Natalia A Trayanova

List of Publications by Citations

288 papers	10,070 citations	59 h-index	86 g-index
316 ext. papers	12,292 ext. citations	5.6 avg, IF	6.58 L-index

#	Paper	IF	Citations
288	A novel rule-based algorithm for assigning myocardial fiber orientation to computational heart models. *Annals of Biomedical Engineering*, **2012**, 40, 2243-54	4.7	256
287	Whole-heart modeling: applications to cardiac electrophysiology and electromechanics. *Circulation Research*, **2011**, 108, 113-28	15.7	254
286	Arrhythmia risk stratification of patients after myocardial infarction using personalized heart models. *Nature Communications*, **2016**, 7, 11437	17.4	197
285	Computational techniques for solving the bidomain equations in three dimensions. *IEEE Transactions on Biomedical Engineering*, **2002**, 49, 1260-9	5	184
284	Patient-derived models link re-entrant driver localization in atrial fibrillation to fibrosis spatial pattern. *Cardiovascular Research*, **2016**, 110, 443-54	9.9	156
283	A computational model to predict the effects of class I anti-arrhythmic drugs on ventricular rhythms. *Science Translational Medicine*, **2011**, 3, 98ra83	17.5	154
282	Feasibility of image-based simulation to estimate ablation target in human ventricular arrhythmia. *Heart Rhythm*, **2013**, 10, 1109-16	6.7	131
281	Computational medicine: translating models to clinical care. *Science Translational Medicine*, **2012**, 4, 158rv11	17.5	131
280	The role of cardiac tissue structure in defibrillation. *Chaos*, **1998**, 8, 221-233	3.3	127
279	Computational models in cardiology. *Nature Reviews Cardiology*, **2019**, 16, 100-111	14.8	121
278	Differences between left and right ventricular chamber geometry affect cardiac vulnerability to electric shocks. *Circulation Research*, **2005**, 97, 168-75	15.7	120
277	From mitochondrial ion channels to arrhythmias in the heart: computational techniques to bridge the spatio-temporal scales. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2008**, 366, 3381-409	3	115
276	Models of cardiac electromechanics based on individual hearts imaging data: image-based electromechanical models of the heart. *Biomechanics and Modeling in Mechanobiology*, **2011**, 10, 295-306	3.8	113
275	The role of fibroblasts in complex fractionated electrograms during persistent/permanent atrial fibrillation: implications for electrogram-based catheter ablation. *Circulation Research*, **2012**, 110, 275-84	15.7	112
274	Personalized virtual-heart technology for guiding the ablation of infarct-related ventricular tachycardia. *Nature Biomedical Engineering*, **2018**, 2, 732-740	19	106
273	Automatically generated, anatomically accurate meshes for cardiac electrophysiology problems. *IEEE Transactions on Biomedical Engineering*, **2009**, 56, 1318-30	5	103
272	Image-based models of cardiac structure in health and disease. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, **2010**, 2, 489-506	6.6	99

271	Reentry in a morphologically realistic atrial model. *Journal of Cardiovascular Electrophysiology*, **2001**, 12, 1046-54	2.7	95
270	Plakophilin-2 is required for transcription of genes that control calcium cycling and cardiac rhythm. *Nature Communications*, **2017**, 8, 106	17.4	94
269	Susceptibility to arrhythmia in the infarcted heart depends on myofibroblast density. *Biophysical Journal*, **2011**, 101, 1307-15	2.9	91
268	Mechanisms of mechanically induced spontaneous arrhythmias in acute regional ischemia. *Circulation Research*, **2010**, 106, 185-92	15.7	91
267	K+ current changes account for the rate dependence of the action potential in the human atrial myocyte. *American Journal of Physiology - Heart and Circulatory Physiology*, **2009**, 297, H1398-410	5.2	91
