

Modélisation et simulation d'écoulements sanguins en géométries réalistes

Résumé :

Despite the significant progresses in blood flow simulations in the recent years, the accurate description of the complex multi-physics, multi-scale phenomena characterizing blood flow in realistic geometries still remains a very challenging task.

The aim of the first part of the talk is to present our advances in developing an open-source framework for hemodynamic simulations and to assess its efficiency through validation against experimental data. The core is built on a flexible generic library called Feel++ Finite Element method Embedded Language in C++ (www.feelpp.org). In the second part, we illustrate the capabilities of the framework by applying it to the development of a computational model for blood flow in a cerebral venous geometry extracted from medical data.