ÉCOLE POLYTECHNIQUE
FÉDÉRALE DE LAUSANNE

Dr. Simone DEPARIS
Mathematics Institute of Computational Science and Engineering - MATHICSE

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SEMINAR OF NUMERICAL ANALYSIS

➢ **WEDNESDAY 25 NOVEMBER 2015 - ROOM MA A1 10 - 16h15**

Prof. Dominik OBRIST (ARTORG Center, University Bern) will present a seminar entitled:

"Numerical simulation of aortic valve bioprostheses with hybrid discretization for fluid and soft tissue"

Abstract:

The numerical simulation of bioprosthetic aortic valves is a multi-physics problem involving large deformations of soft tissue and transient vortical flow fields. Whereas soft tissue is most appropriately discretized on unstructured meshes in Lagrangian formulation, the three-dimensional flow field is discretized on a structured Cartesian grid to obtain an efficient implementation on modern HPC platforms. The fluid-structure interaction between the soft tissue and the blood flow is modelled with the immersed boundary method.
We will discuss numerical and computational aspects of such a hybrid discretization approach in the context of high-performance computing including efficient time stepping, boundary conditions, data locality and load balancing.

Lausanne, 4 November 2015/SD/cr

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