



COLLABORATIVE RESEARCH CENTER 837

INTERACTION MODELING IN MECHANIZED TUNNELING

RUB

Highly-Scalable Methods for Computational Fluid Dynamics Simulation

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The simulation of engineering problems in CFD and other disciplines requires handling increasingly complex geometries. This in turn puts an increasing burden on all the aspects of a simulation pipeline, from the pre processing to the solution stage.

The use of "Immersed CFD" techniques represents an appealing alternative in addressing such scenario, providing a completely automatic path toward the solution of complex CFD problems.

A cornerstone of such technique is the capability of efficiently running extremely large problems, since the use of fine meshes is mandatory both in capturing the geometrical features of interest and in providing the required accuracy.

The focus of the talk will be thus on highly scalable solver technologies for CFD, with special emphasis on the use of modern HPC hardware. The talk will include a brief discussion of deflation approaches to scalable sparse preconditioning as well as the discussion of real world benchmark examples.

Guests are welcome!