266	Action potential dynamics explain arrhythmic vulnerability in human heart failure: a clinical and modeling study implicating abnormal calcium handling. *Journal of the American College of Cardiology*, **2008**, 52, 1782-92	15.1	90
265	Computationally guided personalized targeted ablation of persistent atrial fibrillation. *Nature Biomedical Engineering*, **2019**, 3, 870-879	19	89
264	Mechanistic inquiry into the role of tissue remodeling in fibrotic lesions in human atrial fibrillation. *Biophysical Journal*, **2013**, 104, 2764-73	2.9	89
263	Optogenetic defibrillation terminates ventricular arrhythmia in mouse hearts and human simulations. *Journal of Clinical Investigation*, **2016**, 126, 3894-3904	15.9	89
262	Virtual electrophysiological study of atrial fibrillation in fibrotic remodeling. *PLoS ONE*, **2015**, 10, e0117110	3.7	88
261	Electrotonic coupling between human atrial myocytes and fibroblasts alters myocyte excitability and repolarization. *Biophysical Journal*, **2009**, 97, 2179-90	2.9	87
260	Methodology for patient-specific modeling of atrial fibrosis as a substrate for atrial fibrillation. *Journal of Electrocardiology*, **2012**, 45, 640-5	1.4	86
259	Computer simulations of cardiac defibrillation: a look inside the heart. *Computing and Visualization in Science*, **2002**, 4, 259-270	1	86
258	Intermittent drivers anchoring to structural heterogeneities as a major pathophysiological mechanism of human persistent atrial fibrillation. *Journal of Physiology*, **2016**, 594, 2387-98	3.9	86
257	Towards predictive modelling of the electrophysiology of the heart. *Experimental Physiology*, **2009**, 94, 563-77	2.4	84
256	Myofiber Architecture of the Human Atria as Revealed by Submillimeter Diffusion Tensor Imaging. *Circulation: Arrhythmia and Electrophysiology*, **2016**, 9, e004133	6.4	84
255	Distribution of electromechanical delay in the heart: insights from a three-dimensional electromechanical model. *Biophysical Journal*, **2010**, 99, 745-54	2.9	82
254	A numerically efficient model for simulation of defibrillation in an active bidomain sheet of myocardium. *Mathematical Biosciences*, **2000**, 166, 85-100	3.9	82

253	A comprehensive multiscale framework for simulating optogenetics in the heart. *Nature Communications*, **2013**, 4, 2370	17.4	81
252	Roles of electric field and fiber structure in cardiac electric stimulation. *Biophysical Journal*, **1999**, 77, 1404-17	2.9	80
251	Three-dimensional models of individual cardiac histoanatomy: tools and challenges. *Annals of the New York Academy of Sciences*, **2006**, 1080, 301-19	6.5	79
250	Caveolin-3 regulates compartmentation of cardiomyocyte beta2-adrenergic receptor-mediated cAMP signaling. *Journal of Molecular and Cellular Cardiology*, **2014**, 67, 38-48	5.8	76
249	Microdomain-Specific Modulation of L-Type Calcium Channels Leads to Triggered Ventricular Arrhythmia in Heart Failure. *Circulation Research*, **2016**, 119, 944-55	15.7	75
248	Mechanisms of human atrial fibrillation initiation: clinical and computational studies of repolarization restitution and activation latency. *Circulation: Arrhythmia and Electrophysiology*, **2012**, 5, 1149-59	6.4	72
247	Cardiac electromechanical models: from cell to organ. *Frontiers in Physiology*, **2011**, 2, 43	4.6	72
246	Synthesis of voltage-sensitive optical signals: application to panoramic optical mapping. *Biophysical Journal*, **2006**, 90, 2938-45	2.9	72
245	Image-based estimation of ventricular fiber orientations for personalized modeling of cardiac electrophysiology. *IEEE Transactions on Medical Imaging*, **2012**, 31, 1051-60	11.7	71
244	Virtual electrode polarization in the far field: implications for external defibrillation. *American Journal of Physiology - Heart and Circulatory Physiology*, **2000**, 279, H1055-70	5.2	71
