

1. Record Nr.	UNINA9910300377903321
Autore	Colman Michael A
Titolo	Mechanisms of Atrial Arrhythmias : Insights from the Development of a Biophysically Detailed Model of the Human Atria / / by Michael A. Colman
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2014
ISBN	3-319-01643-1
Edizione	[1st ed. 2014.]
Descrizione fisica	1 online resource (267 p.)
Collana	Springer Theses, Recognizing Outstanding Ph.D. Research, , 2190-5053
Disciplina	616.1
Soggetti	Biophysics Cardiology Bioinformatics Computational biology Physics Mathematical physics Biological and Medical Physics, Biophysics Computer Appl. in Life Sciences Numerical and Computational Physics, Simulation Mathematical Applications in the Physical Sciences
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di contenuto	Introduction -- Background -- Development of a new model for simulating the electrical action potentials of human atrial myocytes -- Development of a family of regional cell models -- Autonomic regulation and pathophysiological remodelling -- 3D Anatomical Modelling of the Atria -- Pacemaking and autonomic regulation in the 3D sinoatrial node and atria -- Atrial Fibrillation -- Discussion.
Sommario/riassunto	This thesis describes the development of biophysically detailed computer models of the human atria and torso to study the underlying mechanisms of cardiac diseases, some of the most common causes of morbidity and mortality. This is a cross-disciplinary project, involving fundamentals of cardiac electrophysiology, physics of

excitable media, applied mathematics and high performance scientific computing and visualisation. The author uses computer models to provide insights into the underlying mechanisms of the genesis of atrial fibrillation and develops novel techniques for the monitoring of atrial tachycardia. .

---