

Department of Applied and Computational Mathematics and Statistics Colloquium



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Discontinuous Galerkin methods for waves and fluid flow

The discontinuous Galerkin (DG) methods are a class of numerical methods for solving partial differential equations. They combine features of the finite elements and finite volume framework and have been successfully applied to hyperbolic, elliptic, parabolic and mixed form problems arising from a wide range of applications.

In this talk, we present some recent work on discontinuous Galerkin (DG) methods for waves and fluid flow. Three topics will be covered, including (1) new energy-conserving DG methods for linear hyperbolic waves, and nonlinear dispersive waves, (2) globally divergence-free DG methods for incompressible flow, and (3) hybridizable DG methods for Darcy flow. Special attention will be paid to the key idea of the construction of each DG scheme. Ample numerical results will be shown to illustrate the performance of these methods.

Wednesday, January 16, 2019

4:15 PM – 5:15 PM

127 Hayes-Healy Center

Colloquium Tea 3:45 PM to 4:15 PM 101A Crowley Commons Room