

Colloquium

Modeling blood flow and cardiac electrophysiology: numerical methods and applications

Christian Vergara, Laboratory of Biological Structure Mechanics (LaBS), Dipartimento di Chimica, Materiali e Ingegneria Chimica "Giulio Natta", Politecnico di Milano

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Abstract

In this talk we report some examples of cardiovascular applications where computational models are used to properly quantify some output of clinical interest. In particular, we focus on blood flow modeling, describing different mathematical and numerical models, such as Large Eddy Simulations for transition to turbulence and Fluid-Structure interaction problems. Then, we present examples of possible clinical applications. In the second part, we focus on the modeling of cardiac electrophysiology. In particular, we address the issue of the integration of clinical measures of electrical activity into the numerical methods, in order to estimate parameters and provide validations.