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Hieu Nguyen* (htrnguyen@ucdavis.edu), htrnguyen@ucdavis.edu, and **Randolph E. Bank**,
rbank@ucsd.edu. *A New Approach to p -Adaptive Finite Element Method*.

In this talk, we propose a new approach to the p -version of adaptive finite element method. Our work is characterized by the use of nodal basis functions and a posteriori error estimates based on derivatives recovery technique. The special nodal basis functions defined for transition elements allow us to accommodate elements of different degrees while avoiding hanging nodes and maintaining the continuity of the finite element space. Our error estimates are also very attractive as they are robust and independent of the PDE problem. Numerical results will be provided to show the efficiency of our approach. (Received March 08, 2011)