NONLINEAR SPECTRUM IN TERMS OF GENERALIZED RAYLEIGH QUOTIENT

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The main purpose of the talk is to present a new approach for the generalization of the Rayleigh quotient. Using the fibering map we introduce the so-called Nonlinear Generalized (NG-) Rayleigh quotient. It turns out that the critical values of NG-Rayleigh quotient contain an important information on the nonlinear differential equations. In particular, we show that the applicability of the Nehari manifold method can be studied by means of the critical values of a corresponding NG-Rayleigh quotient. Theoretical results are illustrated by considering certain examples of nonlinear boundary value problems.