243	Relationship Between Fibrosis Detected on Late Gadolinium-Enhanced Cardiac Magnetic Resonance and Re-Entrant Activity Assessed With Electrocardiographic Imaging in Human Persistent Atrial Fibrillation. *JACC: Clinical Electrophysiology*, **2018**, 4, 17-29	4.6	71
242	Defibrillation of the heart: insights into mechanisms from modelling studies. *Experimental Physiology*, **2006**, 91, 323-37	2.4	70
241	The effect of vagally induced dispersion of action potential duration on atrial arrhythmogenesis. *Heart Rhythm*, **2004**, 1, 334-44	6.7	69
240	Mathematical approaches to understanding and imaging atrial fibrillation: significance for mechanisms and management. *Circulation Research*, **2014**, 114, 1516-31	15.7	68
239	Image-based models of cardiac structure with applications in arrhythmia and defibrillation studies. *Journal of Electrocardiology*, **2009**, 42, 157.e1-10	1.4	67
238	The role of photon scattering in optical signal distortion during arrhythmia and defibrillation. *Biophysical Journal*, **2007**, 93, 3714-26	2.9	67
237	Modelling methodology of atrial fibrosis affects rotor dynamics and electrograms. *Europace*, **2016**, 18, iv146-iv155	3.9	66
236	Modeling cardiac ischemia. *Annals of the New York Academy of Sciences*, **2006**, 1080, 395-414	6.5	65

235	Feasibility of using patient-specific models and the "minimum cut" algorithm to predict optimal ablation targets for left atrial flutter. *Heart Rhythm*, **2016**, 13, 1687-98	6.7	65
234	Tunnel propagation of postshock activations as a hypothesis for fibrillation induction and isoelectric window. *Circulation Research*, **2008**, 102, 737-45	15.7	63
233	Tachycardia in post-infarction hearts: insights from 3D image-based ventricular models. *PLoS ONE*, **2013**, 8, e68872	3.7	63
232	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	2.4	61
231	Electromechanical models of the ventricles. *American Journal of Physiology - Heart and Circulatory Physiology*, **2011**, 301, H279-86	5.2	59
230	Asymmetry in membrane responses to electric shocks: insights from bidomain simulations. *Biophysical Journal*, **2004**, 87, 2271-82	2.9	59
229	Success and failure of the defibrillation shock: insights from a simulation study. *Journal of Cardiovascular Electrophysiology*, **2000**, 11, 785-96	2.7	57
228	Systems approach to understanding electromechanical activity in the human heart: a national heart, lung, and blood institute workshop summary. *Circulation*, **2008**, 118, 1202-11	16.7	56
227	Association of Left Atrial Local Conduction Velocity With Late Gadolinium Enhancement on Cardiac Magnetic Resonance in Patients With Atrial Fibrillation. *Circulation: Arrhythmia and Electrophysiology*, **2016**, 9, e002897	6.4	54
226	Arrhythmogenesis in the heart: Multiscale modeling of the effects of defibrillation shocks and the role of electrophysiological heterogeneity. *Chaos*, **2007**, 17, 015103	3.3	51
225	Effect of stretch-activated channels on defibrillation efficacy. *Heart Rhythm*, **2004**, 1, 67-77	6.7	51
224	Induction of ventricular arrhythmias following mechanical impact: a simulation study in 3D. *Journal of Molecular Histology*, **2004**, 35, 679-86	3.3	49
223	Modeling defibrillation: effects of fiber curvature. *Journal of Electrocardiology*, **1998**, 31 Suppl, 23-9	1.4	48
222	Cardiac vulnerability to electric shocks during phase 1A of acute global ischemia. *Heart Rhythm*, **2004**, 1, 695-703	6.7	48
221	Virtual electrode-induced positive and negative graded responses: new insights into fibrillation induction and defibrillation. *Journal of Cardiovascular Electrophysiology*, **2003**, 14, 756-63	2.7	48
