

Flavio H Fenton

List of Publications by Year in descending order

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92
papers

4,816
citations

172457

29
h-index

95266

68
g-index

94
all docs

94
docs citations

94
times ranked

2253
citing authors

#	ARTICLE	IF	CITATIONS
1	Vortex dynamics in three-dimensional continuous myocardium with fiber rotation: Filament instability and fibrillation. <i>Chaos</i> , 1998, 8, 20-47.	2.5	777
2	Multiple mechanisms of spiral wave breakup in a model of cardiac electrical activity. <i>Chaos</i> , 2002, 12, 852-892.	2.5	542
3	Minimal model for human ventricular action potentials in tissue. <i>Journal of Theoretical Biology</i> , 2008, 253, 544-560.	1.7	332
4	Mechanisms for Discordant Alternans. <i>Journal of Cardiovascular Electrophysiology</i> , 2001, 12, 196-206.	1.7	306
5	Low-energy control of electrical turbulence in the heart. <i>Nature</i> , 2011, 475, 235-239.	27.8	287
6	Suppression of alternans and conduction blocks despite steep APD restitution: electrotonic, memory, and conduction velocity restitution effects. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2004, 286, H2332-H2341.	3.2	195
7	Termination of Atrial Fibrillation Using Pulsed Low-Energy Far-Field Stimulation. <i>Circulation</i> , 2009, 120, 467-476.	1.6	152
8	Cardiac cell modelling: Observations from the heart of the cardiac physiome project. <i>Progress in Biophysics and Molecular Biology</i> , 2011, 104, 2-21.	2.9	139
9	Spatiotemporal Control of Wave Instabilities in Cardiac Tissue. <i>Physical Review Letters</i> , 1999, 83, 456-459.	7.8	126
10	Modeling wave propagation in realistic heart geometries using the phase-field method. <i>Chaos</i> , 2005, 15, 013502.	2.5	125
11	Models of cardiac cell. <i>Scholarpedia Journal</i> , 2008, 3, 1868.	0.3	115
12	Effects of Pacing Site and Stimulation History on Alternans Dynamics and the Development of Complex Spatiotemporal Patterns in Cardiac Tissue. <i>Frontiers in Physiology</i> , 2013, 4, 71.	2.8	109
13	Spectral Methods for Partial Differential Equations in Irregular Domains: The Spectral Smoothed Boundary Method. <i>SIAM Journal of Scientific Computing</i> , 2006, 28, 886-900.	2.8	101
14	A tale of two dogs: analyzing two models of canine ventricular electrophysiology. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2007, 292, H43-H55.	3.2	95
15	Pulmonary vein reentryâ€™ Properties and size matter: Insights from a computational analysis. <i>Heart Rhythm</i> , 2007, 4, 1553-1562.	0.7	83
16	Fiber-Rotation-Induced Vortex Turbulence in Thick Myocardium. <i>Physical Review Letters</i> , 1998, 81, 481-484.	7.8	81
17	Mechanisms of ventricular arrhythmias: a dynamical systems-based perspective. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2012, 302, H2451-H2463.	3.2	62
18	Effects of boundaries and geometry on the spatial distribution of action potential duration in cardiac tissue. <i>Journal of Theoretical Biology</i> , 2011, 285, 164-176.	1.7	59

