

1071-65-166

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In this talk, we consider the design of practical adaptive multilevel finite element methods for the nonlinear Poisson-Boltzmann equation (PBE). At each refinement level, the nonlinear system of equations is solved inexactly by Newton/multilevel methods. Under certain assumptions of the inexact solver, we are able to show that the adaptive algorithm still satisfies the contraction property between two successive refinements. The convergence and accuracy of the overall AFEM algorithm is also illustrated by numerical experiments. (Received March 03, 2011)