220	Mathematical simulations of ligand-gated and cell-type specific effects on the action potential of human atrium. *Progress in Biophysics and Molecular Biology*, **2008**, 98, 161-70	4.7	47
219	Upper limit of vulnerability in a defibrillation model of the rabbit ventricles. *Journal of Electrocardiology*, **2003**, 36 Suppl, 51-6	1.4	47
218	Terminating ventricular tachyarrhythmias using far-field low-voltage stimuli: mechanisms and delivery protocols. *Heart Rhythm*, **2013**, 10, 1209-17	6.7	46

217	A computational approach to understanding the cardiac electromechanical activation sequence in the normal and failing heart, with translation to the clinical practice of CRT. *Progress in Biophysics and Molecular Biology*, **2012**, 110, 372-9	4.7	46
216	Fatigue-related changes in motor unit action potentials of adult cats. *Muscle and Nerve*, **1992**, 15, 138-50	3.4	46
215	Minimum Information about a Cardiac Electrophysiology Experiment (MICEE): standardised reporting for model reproducibility, interoperability, and data sharing. *Progress in Biophysics and Molecular Biology*, **2011**, 107, 4-10	4.7	45
214	Role of virtual electrodes in arrhythmogenesis: pinwheel experiment revisited. *Journal of Cardiovascular Electrophysiology*, **2000**, 11, 274-85	2.7	45
213	Rate-dependent action potential alternans in human heart failure implicates abnormal intracellular calcium handling. *Heart Rhythm*, **2010**, 7, 1093-101	6.7	44
212	Effects of regional mitochondrial depolarization on electrical propagation: implications for arrhythmogenesis. *Circulation: Arrhythmia and Electrophysiology*, **2014**, 7, 143-51	6.4	43
211	Mapping of cardiac electrical activation with electromechanical wave imaging: an in silico-in vivo reciprocity study. *Heart Rhythm*, **2011**, 8, 752-9	6.7	43
210	Sensitivity of reentrant driver localization to electrophysiological parameter variability in image-based computational models of persistent atrial fibrillation sustained by a fibrotic substrate. *Chaos*, **2017**, 27, 093932	3.3	41
209	Accuracy of prediction of infarct-related arrhythmic circuits from image-based models reconstructed from low and high resolution MRI. *Frontiers in Physiology*, **2015**, 6, 282	4.6	41
208	Termination of spiral waves with biphasic shocks: role of virtual electrode polarization. *Journal of Cardiovascular Electrophysiology*, **2000**, 11, 1386-96	2.7	41
207	Lack of regional association between atrial late gadolinium enhancement on cardiac magnetic resonance and atrial fibrillation rotors. *Heart Rhythm*, **2016**, 13, 654-60	6.7	40
206	Reversible cardiac conduction block and defibrillation with high-frequency electric field. *Science Translational Medicine*, **2011**, 3, 102ra96	17.5	40
205	Effect of acute global ischemia on the upper limit of vulnerability: a simulation study. *American Journal of Physiology - Heart and Circulatory Physiology*, **2004**, 286, H2078-88	5.2	40
204	Effects of mechano-electric feedback on scroll wave stability in human ventricular fibrillation. *PLoS ONE*, **2013**, 8, e60287	3.7	39
203	Virtual electrode effects in defibrillation. *Progress in Biophysics and Molecular Biology*, **1998**, 69, 387-403	4.7	39
202	Phase singularities and termination of spiral wave reentry. *Journal of Cardiovascular Electrophysiology*, **2002**, 13, 672-9	2.7	39
201	Artificial Intelligence and Machine Learning in Arrhythmias and Cardiac Electrophysiology. *Circulation: Arrhythmia and Electrophysiology*, **2020**, 13, e007952	6.4	38
200	Placement of implantable cardioverter-defibrillators in paediatric and congenital heart defect patients: a pipeline for model generation and simulation prediction of optimal configurations. *Journal of Physiology*, **2013**, 591, 4321-34	3.9	38

