



PIMS / AMI Seminar



Friday, September 25, 2015
3:00 p.m.
CAB 657

“M-adaptation for Dispersion Optimized Edge Discretizations of the Electric Vector Wave Equation”

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Abstract

We present a technique called M-adaptation, based on the mimetic finite difference method, for minimizing numerical dispersion error in edge discretizations of the time-domain vector wave equation on square meshes. The temporal discretization uses the Leapfrog scheme, and a technique called mass-lumping is performed to obtain an explicit time stepping method. We obtain a fully discrete numerical scheme that has fourth order accurate numerical dispersion as well as fourth order numerical anisotropy. Numerical simulations are provided to illustrate theoretical results.

This is joint work with Nathan Gibson and Duncan McGregor from Oregon State University and Vitaliy Gyrya from Los Alamos National Laboratory.

Refreshments will be served in CAB 649 at 2:30 p.m.