International workshop Mathematical Modeling in Hemodynamics

Coupling of models for viscous flows of different dimension

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The non-stationary Navier-Stokes equations set in a network of thin cylindrical tubes models the blood flow in the network of vessels. We present asymptotically justified conditions of coupling of the one dimensional models of the flow and three-dimensional zooms. The paper continues the series of papers on the method of asymptotic partial decomposition of a domain (MAPDD), proposed in [1] and then developed in [2-7], in particular, for the Navier-Stokes and Stokes equations in [2-6]. It is a joint work with C.Bertoglio, C.Conca, D.Nolte, K.Pileckas.

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