

Discrete Mathematics Seminar

Time: Friday, 12 February 2016, 2:15-3:15 PM
Room: 237 Derrick Hall
Title: A Framework for Nonconforming Generalized Multiscale Methods
Speaker: Dr. Dongwoo Sheen, Department of Mathematics, Seoul National University

Abstract:

A framework is introduced for nonconforming multiscale approach based on GMsFEM (Generalized Multiscale Finite Element Methods). Snapshot spaces are constructed for each macro--scale block. With suitable dimension reduction, offline spaces are constructed. Moment function spaces are then introduced to impose continuity among the local offline spaces, which results in nonconforming GMsFE spaces. Oversampling and randomized boundary condition strategies are considered. Steps for the nonconforming GMsFEM are given explicitly. Error estimates are derived. Numerical results are presented to support the efficiency of the proposed approach.

This is a joint work with Chak Shing Lee of Texas A&M University.