

Department of Mathematics

University of Houston

## Scientific Computing Seminar

Professor Olof B. Widlund

Courant Institute

### BDDC deluxe domain decomposition algorithms

Thursday, March 6, 2014

1:30 PM- 2:30 PM

Room 646 PGH

**Abstract:**

The BDDC algorithms, first developed by Clark Dohrmann, have proven to be very successful domain decomposition algorithms for a variety of elliptic problems. For any particular application, the success of such an algorithm depends on the choice of a set of primal constraints and on the choice of an averaging operator, which is used to restore the continuity of certain intermediate vectors in each iteration.

In the deluxe version, a new averaging procedure is used; it was first developed in joint work with Dohrmann on  $H(\text{curl})$  problems in order to deal with the two material parameters of such problems. The algorithm will be described and theory will be outlined. Several successful applications will be discussed including problems posed in  $H(\text{div})$ , Reissner-Mindlin plates, and elliptic problems and isogeometric analysis.

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