

# MATHEMATICS RESEARCH SEMINAR

3:30-4:30 November 4, 2005

104 University Hall

## THE NONLINEAR POWER METHOD

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*ABSTRACT:* The power method is a standard technique in numerical linear algebra for estimating the dominant eigenpair of a square matrix. In this talk, we will examine two extensions of the power method: first, to matrices that are subject to small perturbations in their entries at each stage of the iteration, and secondly to certain bounded linear operators on infinite dimensional spaces. I will then discuss an application of the (nonlinear) power method to computational error estimation for numerical solutions of differential equations.