

# **An overview of numerical approaches to certain class of fluid-structure interaction problems.**

Jaroslav Hron

Charles University, Faculty of Mathematics and Physics, Czech Republic, [jaroslav.hron@mff.cuni.cz](mailto:jaroslav.hron@mff.cuni.cz)

Abstract: In the lecture we will discuss different approaches to numerical solution of certain class of fluid-structure interaction problems. We will try to give an overview of methods including monolithic solvers in the fully coupled arbitrary Lagrangian-Eulerian (ALE) description, solvers based on the pure Eulerian formulation, the immersed boundary type methods and some fully decoupled partitioned schemes. We will try to compare their strengths and weakness in relation to computational efficiency and robustness. In the remaining time some possibilities to solve such problems will be shown on a simple example using modern computer codes for finite element method such as FEniCS.