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Computational Mathematics Seminar Series

Numerical Methods for Fully Nonlinear Second Order PDEs and Applications**Michael Neilan, Louisiana State University**Johnston Hall 338
August 25, 2009 - 03:00 pm**Abstract:**

Fully nonlinear second order PDEs arise in many areas of science including optimal transport, meteorology, differential geometry, and optimal design. However, numerical methods for general fully nonlinear second order PDEs still remains a relatively untouched area. In this talk, I will introduce a new notion of solutions for these equations called moment solutions which are based on a constructive limiting process called the vanishing moment method. I will then present three finite element methods based on the vanishing moment method. Finally, I will demonstrate the effectiveness of the method with numerical examples.

Speaker's Bio:

Michael Neilan is an NSF Postdoctoral Fellow working under the supervision of Susanne Brenner. He graduated from the University of Tennessee in May 2009 under the direction of Xiaobing Feng. His research interests include numerical solutions to PDEs, finite element methods, and nonlinear PDEs.

Refreshments will be served.