Department of Mathematics

University of Houston

Scientific Computing Seminar

Prof. Guido Kanschat
Mathematics
University of Heidelberg

Divergence-conforming multigrid methods for incompressible flow problems

Thursday, March 10, 2016
1:30 PM- 2:30PM
Room 646   PGH

Abstract: We show how divergence-conforming elements and discontinuous Galerkin methods provide robust discretizations for Stokes, Darcy, and Brinkman flow. By being embedded into a cochain complex, we can easily derive error estimates for the velocity which are independent of the pressure. Furthermore, the structure of these spaces admits multigrid methods with smoothers amenable to high performance computing. We outline the principle of proof of efficiency in the Darcy and Stokes case and present experimental evidence for their robustness.

This seminar is easily accessible to persons with disabilities. For more information or for assistance, please contact the Mathematics Department at 743-3500.