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19	Memory in an Excitable Medium: A Mechanism for Spiral Wave Breakup in the Low-Excitability Limit. <i>Physical Review Letters</i> , 1999, 83, 3964-3967.	7.8	55
20	High-Resolution Optical Measurement of Cardiac Restitution, Contraction, and Fibrillation Dynamics in Beating vs. Blebbistatin-Uncoupled Isolated Rabbit Hearts. <i>Frontiers in Physiology</i> , 2020, 11, 464.	2.8	47
21	Role of temperature on nonlinear cardiac dynamics. <i>Physical Review E</i> , 2013, 87, 042717.	2.1	45
22	Real-time interactive simulations of large-scale systems on personal computers and cell phones: Toward patient-specific heart modeling and other applications. <i>Science Advances</i> , 2019, 5, eaav6019.	10.3	45
23	Mechanism for Amplitude Alternans in Electrocardiograms and the Initiation of Spatiotemporal Chaos. <i>Physical Review Letters</i> , 2017, 118, 168101.	7.8	42
24	Comparison of Detailed and Simplified Models of Human Atrial Myocytes to Recapitulate Patient Specific Properties. <i>PLoS Computational Biology</i> , 2016, 12, e1005060.	3.2	42
25	Simultaneous Quantification of Spatially Discordant Alternans in Voltage and Intracellular Calcium in Langendorff-Perfused Rabbit Hearts and Inconsistencies with Models of Cardiac Action Potentials and Ca Transients. <i>Frontiers in Physiology</i> , 2017, 8, 819.	2.8	38
26	Mechanistic insights into hypothermic ventricular fibrillation: the role of temperature and tissue size. <i>Europace</i> , 2014, 16, 424-434.	1.7	36
27	Alternans and the onset of ventricular fibrillation. <i>Physical Review E</i> , 2000, 62, 4043-4048.	2.1	33
28	Experimental validation of a variational data assimilation procedure for estimating space-dependent cardiac conductivities. <i>Computer Methods in Applied Mechanics and Engineering</i> , 2020, 358, 112615.	6.6	33
29	Model-based control of cardiac alternans in Purkinje fibers. <i>Physical Review E</i> , 2011, 84, 041927.	2.1	32
30	Competing Mechanisms of Stress-Assisted Diffusivity and Stretch-Activated Currents in Cardiac Electromechanics. <i>Frontiers in Physiology</i> , 2018, 9, 1714.	2.8	29
31	Real-time computer simulations of excitable media: java as a scientific language and as a wrapper for c and fortran programs. <i>BioSystems</i> , 2002, 64, 73-96.	2.0	28
32	Subepicardial Action Potential Characteristics Are a Function of Depth and Activation Sequence in Isolated Rabbit Hearts. <i>Circulation: Arrhythmia and Electrophysiology</i> , 2013, 6, 809-817.	4.8	28
33	Fatal arrhythmias: Another reason why doctors remain cautious about chloroquine/hydroxychloroquine for treating COVID-19. <i>Heart Rhythm</i> , 2020, 17, 1445-1451.	0.7	25
34	Model-based control of cardiac alternans on a ring. <i>Physical Review E</i> , 2009, 80, 021932.	2.1	24
35	Cardiac arrhythmia. <i>Scholarpedia Journal</i> , 2008, 3, 1665.	0.3	24
36	Termination of equine atrial fibrillation by quinidine: An optical mapping study. <i>Journal of Veterinary Cardiology</i> , 2008, 10, 87-103.	0.9	23