199	Myocardial ischemia lowers precordial thump efficacy: an inquiry into mechanisms using three-dimensional simulations. *Heart Rhythm*, **2006**, 3, 179-86	6.7	38
198	Multi-scale Modeling of the Cardiovascular System: Disease Development, Progression, and Clinical Intervention. *Annals of Biomedical Engineering*, **2016**, 44, 2642-60	4.7	36
197	Cardiac Optogenetics: 2018. *JACC: Clinical Electrophysiology*, **2018**, 4, 155-167	4.6	35
196	Mechanisms for initiation of reentry in acute regional ischemia phase 1B. *Heart Rhythm*, **2010**, 7, 379-86	6.7	35
195	Image-based reconstruction of three-dimensional myocardial infarct geometry for patient-specific modeling of cardiac electrophysiology. *Medical Physics*, **2015**, 42, 4579-90	4.4	34
194	Towards personalized computational modelling of the fibrotic substrate for atrial arrhythmia. *Europace*, **2016**, 18, iv136-iv145	3.9	34
193	Effects of electroporation on the transmembrane potential distribution in a two-dimensional bidomain model of cardiac tissue. *Journal of Cardiovascular Electrophysiology*, **1999**, 10, 701-14	2.7	34
192	A feasibility study of arrhythmia risk prediction in patients with myocardial infarction and preserved ejection fraction. *Europace*, **2016**, 18, iv60-iv66	3.9	34
191	Comparison of the effects of continuous and pulsatile left ventricular-assist devices on ventricular unloading using a cardiac electromechanics model. *Journal of Physiological Sciences*, **2012**, 62, 11-9	2.3	33
190	Models of stretch-activated ventricular arrhythmias. *Journal of Electrocardiology*, **2010**, 43, 479-85	1.4	33
189	Imaging-Based Simulations for Predicting Sudden Death and Guiding Ventricular Tachycardia Ablation. *Circulation: Arrhythmia and Electrophysiology*, **2017**, 10,	6.4	32
188	Submillimeter diffusion tensor imaging and late gadolinium enhancement cardiovascular magnetic resonance of chronic myocardial infarction. *Journal of Cardiovascular Magnetic Resonance*, **2017**, 19, 9	6.9	32
187	Disrupted calcium release as a mechanism for atrial alternans associated with human atrial fibrillation. *PLoS Computational Biology*, **2014**, 10, e1004011	5	32
186	Three-dimensional mechanisms of increased vulnerability to electric shocks in myocardial infarction: altered virtual electrode polarizations and conduction delay in the peri-infarct zone. *Journal of Physiology*, **2012**, 590, 4537-51	3.9	32
185	Photon scattering effects in optical mapping of propagation and arrhythmogenesis in the heart. *Journal of Electrocardiology*, **2007**, 40, S75-80	1.4	32
184	Tunnel propagation following defibrillation with ICD shocks: hidden postshock activations in the left ventricular wall underlie isoelectric window. *Heart Rhythm*, **2010**, 7, 953-61	6.7	31
183	Unstable QT interval dynamics precedes ventricular tachycardia onset in patients with acute myocardial infarction: a novel approach to detect instability in QT interval dynamics from clinical ECG. *Circulation: Arrhythmia and Electrophysiology*, **2011**, 4, 858-66	6.4	31
182	Virtual electrode polarization leads to reentry in the far field. *Journal of Cardiovascular Electrophysiology*, **2001**, 12, 946-56	2.7	31

181	Mechanisms Underlying Isovolumic Contraction and Ejection Peaks in Seismocardiogram Morphology. *Journal of Medical and Biological Engineering*, **2012**, 32, 103-110	2.2	31
180	Opsin spectral sensitivity determines the effectiveness of optogenetic termination of ventricular fibrillation in the human heart: a simulation study. *Journal of Physiology*, **2016**, 594, 6879-6891	3.9	31
179	Universal atrial coordinates applied to visualisation, registration and construction of patient specific meshes. *Medical Image Analysis*, **2019**, 55, 65-75	15.4	30
