

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

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Abstract

In this talk, we are interested by PDEs 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 is based on the stabilization of the discretized Finite Element formulation of the equation and the associated reconstruction error can be analyzed thanks to theoretical results that quantify the unique continuation property. We will illustrate this method for the reconstruction of the blood flow in a vessel in different settings.