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RECONSTRUCTION OF THE PRESSURE IN THE METHOD  
OF ASYMPTOTIC PARTIAL DECOMPOSITION FOR THE FLOWS IN THIN DOMAINS

The method of asymptotic partial decomposition of thin domains was introduced in [1]. For the Stokes or Navier-Stokes equations in thin tube structures it is presented in [2], [3], [4]. This method uses the variational formulation “without pressure” and provides a special restriction of this formulation on the Sobolev subspace of vector-valued functions having the Poiseuille-like shape within the thin tubes at some small distance from the bifurcations. However for its numerical implementation a weak formulation “with pressure” is needed. The main result of the talk is related to the reconstruction of the pressure in the frame of this method. This reconstruction algorithm uses some PDEs on the graphs described in [5]. The result is obtained in collaboration with C. Bertoglio and C. Conca.

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