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Lothar Collatz Center
for Computing in Science

GRK 2583

Student Chapter Hamburg

Nachwuchsgruppe Hamburg

Lothar-Collatz-Seminar

Wed, 15. January · 16:15 · Sedanstr. 19, Room 203

Michael Koch (Technische Universität Hamburg)

Solving the Steady State Oseen Equations in an RBF-FD Setting

Abstract:

Radial basis function finite difference (RBF-FD) discretization has recently emerged as an alternative to classical finite difference or finite element discretization of (systems) of partial differential equations. After an introduction to the RBF-FD I describe how to discretize the steady state Oseen equations in an RBF-FD setting. Particularly, I show different approaches to deal with the pressure constraint. In our numerical results, we focus on RBF-FD discretizations based on polyharmonic splines (PHS) with polynomial augmentation. We illustrate the convergence of the method for different degrees of polynomial augmentation, viscosities and domains. In particular I show why the error in the velocity increases when the viscosity parameter is decresed.

For further information please contact

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www.c3s.uni-hamburg.de/news-events/seminar-c3s.html