TEMPLE UNIVERSITY
Department of Mathematics

Applied Mathematics and Scientific Computing Seminar

Friday, 20 January 2012, 4:00 p.m.
Room 617 Wachman Hall

Local convergence of inexact Newton-like methods for nonlinear algebraic eigenvalue problems

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Abstract. Nonlinear algebraic eigenvalue problems of the form $T(\lambda)v = 0$ arise naturally in a variety of science and engineering applications. This talk concerns the local convergence rates of several inexact Newton-like algorithms for the solution of a simple eigenpair of the nonlinear eigenvalue problem. We show how the tolerances for the approximate solution of the linear systems arising in these algorithms affect the local convergence rates. In particular, with appropriately chosen tolerances for the inner solves, the inexact algorithms can achieve the same order of convergence as the exact methods.