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Rutgers University  
Hill Center - Room 705

**Convergence of adaptive finite element methods  
for nonstandard norms**

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**Abstract**

Adaptive finite element methods are popular in computational science and engineering because of their ability to automatically produce efficient solutions to partial differential equations. Numerical experiments have long indicated that such methods converge optimally under reasonable conditions. However, a satisfying theory confirming these practical observations has only been developed over the past decade. Most such convergence results concern methods for controlling the (global) energy norm of the error, which is easiest to work with theoretically but not always the most relevant in practice. In this talk I will survey recent progress in understanding convergence behavior of adaptive methods for controlling “nonstandard” norms of the error such as local energy and global L2 norms.