Preface

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The overview article “Modelling and Simulation for Preclinical Cardiac Safety Assessment of Drugs with Human iPSC-Derived Cardiomyocytes” written by Philipp Kügler starts with a description of the electrical activity of the human heart and cardiac drug safety testing. The author summarizes the mathematical modelling of human cardiac electrophysiology and illustrates how the numerical analysis of obtained ODE and PDE models provides new insight into the genesis of drug induced arrhythmias. Finally, this paper surveys methods for the proarrhythmic risk estimation that are based on the simulation of the behavior of human heart muscle cells. In an outlook opportunities and challenges for a future interdisciplinary research are presented.

Moreover, there are three book reviews. Frank Hettlich reviews “Maxwell Equation–Inverse Scattering in Electromagnetism” written by H. Isozaki, Frédéric Naud reviews “Dynamical Zeta Functions and Dynamical Determinants for Hyperbolic Maps” written by V. Baladi, and finally Thomas Wick reviews “Accuracy of Mathematical Models” written by Sergey I. Repin and Stefan A. Sauter.

We hope that you enjoy reading this issue.

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