fully Nonlinear Water Waves. Journal of Computational Physics, 1998, 143, 544-568.	1.9	28
75	An L1--Error Bound for a Semi-Implicit Difference Scheme Applied to a Stiff System of Conservation Laws. SIAM Journal on Numerical Analysis, 1997, 34, 1152-1166.	1.1	25
76	On the Approximation of the Solution of the Pressure Equation by Changing the Domain. SIAM Journal on Applied Mathematics, 1997, 57, 15-33.	0.8	9
77	On the Rate of Convergence to Equilibrium for a System of Conservation Laws with a Relaxation Term. SIAM Journal on Mathematical Analysis, 1997, 28, 136-161.	0.9	39
78	Numerical solution of PDEs on parallel computers utilizing sequential simulators. Lecture Notes in Computer Science, 1997, , 161-168.	1.0	10
79	A system of conservation laws including a stiff relaxation term; the 2D case. BIT Numerical Mathematics, 1996, 36, 786-813.	1.0	9
80	Approximation of scattered data using smooth grid functions. Journal of Computational and Applied Mathematics, 1995, 59, 191-205.	1.1	29
81	The Solution of Nonstrictly Hyperbolic Conservation Laws May Be Hard to Compute. SIAM Journal of Scientific Computing, 1995, 16, 320-329.	1.3	30
82	Maximum Principles for a Class of Conservation Laws. SIAM Journal on Applied Mathematics, 1995, 55, 651-661.	0.8	6
83	A numerical study of optimized sparse preconditioners. BIT Numerical Mathematics, 1994, 34, 177-204.	1.0	2
84	An Error Estimate for a Finite Difference Scheme Approximating a Hyperbolic System of Conservation Laws. SIAM Journal on Numerical Analysis, 1993, 30, 401-424.	1.1	11
85	Multicomponent Chromatography in a Two Phase Environment. SIAM Journal on Applied Mathematics, 1992, 52, 65-104.	0.8	28
86	Instability of Buckley-Leverett flow in a heterogeneous medium. Transport in Porous Media, 1992, 9, 165-185.	1.2	18
87	A front tracking method for conservation laws in one dimension. Journal of Computational Physics, 1992, 101, 130-139.	1.9	42
88	Box spline interpolation; a computational study. Journal of Computational and Applied Mathematics, 1992, 44, 303-329.	1.1	9
89	RILU preconditioning; a computational study. Journal of Computational and Applied Mathematics, 1992, 39, 259-275.	1.1	4
90	Existence, Uniqueness, and Continuous Dependence for a System of Hyperbolic Conservation Laws Modeling Polymer Flooding. SIAM Journal on Mathematical Analysis, 1991, 22, 905-933.	0.9	43

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91	Convergence and stability of the Lax-Friedrichs scheme for a nonlinear parabolic polymer flooding problem. Advances in Applied Mathematics, 1990, 11, 220-246.	0.4	8
92	On the stability of relaxed incomplete ?? factorizations. Mathematics of Computation, 1990, 54, 701-719.	1.1	14
93	A Riemann Solver for a Two-Phase Multicomponent Process. SIAM Journal on Scientific and Statistical Computing, 1989, 10, 846-879.	1.5	31
94	A numerical comparison of conjugate gradient-like methods. Communications in Applied Numerical Methods, 1988, 4, 793-798.	0.5	14
95	Solving Linear Systems. , 0, , 99-147.		3
96	Large-Scale Electrocardiac Simulations. , 0, , 175-218.		0