Special Guest Lectures

A Posteriori Error Estimates for Discontinuous Galerkin Finite Element Methods for Elliptic Problems

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Abstract:
By their nature discontinuous Galerkin methods are flexible for hp-adaptive finite element approximations of solutions of partial differential equations. Since these methods are based on discontinuous finite element spaces, a posteriori error analysis becomes slightly more complicated. One of the key ideas in this analysis is to decompose the error into conforming and nonconforming parts and then to use some finite element averaging techniques. In this talk, I will present residual based a posteriori error estimators for a few discontinuous Galerkin methods for second and fourth order elliptic problems. Numerical experiments will be discussed for some of these methods.

Speaker's Bio:
Dr. Thirupathi Gudi did his Master of Science in Mathematics from Kakatiya University in 2001. He then joined for Ph. D. Applied Mathematics at Indian Institute of Technology Bombay in 2002 and he has been awarded the degree in 2007. He also has visited Humboldt Universtiy, Berlin as a visiting Research Scholar during January-May, 2007. Currently he is a Post Doctoral Researcher at the Center for Computation and Technology, Louisiana State University. He has been awarded Gold Medal from Kakatiya University for securing the first rank in his M. Sc. He also has been awarded the most outstanding Ph. D. student by the Department of Mathematics, IIT Bombay for the year 2007.

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