Department of Mathematics

University of Houston

Scientific Computing Seminar

Prof. Yuri Kuznetsov
Department of Mathematics
University of Houston

Numerical methods for diffusion problems with high-contrast inclusions

Thursday, October 25, 2018
1:30 PM- 2:30 PM
Room 646 PGH

Abstract: In this presentation, we propose and investigate a new approach to the numerical solution of diffusion problems in heterogeneous media with high-contrast inclusions. Instead of the classical variational formulation of the problem we consider an equivalent weak saddle-point formulation with a set of small parameters. For the asymptotic expansion of the solution we derive a simple convergence condition and the underlying error estimates. We also investigate the problem in the framework of the P1 finite element method. Theoretical conclusions are confirmed by numerical results with large number of regular shaped inclusions.