

COMPUTATIONAL MODELING AND SIMULATION OF CARDIOVASCULAR PHYSIOLOGY

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MINI-SYMPOSIUM PROPOSAL

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Mathematical models have contributed to increase our knowledge of cardiovascular physiology for several decades. In this context, systemic models, i.e. models that approach the modelling problem at a systemic scale, have played an important role in the past, with the most prominent example being probably Guyton's circulatory model [1].

After a rather long pause in terms of research activity, recent efforts to describe the cardiovascular system from a systemic perspective have been made [2, 3, 4]. Such models make use of well-established mathematical and numerical techniques which can now be integrated with a considerable amount of experimental data, opening new perspectives regarding their application range.

In this mini-symposium we want to discuss the latest developments in systemic cardiovascular physiology model development and application. Contributions should address the following topics:

- systemic cardiovascular model construction;
- systemic-organ coupled models;
- multi-scale (dimensionally-heterogeneous) models;
- applications to pathological conditions;
- applications to physiology;
- numerical aspects for multi-scale mathematical models;
- data assimilation and uncertainty quantification.

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