178	Modeling defibrillation of the heart: approaches and insights. *IEEE Reviews in Biomedical Engineering*, **2011**, 4, 89-102	6.4	30
177	Somato-dendritic mechanisms underlying the electrophysiological properties of hypothalamic magnocellular neuroendocrine cells: a multicompartmental model study. *Journal of Computational Neuroscience*, **2007**, 23, 143-68	1.4	30
176	Early somatic mosaicism is a rare cause of long-QT syndrome. *Proceedings of the National Academy of Sciences of the United States of America*, **2016**, 113, 11555-11560	11.5	30
175	Preprocedure Application of Machine Learning and Mechanistic Simulations Predicts Likelihood of Paroxysmal Atrial Fibrillation Recurrence Following Pulmonary Vein Isolation. *Circulation: Arrhythmia and Electrophysiology*, **2020**, 13, e008213	6.4	29
174	How computer simulations of the human heart can improve anti-arrhythmia therapy. *Journal of Physiology*, **2016**, 594, 2483-502	3.9	29
173	Optogenetics-enabled assessment of viral gene and cell therapy for restoration of cardiac excitability. *Scientific Reports*, **2015**, 5, 17350	4.9	29
172	Advances in modeling ventricular arrhythmias: from mechanisms to the clinic. *Wiley Interdisciplinary Reviews: Systems Biology and Medicine*, **2014**, 6, 209-24	6.6	29
171	Association of left atrial epicardial adipose tissue with electrogram bipolar voltage and fractionation: Electrophysiologic substrates for atrial fibrillation. *Heart Rhythm*, **2016**, 13, 2333-2339	6.7	29
170	Myocardial Infarct Segmentation From Magnetic Resonance Images for Personalized Modeling of Cardiac Electrophysiology. *IEEE Transactions on Medical Imaging*, **2016**, 35, 1408-1419	11.7	28
169	Comparing Reentrant Drivers Predicted by Image-Based Computational Modeling and Mapped by Electrocardiographic Imaging in Persistent Atrial Fibrillation. *Frontiers in Physiology*, **2018**, 9, 414	4.6	28
168	Mechanistic inquiry into decrease in probability of defibrillation success with increase in complexity of preshock reentrant activity. *American Journal of Physiology - Heart and Circulatory Physiology*, **2004**, 286, H909-17	5.2	28
167	"Beauty is a light in the heart": the transformative potential of optogenetics for clinical applications in cardiovascular medicine. *Trends in Cardiovascular Medicine*, **2015**, 25, 73-81	6.9	27
166	Exploring susceptibility to atrial and ventricular arrhythmias resulting from remodeling of the passive electrical properties in the heart: a simulation approach. *Frontiers in Physiology*, **2014**, 5, 435	4.6	27
165	What have we learned from mathematical models of defibrillation and postshock arrhythmogenesis? Application of bidomain simulations. *Heart Rhythm*, **2006**, 3, 1232-5	6.7	27
164	Effect of strength and timing of transmembrane current pulses on isolated ventricular myocytes. *Journal of Cardiovascular Electrophysiology*, **2001**, 12, 1129-37	2.7	26

163	Arrhythmogenic propensity of the fibrotic substrate after atrial fibrillation ablation: a longitudinal study using magnetic resonance imaging-based atrial models. *Cardiovascular Research*, **2019**, 115, 1757-1765	9.9	25
162	Regional cooling facilitates termination of spiral-wave reentry through unpinning of rotors in rabbit hearts. *Heart Rhythm*, **2012**, 9, 107-14	6.7	25
161	Computational cardiology: how computer simulations could be used to develop new therapies and advance existing ones. *Europace*, **2012**, 14 Suppl 5, v82-v89	3.9	25
160	Differences between left and right ventricular anatomy determine the types of reentrant circuits induced by an external electric shock. A rabbit heart simulation study. *Progress in Biophysics and Molecular Biology*, **2006**, 90, 399-413	4.7	25
159	Computational modeling of cardiac optogenetics: Methodology overview & review of findings from simulations. *Computers in Biology and Medicine*, **2015**, 65, 200-8	7	24