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37	Control and anticontrol of chaos in fractional-order models of Diabetes, HIV, Dengue, Migraine, Parkinson's and Ebola virus diseases. <i>Chaos, Solitons and Fractals</i> , 2021, 153, 111419.	5.1	23
38	Prediction of chaotic time series using recurrent neural networks and reservoir computing techniques: A comparative study. <i>Machine Learning With Applications</i> , 2022, 8, 100300.	4.4	23
39	Basis for the Induction of Tissue-Level Phase-2 Reentry as a Repolarization Disorder in the Brugada Syndrome. <i>BioMed Research International</i> , 2015, 2015, 1-12.	1.9	22
40	Synchronization as a mechanism for low-energy anti-fibrillation pacing. <i>Heart Rhythm</i> , 2017, 14, 1254-1262.	0.7	22
41	Teaching cardiac electrophysiology modeling to undergraduate students: laboratory exercises and GPU programming for the study of arrhythmias and spiral wave dynamics. <i>American Journal of Physiology - Advances in Physiology Education</i> , 2011, 35, 427-437.	1.6	20
42	Spatiotemporal correlation uncovers characteristic lengths in cardiac tissue. <i>Physical Review E</i> , 2019, 100, 020201.	2.1	20
43	Efficient parameterization of cardiac action potential models using a genetic algorithm. <i>Chaos</i> , 2017, 27, 093922.	2.5	20
44	Continuous-time control of alternans in long Purkinje fibers. <i>Chaos</i> , 2014, 24, 033124.	2.5	18
45	Introduction to Focus Issue: Complex Cardiac Dynamics. <i>Chaos</i> , 2017, 27, .	2.5	17
46	Engineered Cardiac Pacemaker Nodes Created by TBX18 Gene Transfer Overcome Source-Sink Mismatch. <i>Advanced Science</i> , 2019, 6, 1901099.	11.2	16
47	Large-scale interactive numerical experiments of chaos, solitons and fractals in real time via GPU in a web browser. <i>Chaos, Solitons and Fractals</i> , 2019, 121, 6-29.	5.1	16
48	Quantifying arrhythmic long QT effects of hydroxychloroquine and azithromycin with whole-heart optical mapping and simulations. <i>Heart Rhythm</i> O2, 2021, 2, 394-404.	1.7	16
49	Contribution of the Purkinje network to wave propagation in the canine ventricle: insights from a combined electrophysiological-anatomical model. <i>Nonlinear Dynamics</i> , 2012, 68, 365-379.	5.2	15
50	Data-Driven Uncertainty Quantification for Cardiac Electrophysiological Models: Impact of Physiological Variability on Action Potential and Spiral Wave Dynamics. <i>Frontiers in Physiology</i> , 2020, 11, 585400.	2.8	15
51	Terminating spiral waves with a single designed stimulus: Teleportation as the mechanism for defibrillation. <i>Proceedings of the National Academy of Sciences of the United States of America</i> , 2022, 119, .	7.1	14
52	Implementation of Contraction to Electrophysiological Ventricular Myocyte Models, and Their Quantitative Characterization via Post-Extrasystolic Potentiation. <i>PLoS ONE</i> , 2015, 10, e0135699.	2.5	13
53	Numerical sensitivity analysis of a variational data assimilation procedure for cardiac conductivities. <i>Chaos</i> , 2017, 27, 093930.	2.5	13
54	Shock-induced termination of reentrant cardiac arrhythmias: Comparing monophasic and biphasic shock protocols. <i>Chaos</i> , 2013, 23, 043119.	2.5	12

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55	Discordant Alternans as a Mechanism for Initiation of Ventricular Fibrillation In Vitro. Journal of the American Heart Association, 2018, 7, e007898.	3.7	11
56	Long-Time Prediction of Arrhythmic Cardiac Action Potentials Using Recurrent Neural Networks and Reservoir Computing. Frontiers in Physiology, 2021, 12, 734178.	2.8	11
57	Thermal effects on cardiac alternans onset and development: A spatiotemporal correlation analysis. Physical Review E, 2021, 103, L040201.	2.1	9
58	Robust data assimilation with noise: Applications to cardiac dynamics. Chaos, 2021, 31, 013118.	2.5	9
59	Dynamics of a human spiral wave. Physics Today, 2017, 70, 78-79.	0.3	8
60	Accelerating simulations of cardiac electrical dynamics through a multi-GPU platform and an optimized data structure. Concurrency Computation Practice and Experience, 2020, 32, e5528.	2.2	8
61	A machine-learning approach for long-term prediction of experimental cardiac action potential time series using an autoencoder and echo state networks. Chaos, 2022, 32, .	2.5	8
62	Voltage-mediated mechanism for calcium wave synchronization and arrhythmogenesis in atrial tissue. Biophysical Journal, 2022, 121, 383-395.	0.5	7
63	Rotor Localization and Phase Mapping of Cardiac Excitation Waves Using Deep Neural Networks. Frontiers in Physiology, 2021, 12, 782176.	2.8	7
64	Head-tail interactions in numerical simulations of reentry in a ring of cardiac tissue. Heart Rhythm, 2005, 2, 1038-1046.	0.7	6
65	Numerical solutions of reaction-diffusion equations: Application to neural and cardiac models. American Journal of Physics, 2016, 84, 626-638.	0.7	6
66	A Comprehensive Comparison of GPU Implementations of Cardiac Electrophysiology Models. Lecture Notes in Computer Science, 2019, , 9-34.	1.3	6
67	Methodology for Cross-Talk Elimination in Simultaneous Voltage and Calcium Optical Mapping Measurements With Semasbestic Wavelengths. Frontiers in Physiology, 2022, 13, 812968.	2.8	6
68	Optical Ultrastructure of Large Mammalian Hearts Recovers Discordant Alternans by In Silico Data Assimilation. Frontiers in Network Physiology, 2022, 2, .	1.8	6
69	Sharp Boundary Electrocardiac Simulations. SIAM Journal of Scientific Computing, 2016, 38, B100-B117.	2.8	5
70	Probabilistic reachability for multi-parameter bifurcation analysis of cardiac alternans. Theoretical Computer Science, 2019, 765, 158-169.	0.9	5
71	Defibrillate You Later, Alligator: Q10 Scaling and Refractoriness Keeps Alligators from Fibrillation. Integrative Organismal Biology, 2021, 3, obaa047.	1.8	5
72	Simulating waves, chaos and synchronization with a microcontroller. Chaos, 2019, 29, 123104.	2.5	4

