

# Jose Maria Ferrero

## List of Publications by Year in descending order

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Version: 2024-02-01

116  
papers

1,256  
citations

393982

19  
h-index

414034

32  
g-index

118  
all docs

118  
docs citations

118  
times ranked

993  
citing authors

| #  | ARTICLE  | IF  | CITATIONS |
|----|--|-----|-----------|
| 1  | Simulation of Action Potentials From Metabolically Impaired Cardiac Myocytes. <i>Circulation Research</i> , 1996, 79, 208-221.   | 2.0 | 144       |
| 2  | Three-dimensional cardiac computational modelling: methods, features and applications. <i>BioMedical Engineering OnLine</i> , 2015, 14, 35.  | 1.3 | 126       |
| 3  | Adaptive Macro Finite Elements for the Numerical Solution of Monodomain Equations in Cardiac Electrophysiology. <i>Annals of Biomedical Engineering</i> , 2010, 38, 2331-2345.   | 1.3 | 109       |
| 4  | Personalized Cardiac Computational Models: From Clinical Data to Simulation of Infarct-Related Ventricular Tachycardia. <i>Frontiers in Physiology</i> , 2019, 10, 580.  | 1.3 | 61        |
| 5  | Simulation and Mechanistic Investigation of the Arrhythmogenic Role of the Late Sodium Current in Human Heart Failure. <i>PLoS ONE</i> , 2012, 7, e32659.  | 1.1 | 49        |
| 6  | ELECTRICAL ACTIVITY AND REENTRY DURING ACUTE REGIONAL MYOCARDIAL ISCHEMIA: INSIGHTS FROM SIMULATIONS. <i>International Journal of Bifurcation and Chaos in Applied Sciences and Engineering</i> , 2003, 13, 3703-3715. | 0.7 | 46        |
| 7  | Effect of acute global ischemia on the upper limit of vulnerability: a simulation study. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2004, 286, H2078-H2088.                            | 1.5 | 46        |
| 8  | Electrophysiological and Structural Remodeling in Heart Failure Modulate Arrhythmogenesis. 1D Simulation Study. <i>PLoS ONE</i> , 2014, 9, e106602.  | 1.1 | 44        |
| 9  | Influence of electrical coupling on early after depolarizations in ventricular myocytes. <i>IEEE Transactions on Biomedical Engineering</i> , 1999, 46, 138-147.   | 2.5 | 42        |
| 10 | Electrophysiologic models of heart cells and cell networks. <i>IEEE Engineering in Medicine and Biology Magazine</i> , 1998, 17, 73-83.  | 1.1 | 39        |
| 11 | Systematic characterization of the ionic basis of rabbit cellular electrophysiology using two ventricular models. <i>Progress in Biophysics and Molecular Biology</i> , 2011, 107, 60-73.                              | 1.4 | 36        |
| 12 | Mechanistic investigation of extracellular $K^{+}$ accumulation during acute myocardial ischemia: a simulation study. <i>American Journal of Physiology - Heart and Circulatory Physiology</i> , 2002, 283, H490-H500. | 1.5 | 34        |
| 13 | Vulnerability to Reentry in a Regionally Ischemic Tissue: A Simulation Study. <i>Annals of Biomedical Engineering</i> , 2007, 35, 1756-1770.   | 1.3 | 31        |
| 14 | Multiscale computational analysis of the bioelectric consequences of myocardial ischaemia and infarction. <i>Europace</i> , 2014, 16, 405-415.   | 0.7 | 27        |
| 15 | Effects of Pinacidil on Reentrant Arrhythmias Generated During Acute Regional Ischemia: A Simulation Study. <i>Annals of Biomedical Engineering</i> , 2005, 33, 897-906.   | 1.3 | 24        |
| 16 | The Relative Role of Refractoriness and Source-Sink Relationship in Reentry Generation during Simulated Acute Ischemia. <i>Annals of Biomedical Engineering</i> , 2009, 37, 1560-1571.                                 | 1.3 | 24        |
| 17 | Interaction of Specialized Cardiac Conduction System With Antiarrhythmic Drugs: A Simulation Study. <i>IEEE Transactions on Biomedical Engineering</i> , 2011, 58, 3475-3478.  | 2.5 | 24        |
| 18 | GPU accelerated solver for nonlinear reaction-diffusion systems. Application to the electrophysiology problem. <i>Computer Physics Communications</i> , 2015, 196, 280-289.  | 3.0 | 24        |

