CASTS TALKS

Special Program in Applied Mathematics and Applied Mechanics

Stability and convergence analysis of the kinematically coupled scheme for the fluid-structure interaction

Prof. Boris Muha

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15:00 - 17:00
308, Mathematics Research Center Building (ori. New Math. Bldg.)

In this talk we consider several fluid-structure interactions problems which are motivated by simulations of the blood flow through the compliant arteries. We introduce a partitioned approach called kinematically coupled scheme for numerically solving these kind of problems. We derive the energy estimates associated with the unconditional stability of the kinematically coupled scheme. Furthermore, we present a priori estimates showing optimal, first-order in time convergence. The theoretical stability and convergence results are supported with numerical examples. This is joint work with M. Bukač and S. Čanić.