

Self-Adaptive Numerical Methods for Computationally Challenging Problems

Abstract:

Self-adaptive numerical methods provide a powerful and automatic approach in scientific computing. In particular, Adaptive Mesh Refinement (AMR) algorithms have been widely used in computational science and engineering and have become a necessary tool in computer simulations of complex natural and engineering problems. The key ingredient for success of self-adaptive numerical methods is *a posteriori* error estimates that are able to accurately locate sources of global and local error in the current approximation. The workshop will create a forum for junior and senior researchers in numerical analysis and computational science and engineering to discuss recent advances, initiate future research projects, and establish new collaborations on convergence theory of adaptive numerical methods and on the construction and analysis of efficient, reliable, and robust *a posteriori* error estimators for computationally challenging problems.