| #  | ARTICLE   | IF  | CITATIONS |
|----|---|-----|-----------|
| 19 | Analysis of the contribution of Ito to repolarization in canine ventricular myocardium. British Journal of Pharmacology, 2011, 164, 93-105.   | 2.7 | 22        |
| 20 | Effects of the Antiarrhythmic Drug Dofetilide on Transmural Dispersion of Repolarization in Ventriculum. A Computer Modeling Study. IEEE Transactions on Biomedical Engineering, 2011, 58, 43-53. | 2.5 | 19        |
| 21 | Sensitivity analysis revealing the effect of modulating ionic mechanisms on calcium dynamics in simulated human heart failure. PLoS ONE, 2017, 12, e0187739.                                      | 1.1 | 19        |
| 22 | Improvement of an extended Kalman filter power line interference suppressor for ECG signals. , 2007, , .  |     | 18        |
| 23 | Optimization of Lead Placement in the Right Ventricle During Cardiac Resynchronization Therapy. A Simulation Study. Frontiers in Physiology, 2019, 10, 74.  | 1.3 | 17        |
| 24 | Dominant frequency and organization index maps in a realistic three-dimensional computational model of atrial fibrillation. Europace, 2012, 14, v25-v32.  | 0.7 | 16        |
| 25 | Comparison between Hodgkin-Huxley and Markov formulations of cardiac ion channels. Journal of Theoretical Biology, 2016, 399, 92-102.   | 0.8 | 16        |
| 26 | Ectopic Activity in Ventricular Cells Induced by Early Afterdepolarizations Developed in Purkinje Cells. Annals of Biomedical Engineering, 2000, 28, 1343-1351.                                   | 1.3 | 15        |
| 27 | Ca <sup>2+</sup> Cycling Impairment in Heart Failure Is Exacerbated by Fibrosis: Insights Gained From Mechanistic Simulations. Frontiers in Physiology, 2018, 9, 1194.                            | 1.3 | 13        |
| 28 | A Grid Computing-Based Approach for the Acceleration of Simulations in Cardiology. IEEE Transactions on Information Technology in Biomedicine, 2008, 12, 138-144.                                 | 3.6 | 12        |
| 29 | Sex and age related differences in drug induced QT prolongation by dofetilide under reduced repolarization reserve in simulated ventricular cells. , 2010, 2010, 3245-8.                          |     | 9         |
| 30 | Exploring the role of pH in modulating the effects of lidocaine in virtual ischemic tissue. American Journal of Physiology - Heart and Circulatory Physiology, 2010, 299, H1615-H1624.            | 1.5 | 9         |
| 31 | A sensitivity study of the safety factor for conduction in the myocardium. , 2005, , .  |     | 8         |
| 32 | Vulnerability for reentry in a three dimensional model of human atria: a simulation study. , 2010, 2010, 224-7.   |     | 7         |
| 33 | Non-Uniform Dispersion of the Source-Sink Relationship Alters Wavefront Curvature. PLoS ONE, 2013, 8, e78328.   | 1.1 | 7         |
| 34 | In silico ischaemia-induced reentry at the Purkinje-ventricle interface. Europace, 2014, 16, 444-451.   | 0.7 | 7         |
| 35 | Effects of late sodium current enhancement during LQT-related arrhythmias. A simulation study. , 2010, 2010, 3237-40.   |     | 6         |
| 36 | Simulation of triggered activity and abnormal automaticity in ventricular myocytes. , 0, , .  |     | 5         |

