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Computational Mathematics Seminar Series

Optimal Convergence of the Adaptive Finite Element Method

Joscha Gedicke, Humboldt University of Berlin

Johnston Hall 338
February 17, 2010 - 03:30 pm

Abstract:
The Adaptive Finite Element Method (AFEM) is an algorithm which leads to numerical solutions with high accuracy at low costs. This is achieved by automatic mesh refinement towards singularities of the solution based on a posteriori refinement indicators. Since the mesh is only refined locally there might be some regions of the domain never refined. Hence, convergence is not a priori clear and has to be proven. Moreover not only convergence but efficiency is of major interest in computational applications. Therefore it is important to show an optimality property of the method. This talk introduces the AFEM for a simple Poisson model problem and comments on the recently established framework of proving optimal convergence.

Speaker's Bio:
Joscha Gedicke interned at Yonsei University in Seoul, South Korea in October and November of 2009. He is a member of the Berlin Mathematical School and of the research center MATHEON in Germany. On May 29, 2008 he received an outstanding degree for diploma thesis in mathematics on a posteriori error estimators for elliptic eigenvalue problems at Humboldt University of Berlin, Germany.

Refreshments will be served.
This lecture has a reception.