158	Optogenetics-enabled dynamic modulation of action potential duration in atrial tissue: feasibility of a novel therapeutic approach. *Europace*, **2014**, 16 Suppl 4, iv69-iv76	3.9	24
157	Computational cardiology: the heart of the matter. *ISRN Cardiology*, **2012**, 2012, 269680		24
156	Image-based left ventricular shape analysis for sudden cardiac death risk stratification. *Heart Rhythm*, **2014**, 11, 1693-700	6.7	23
155	Efficient preloading of the ventricles by a properly timed atrial contraction underlies stroke work improvement in the acute response to cardiac resynchronization therapy. *Heart Rhythm*, **2013**, 10, 1800-6	6.7	23
154	Quantifying the uncertainty in model parameters using Gaussian process-based Markov chain Monte Carlo in cardiac electrophysiology. *Medical Image Analysis*, **2018**, 48, 43-57	15.4	23
153	Role of 3-Dimensional Architecture of Scar and Surviving Tissue in Ventricular Tachycardia: Insights From High-Resolution Ex Vivo Porcine Models. *Circulation: Arrhythmia and Electrophysiology*, **2018**, 11, e006131	6.4	22
152	Optimizing cardiac resynchronization therapy to minimize ATP consumption heterogeneity throughout the left ventricle: a simulation analysis using a canine heart failure model. *Heart Rhythm* , **2014**, 11, 1063-9	6.7	22
151	Shock-induced arrhythmogenesis in the myocardium. *Chaos*, **2002**, 12, 962-972	3.3	22
150	The Fibrotic Substrate in Persistent Atrial Fibrillation Patients: Comparison Between Predictions From Computational Modeling and Measurements From Focal Impulse and Rotor Mapping. *Frontiers in Physiology*, **2018**, 9, 1151	4.6	22
149	Defibrillation success with high frequency electric fields is related to degree and location of conduction block. *Heart Rhythm*, **2013**, 10, 740-8	6.7	21
148	Mechanistic investigation into the arrhythmogenic role of transmural heterogeneities in regional ischaemia phase 1A. *Europace*, **2007**, 9 Suppl 6, vi46-58	3.9	21
147	Spiral wave control by a localized stimulus: a bidomain model study. *Journal of Cardiovascular Electrophysiology*, **2004**, 15, 226-33	2.7	21
146	Mechano-electric and mechano-chemo-transduction in cardiomyocytes. *Journal of Physiology*, **2020**, 598, 1285-1305	3.9	21

145	Influence of anisotropy on local and global measures of potential gradient in computer models of defibrillation. *Annals of Biomedical Engineering*, **1998**, 26, 840-9	4.7	20
144	The role of mechanoelectric feedback in vulnerability to electric shock. *Progress in Biophysics and Molecular Biology*, **2008**, 97, 461-78	4.7	20
143	Effects of the tissue-bath interface on the induced transmembrane potential: a modeling study in cardiac stimulation. *Annals of Biomedical Engineering*, **1997**, 25, 783-92	4.7	19
142	Initiation of a High-Frequency Jet Ventilation Strategy for Catheter Ablation for Atrial Fibrillation: Safety and Outcomes Data. *JACC: Clinical Electrophysiology*, **2018**, 4, 1519-1525	4.6	19
141	A New MRI-Based Model of Heart Function with Coupled Hemodynamics and Application to Normal and Diseased Canine Left Ventricles. *Frontiers in Bioengineering and Biotechnology*, **2015**, 3, 140	5.8	18
140	Sodium current reduction unmasks a structure-dependent substrate for arrhythmogenesis in the normal ventricles. *PLoS ONE*, **2014**, 9, e86947	3.7	18
139	Reentry in survived subepicardium coupled to depolarized and inexcitable midmyocardium: insights into arrhythmogenesis in ischemia phase 1B. *Heart Rhythm*, **2008**, 5, 1036-44	6.7	18
138	Termination of reentry by a long-lasting AC shock in a slice of canine heart: a computational study. *Journal of Cardiovascular Electrophysiology*, **2002**, 13, 1253-61	2.7	18
