



Mathematics and Computing in Cardiology

Guest Editor:

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Message from the Guest Editor

The heart is the motor that keeps the body alive, responsible for making blood flow to all cells and passing it through the lungs to oxygenate it. Its rhythm is controlled by the nervous system and each beat propagates through heart muscles, following a well-defined pattern to get the atria and ventricles to contract and relax at the right time to achieve the highest possible efficiency in blood pumping. However, this perfect machine can fail causing various cardiovascular illnesses.

Physicians analyze heart sounds, record the electrical activity through electrocardiograms, take pictures of arteries and veins that cover the heart, or even record videos showing blood flow in these channels. All this is done to infer what is wrong and to find solutions.

Computers and mathematics are becoming increasingly important in this process. Mathematical models for different components of the cardiovascular system have been designed, tested and correlated with real physiology. They are great advances, but there is still a lot to do.

In this Special Issue, we would like to receive contributions describing applications of mathematics and computation to cardiology.





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