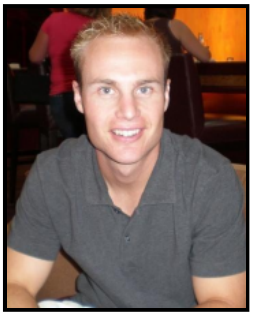

Computational Mathematics Seminar Series

Solving the Eikonal Equation on Adaptive Triangular and Tetrahedral Meshes

Luke Owens, University of South Carolina

Johnston Hall 338
April 20, 2009 - 11:00 am

Abstract:
The two well known methods for solving the eikonal equation are the fast marching method and the fast sweeping method. On a rectangular or cubic mesh both of these methods can be easily implemented. However, on a triangular or tetrahedral mesh complications arise. We will explore both the fast marching and fast sweeping methods and touch on the recent application of using higher order discontinuous Galerkin methods to solve the eikonal equation. Finally, theoretical and numerical convergence results will be presented for the closest point algorithm on an adaptive triangular mesh. The closest point algorithm is used to solved the distance function, which is important in the application of fitting a surface to 3D point cloud data.

Speaker's Bio:
Luke Owens is from WIndsor, ON, Canada. He went to Kennesaw, GA in August of 2000 on a golf scholarship. He graduated with a Bachelor of Science degree in Mathematics from Kennesaw State University. In 2007, he graduated from the University of South Carolina with a Ph.D. in Mathematics under the direction of Susanne Brenner and Li-yeng Sung. Dr. Owens is currently working at the Industrial Mathematics Institute at USC as a mathematics postdoc researcher. He will be a postdoc at Texas A&M starting fall 2009.

Refreshments will be served.
This lecture has a reception.

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