

MATHEMATICAL AND NUMERICAL MODELING OF THE CARDIAC FUNCTION

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MINI-SYMPOSIUM PROPOSAL

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In this mini-symposium, we aim at gathering novel contributions to the numerical modeling of the cardiac function [1,3]. In particular, core cardiac functions as electrophysiology, active and passive mechanics, blood dynamics, cardiac perfusion, and valve dynamics will be considered. A particular attention will be paid to the mathematical and numerical strategies for the coupling of such models.

The focus is on the multiple aspects leading the numerical simulation of the cardiac function, including mathematical modeling, splitting strategies for the coupled problems, efficient solvers and preconditioners for monolithic and single core models, mesh handling for immersed methods in valve dynamics fluid-structure interaction, etc. In addition, methods purposely developed to address clinical applications are of interest for this mini-symposium.

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