Computational and Mathematical Methods in Medicine

Hindawi

Special Issue on

Computational and Mathematical Methods in Cardiovascular Diseases

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Cardiovascular diseases are a leading cause of death in the world. Computational and mathematical methods provide a useful tool to better understand heart rhythm disorders, which require a complex system-level approach that incorporates the interaction between electrical, chemical, and mechanical activities of the heart on a variety of biological scales. This special issue focuses on various computational and mathematical methods to model cardiac disorders, to better understand the existing mathematical challenges, to explore new directions in modeling of cardiovascular dynamics and cardiac rhythm abnormalities, and to develop cardiac related mathematical applications in clinical and emergency situations.

To promote communication between researchers from different discipline—mathematicians, physicists, biomedical engineers, clinicians, and industrial practitioners—on mathematical modeling of cardiac electrophysiology, we invite investigators to contribute original research articles as well as review articles.

Potential topics include but are not limited to the following:

- Cardiac electrophysiology modeling and simulation
- Cardiac mechanics modeling and analysis
- Cardiac electromechanical feedback mechanisms
- Computational methods in cardiovascular imaging
- Cardiac dynamics and control
- Numerical methods for cardiac physics
- Signal processing techniques

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