137	Sensitivity of Ablation Targets Prediction to Electrophysiological Parameter Variability in Image-Based Computational Models of Ventricular Tachycardia in Post-infarction Patients. *Frontiers in Physiology*, **2019**, 10, 628	4.6	17
136	Computational analysis of the effect of valvular regurgitation on ventricular mechanics using a 3D electromechanics model. *Journal of Physiological Sciences*, **2015**, 65, 159-64	2.3	17
135	See the light: can optogenetics restore healthy heartbeats? And, if it can, is it really worth the effort?. *Expert Review of Cardiovascular Therapy*, **2014**, 12, 17-20	2.5	17
134	Comparative analysis of three different modalities for characterization of the seismocardiogram. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2009**, 2009, 2899-903	0.9	17
133	ADVANCES IN MODELING CARDIAC DEFIBRILLATION. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2003**, 13, 3791-3803	2	17
132	Machine Learning in Arrhythmia and Electrophysiology. *Circulation Research*, **2021**, 128, 544-566	15.7	17
131	Mechanistic insight into prolonged electromechanical delay in dyssynchronous heart failure: a computational study. *American Journal of Physiology - Heart and Circulatory Physiology*, **2013**, 305, H1265-73	5.2	16
130	Analysis of electrically induced reentrant circuits in a sheet of myocardium. *Annals of Biomedical Engineering*, **2003**, 31, 768-80	4.7	16
129	Success and failure of biphasic shocks: results of bidomain simulations. *Mathematical Biosciences*, **2001**, 174, 91-109	3.9	16
128	Constructing a Human Atrial Fibre Atlas. *Annals of Biomedical Engineering*, **2021**, 49, 233-250	4.7	16

127	Spatially Adaptive Multi-Scale Optimization for Local Parameter Estimation in Cardiac Electrophysiology. *IEEE Transactions on Medical Imaging*, **2017**, 36, 1966-1978	11.7	15
126	A novel methodology for assessing the bounded-input bounded-output instability in QT interval dynamics: application to clinical ECG with ventricular tachycardia. *IEEE Transactions on Biomedical Engineering*, **2012**, 59, 2111-7	5	15
125	Modeling of Whole-Heart Electrophysiology and Mechanics: Toward Patient-Specific Simulations **2010**, 145-165		15
124	Membrane refractoriness and excitation induced in cardiac fibers by monophasic and biphasic shocks. *Journal of Cardiovascular Electrophysiology*, **1997**, 8, 745-57	2.7	15
123	Sinusoidal stimulation of myocardial tissue: effects on single cells. *Journal of Cardiovascular Electrophysiology*, **1999**, 10, 1619-30	2.7	15
122	Mechanisms of arrhythmogenesis related to calcium-driven alternans in a model of human atrial fibrillation. *Scientific Reports*, **2016**, 6, 36395	4.9	15
121	Ventricular arrhythmia risk prediction in repaired Tetralogy of Fallot using personalized computational cardiac models. *Heart Rhythm*, **2020**, 17, 408-414	6.7	15
120	Action potential morphology heterogeneity in the atrium and its effect on atrial reentry: a two-dimensional and quasi-three-dimensional study. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2006**, 364, 1349-66	3	14
119	From genetics to smart watches: developments in precision cardiology. *Nature Reviews Cardiology*, **2019**, 16, 72-73	14.8	14
118	Personalized Imaging and Modeling Strategies for Arrhythmia Prevention and Therapy. *Current Opinion in Biomedical Engineering*, **2018**, 5, 21-28	4.4	14
117	Arrhythmia risk stratification based on QT interval instability: an intracardiac electrocardiogram study. *Heart Rhythm*, **2013**, 10, 875-80	6.7	13
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115	New insights into defibrillation of the heart from realistic simulation studies. *Europace*, **2014**, 16, 705-13	3.9	13
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