

1057-35-446

**Lotfi Hermi\*** ([hermi@math.arizona.edu](mailto:hermi@math.arizona.edu)), Department of Math, University of Arizona, 617 N. Santa Rita Ave., Tucson, AZ 85721. *Quadratic Interpolation and Rayleigh-Ritz Methods for Bifurcation Coefficients.*

We study the estimation of bifurcation coefficients in nonlinear branching problems by means of Rayleigh-Ritz approximation to the eigenvectors of the corresponding linearized problem. It is essential that the approximations converge in a norm of sufficient strength to render the nonlinearities continuous. Quadratic interpolation between Hilbert spaces is used to seek sharp rate of convergence results for bifurcation coefficients. Examples from ordinary and partial differential problems are presented. This is joint work with W. M. Greenlee. (Received January 26, 2010)