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|----|--|-----|-----------|
| 37 | Post-repolarization refractoriness in human ventricular cardiac cells. , 2008, , .   |     | 5         |
| 38 | Human and rabbit inter-species comparison of ionic mechanisms of arrhythmic risk: A simulation study. , 2010, 2010, 3253-6.  |     | 5         |
| 39 | Electrochemical assays based on enzyme-electrode systems to determine glycerol and propylene glycol in tobacco casing. Sensors and Actuators B: Chemical, 1993, 16, 429-434. | 4.0 | 4         |
| 40 | Electrical activity and reentry in acute regional ischemia: insights from simulations. , 0, , .  |     | 4         |
| 41 | Computer simulation of action potential propagation on cardiac tissues: An efficient and scalable parallel approach. Advances in Parallel Computing, 2004, 13, 339-346.      | 0.3 | 4         |
| 42 | Photoplethysmographic Augmentation Index as a Non Invasive Indicator for Vascular Assessments. IFMBE Proceedings, 2009, , 1167-1170.   | 0.2 | 4         |
| 43 | Compact schemes for anisotropic reaction-diffusion equations with adaptive time step. International Journal for Numerical Methods in Engineering, 2010, 82, 1022-1043.       | 1.5 | 4         |
| 44 | Vulnerability in regionally ischemic human heart. Effect of the extracellular potassium concentration. Journal of Computational Science, 2018, 24, 160-168.                  | 1.5 | 4         |
| 45 | Mechanistic investigation of Ca <sup>2+</sup> alternans in human heart failure and its modulation by fibroblasts. PLoS ONE, 2019, 14, e0217993.                              | 1.1 | 4         |
| 46 | Multiscale Modeling of Myocardial Electrical Activity: From Cell to Organ. , 0, , .  |     | 4         |
| 47 | Simulation study of the contribution of the ATP-dependent potassium current to extracellular potassium accumulation during myocardial ischemia. , 0, , .                     |     | 3         |
| 48 | Simulation study of the effect of pinacidil on ATP-sensitive potassium current and action potential duration in myocardial tissue. , 1998, , .                               |     | 3         |
| 49 | Effects of potassium channel openers nicorandil and pinacidil on electrical activity of cardiac cells and cardiac tissues: a simulation study. , 0, , .                      |     | 3         |
| 50 | Effect of sodium inward current on extracellular potassium accumulation during myocardial ischemia: a simulation study. , 0, , .   |     | 3         |
| 51 | Influence of 1B ischemic ventricular tissue on the automaticity of Purkinje fibers: A simulation study. , 2007, , .  |     | 3         |
| 52 | Improved parametric estimation of time frequency representations for cardiac murmur discrimination. , 2008, , .  |     | 3         |
| 53 | Modeling the different sections of the cardiac conduction system to obtain realistic electrocardiograms. , 2013, 2013, 6846-9.   |     | 3         |
| 54 | Modeling Drug Effects on Personalized 3D Models of the Heart: A Simulation Study. Lecture Notes in Computer Science, 2010, , 222-231.  | 1.0 | 3         |

