Title: A Minimax Method for Finding the Eigenpairs of Nonlinear Operators

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Abstract. A minimax algorithm for finding the eigenpairs of nonlinear operators will be given in this talk. As a preliminary result, the following type of variational eigenpair problems will be considered. Find eigenpairs $(\lambda, u) \in \mathcal{R} \times B$ such that $\|u\| = 1$ and

$$F'u = \lambda G'u$$

where B is a Banach space and $F, G \in C^1(B, R)$ satisfy the homogeneous conditions

$$F(tu) = t^k F(u) \quad \text{and} \quad G(tu) = t^k G(u), \quad \forall t > 0$$

for some $k \neq 0$. As examples, the eigenpairs of the nonlinear *p-Laplacian* and *pseudo-p-Laplacian* operators will be studied and their numerical results will be presented.
This is a joint work with Professor J. Zhou of Texas A&M University.