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73	Excitable dynamics in neural and cardiac systems. Communications in Nonlinear Science and Numerical Simulation, 2020, 86, 105275.	3.3	4
74	2006 Visualization Challenge Winners. Science, 2006, 313, 1730-1735.	12.6	3
75	Arrhythmogenic Effects of Genetic Mutations Affecting Potassium Channels in Human Atrial Fibrillation: A Simulation Study. Frontiers in Physiology, 2021, 12, 681943.	2.8	3
76	Real-Time Interactive Simulations of Complex Ionic Cardiac Cell Models in 2D and 3D Heart Structures with GPUs on Personal Computers. , 2021, , .		3
77	Direct observation of a stable spiral wave reentry in ventricles of a whole human heart using optical mapping for voltage and calcium. Heart Rhythm, 2022, 19, 1912-1913.	0.7	3
78	Theoretical Modeling and Experimental Detection of the Extracellular Phasic Impedance Modulation in Rabbit Hearts. Frontiers in Physiology, 2019, 10, 883.	2.8	2
79	Generation of Monophasic Action Potentials and Intermediate Forms. Biophysical Journal, 2020, 119, 460-469.	0.5	2
80	Interactive 3D Human Heart Simulations on Segmented Human MRI Hearts. , 2021, , .		2
81	P3-24. Heart Rhythm, 2006, 3, S186.	0.7	1
82	Isosbestic Point in Optical Mapping; Theoretical and Experimental Determination with Di-4-ANBDQPP Transmembrane Voltage Sensitive Dye. , 2019, 46, .		1
83	A Network-based Cardiac Electrophysiology Simulator with Realistic Signal Generation and Response to Pacing Maneuvers. , 2021, , .		1
84	Unimapper: An Online Interactive Analyzer/Visualizer of Optical Mapping Experimental Data. , 2021, , .		1
85	Electric-Field-Based Control Strategies for Cardiac Tissue. Biophysical Journal, 2013, 104, 153a-154a.	0.5	0
86	Spatio-temporal correlation of paced cardiac tissue. , 2014, , .		0
87	Interactive Simulation of the ECG: Effects of Cell Types, Distributions, Shapes and Duration. , 2021, , .		0
88	Not all Long-QTs Are The Same, Proarrhythmic Quantification with Action Potential Triangulation and Alternans. , 2021, , .		0
89	PO-705-01 ACTION POTENTIAL RESTITUTION CURVES OBTAINED FROM FULL EXPLANTED HUMAN HEARTS. Heart Rhythm, 2022, 19, S453-S454.	0.7	0
90	PO-616-06 THE SPATIOTEMPORAL ORGANIZATION OF VENTRICULAR FIBRILLATION (VF) IN EXPLANTED HUMAN HEARTS. Heart Rhythm, 2022, 19, S112-S113.	0.7	0

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91	BS-516-02 OPTICAL MAPPING OF EXPLANTED HUMAN HEARTS ENABLES REFINED IONIC MODELS OF ACTION POTENTIAL AND CONDUCTION VELOCITY RESTITUTION CURVES FOR ARRHYTHMIA SIMULATION. Heart Rhythm, 2022, 19, S83-S84.	0.7	0
92	PO-691-07 SIMULTANEOUS OPTICAL MAPPING MEASUREMENTS OF VOLTAGE AND CALCIUM IN WHOLE EXPLANTED HUMAN HEARTS. Heart Rhythm, 2022, 19, S401.	0.7	0