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|----|--|-----|-----------|
| 55 | Analysis of vulnerability to reentry in acute myocardial ischemia using a realistic human heart model. Computers in Biology and Medicine, 2022, 141, 105038. | 3.9 | 3         |
| 56 | Simulation study of action potentials from metabolically impaired cardiac myocytes. , 0, , .   |     | 2         |
| 57 | Role of the ATP-sensitive potassium current in extracellular potassium accumulation during myocardial ischemia: a simulation study. , 1998, , .              |     | 2         |
| 58 | Effect of Na <sup>+</sup> /K <sup>+</sup> pump inhibition on extracellular potassium accumulation during myocardial ischemia: a simulation study. , 0, , .   |     | 2         |
| 59 | Inhibition of atrial action potentials alternans by calcium-activated chloride current blockade - simulation study. , 2003, , .                              |     | 2         |
| 60 | Automatic brachial ankle pulse wave velocity measurements for vascular damage assessments. , 2008, , .   |     | 2         |
| 61 | Obtention of blood pressure dependent heart synchronized evoked potentials. , 1988, , .  |     | 1         |
| 62 | Role of the ATP-sensitive potassium current in the development of reentry in a ring model of cardiac tissue: a computer simulation study. , 0, , .           |     | 1         |
| 63 | Propagation of action potentials in cardiac acute regional ischemia: a computer simulation study. , 1997, , .  |     | 1         |
| 64 | Simulation study of action potentials during acute myocardial ischemia. , 0, , .   |     | 1         |
| 65 | Influence of Purkinje-muscle coupling on EAD development: a simulation study. , 0, , .   |     | 1         |
| 66 | Numerical model for radiofrequency thermokeratoplasty. , 0, , .  |     | 1         |
| 67 | Simulation of reentry during acute myocardial ischemia: role of ATP-sensitive potassium current and acidosis. , 0, , .                                       |     | 1         |
| 68 | Simulation of figure-of-eight reentry during acute inhomogeneous myocardial ischemia: role of ATP-sensitive potassium current. , 0, , .                      |     | 1         |
| 69 | Effects of the antiarrhythmic drug dofetilide on myocardial electrical activity: a computer modelling study. , 2003, , .                                     |     | 1         |
| 70 | Effects of the antiarrhythmic drug dofetilide on regional heterogeneity of action potential duration: a computer modelling study. , 2004, , .                |     | 1         |
| 71 | Effects of acute ischemia on the restitution curves of myocardial tissue: a simulation study. , 0, , .   |     | 1         |
| 72 | The safety factor approach in the analysis of reentrant patterns of activation in the ischemic virtual heart. , 2007, , .                                    |     | 1         |

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|----|--|-----|-----------|
| 73 | Dispersion of refractoriness in a simulated ischemic 2D tissue and implications in vulnerability to reentry. , 2007, , .   |     | 1         |
| 74 | Vulnerability to reentry in a 3D regionally ischemic ventricular slab preparation: A simulation study. , 2007, , .   |     | 1         |
| 75 | Analysis of the response of human iPSC-derived cardiomyocyte tissue to ICaL block. A combined in vitro and in silico approach. Computers in Biology and Medicine, 2021, 137, 104796. | 3.9 | 1         |
| 76 | Improvement of power line model in ECG for interference reduction using EKF. IFMBE Proceedings, 2007, , 109-113.   | 0.2 | 1         |
| 77 | Integrated mechanisms of K/sup +/- loss in myocardial ischemia: a simulation study. , 0, , .   |     | 0         |
| 78 | Action potential model based on the compression of the cell membrane. , 1988, , .  |     | 0         |
| 79 | Multichannel Acquisition Of Bioelectric Signals Using The Flying Capacitor Technique. , 0, , .   |     | 0         |
| 80 | Ectopic activity generated by early after-depolarizations in ventricular tissue: a computer simulation study. , 0, , .   |     | 0         |
| 81 | Prolongation of refractoriness by trains of subthreshold high-frequency stimuli: a simulation study. , 0, , .  |     | 0         |
| 82 | Role of early afterdepolarizations on ectopic activity in ventricular tissue. A computer modeling study. , 0, , .  |     | 0         |
| 83 | Simulation study of epicardial action potential under normal and ischemic conditions. , 0, , .   |     | 0         |
| 84 | Inhibitory effect of subthreshold high-frequency stimuli: a computer simulation study. , 1997, , .   |     | 0         |
| 85 | Simulation of ectopic activity induced by EADs in Purkinje fibers. Influence of Purkinje-muscle coupling. , 0, , .   |     | 0         |
| 86 | Action potential duration inhomogeneities in acute myocardial ischemia: a simulation study. , 1998, , .  |     | 0         |
| 87 | Computer model of the effects of pinacidil on ATP-sensitive potassium current. , 0, , .  |     | 0         |
| 88 | Postrepolarization refractoriness in ventricular cardiac cells: a simulation study. , 0, , .   |     | 0         |
| 89 | Simulation study of the ionic mechanisms involved in the all-or-none repolarization observed under ischemic conditions. , 0, , .   |     | 0         |
| 90 | Simulation study of electrical alternans in epicardial myocytes under ischemic conditions. , 0, , .  |     | 0         |

