NEW TRENDS IN NUMERICAL METHODS FOR MULTI-MATERIAL COMPRESSIBLE FLUID FLOWS

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Key words: Fluid Dynamics, multi-material, compressible fluid flows, numerical methods, ALE, Lagrange

ABSTRACT

This minisymposium follows on from the successful symposia held in San Diego 2008 (SIAM Annual Meeting), Amsterdam 2010 (ICCS), Reno 2010 (SIAM Annual Meeting), Minneapolis 2011 (US National Conference on Computational Mechanics) and Vienna 2012 (ECCOMAS).
It aims at bringing together researchers from universities and research laboratories to discuss the state-of-the-art for multi-material hydrodynamics simulations and related subjects.

This minisymposium will focus on the numerical methods devoted to the simulation of multimaterial fluid flows and solid mechanics, on the analysis of such methods and on the modeling of complex multi-material flows which is essential for research dealing with new sources of energy such as inertial confinement fusion.

Topics to be covered include mathematical, numerical and physical aspects of, Lagrangian numerical schemes,
Arbitrary Lagrangian Eulerian (ALE) and adaptive mesh refinement (AMR) methods, Eulerian methods, high order numerical schemes, material interface modeling, multiphase flow and multiscale simulations, mesh-free methods, interface reconstruction methods, numerical methods for heat conduction and also numerical methods for complex constitutive models.