

Numerical reconstruction of the fluid flow from local measurements of the velocity

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In this talk, we will consider different PDE models in fluid mechanics and present a numerical method for the reconstruction of the velocity and the pressure from local measurements of the velocity. This method which has consistency properties is based on the stabilization of the discretized Finite Element formulation of the equation. We will present results on the analysis of the reconstruction error which rely on the quantification of the unique continuation property and illustrate this method for the reconstruction of the blood flow in a vessel.

Orateur: BOULAKIA, Muriel