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| 91  | Simulation study of the effects of flecainide on ventricular muscle cells. , 0, , .  |    | 0         |
| 92  | Pinacidil-induced block of action potential propagation in ischaemic tissue: a simulation study. , 2000, , .                                 |    | 0         |
| 93  | Mechanistic investigation of the causes of cellular K <sup>+</sup> loss during acute myocardial ischemia: a simulation study. , 0, , .       |    | 0         |
| 94  | Simulation of reentry induced by early afterdepolarizations during acute myocardial ischemia. , 0, , .                                       |    | 0         |
| 95  | Simulation of action potential propagation block on a bidimensional ventricular tissue model during regional myocardial ischaemia. , 0, , .  |    | 0         |
| 96  | The effects of ischemia on the ectopic activity induced by EADs computer simulation. , 0, , .  |    | 0         |
| 97  | Pinacidil modifies the vulnerability to reentry during regional myocardial ischemia in a dose dependent manner: a simulation study. , 0, , . |    | 0         |
| 98  | Vulnerability to reentry during the acute phase of myocardial ischemia: a simulation study. , 2003, , .                                      |    | 0         |
| 99  | Effect of calcium-activated chloride current blockade on alternans of atrial action potentials: simulation study. , 0, , .                   |    | 0         |
| 100 | Effect of acute global ischemia on cardiac vulnerability to electrical shocks. , 0, , .  |    | 0         |
| 101 | Effects of pinacidil on refractoriness in acutely ischemic tissue: insights from experiments and simulations. , 0, , .                       |    | 0         |
| 102 | Modulation of the regional dispersion of repolarization by the action of class III antiarrhythmic drug dofetilide. , 2005, , .               |    | 0         |
| 103 | Effects of antiarrhythmic drug lidocaine on ventricular electrical activity. a computer modelling study. , 2005, , .                         |    | 0         |
| 104 | A computer model of reflection induced by early afterdepolarizations in ventricular tissue. , 2005, , .                                      |    | 0         |
| 105 | Effects of acute ischemia and its components on the safety factor of conduction: a simulation study. , 2005, , .                             |    | 0         |
| 106 | Effect of ectopic focus frequency on fibrillatory conduction in atrial remodelling tissue. A simulation study. , 2007, , .                   |    | 0         |
| 107 | The pH dependence on the electrophysiological effect of lidocaine in ventricular myocardium. A computer modelling study. , 2007, , .         |    | 0         |
| 108 | Effect of lidocaine in acute ischemic situations: A computer modelling study. , 2008, , .  |    | 0         |

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|-----|---|-----|-----------|
| 109 | Safety in purkinje to ventricular conduction and reentrant activity under simulated 1B ischemia. , 2008, , .  |     | 0         |
| 110 | Reentrant activity in a virtual 3D ventricular slab preparation subject to regional simulated ischemia: Role of the ischemic zone size. , 2008, , .     |     | 0         |
| 111 | Sustained reentry in a 3d regionally ischemic human heart. A simulation study. , 2015, , .  |     | 0         |
| 112 | Intracellular Calcium Regulation in Canine Ventricular Myocytes: a Simulation Study. , 2017, , .  |     | 0         |
| 113 | The Effect of Mitochondria in Intracellular Calcium Dynamics in Cardiomyocytes: a Simulation Study. , 0, , .  |     | 0         |
| 114 | Ionic Modulation of Calcium Dynamics in Simulated Human Heart Failure. , 0, , .   |     | 0         |
| 115 | Fibroblasts Induce Calcium Alternans When Coupled to Cardiomyocytes: A Simulation Study. , 0, , .   |     | 0         |
| 116 | Understanding Ventricular Tachyarrhythmias Related to Acute Myocardial Ischemia: A Computational Modeling Approach. IFMBE Proceedings, 2020, , 769-776. | 0.2 | 0         |