

Meeting: 1003, Atlanta, Georgia, SS 27A, AMS-SIAM Special Session on Analysis and Applications in Nonlinear Partial Differential Equations, I

1003-35-59 **An H Le*** (anle@math.utah.edu), 155 S 1400 E JWB233, Salt Lake, UT 84112. *Nonlinear Eigenvalue Problems.*

We study nonlinear eigenvalue problems involving the p -Laplacian operator with Dirichlet, Neumann, Periodic, Robin, Steklov boundary conditions. First, we prove the existence of a sequence of eigenvalues using Ljusternik-Schnirelmann principle. We then establish the simplicity and isolation of the principle eigenvalue. Finally we give a characterization for the second eigenvalue. (Received July 25, 2004)