Stephen B Robinson* (sbr@wfu.edu) and Mauricio Rivas. Eigencurves and Resonance.

This paper describes the existence of (weak) solutions of the nonlinear boundary value problem

\[-\Delta u = \mu m_2 u + f(x, u) \quad \text{in } \Omega \]
\[\frac{\partial u}{\partial \nu} + b(x)u = \lambda m_1 u + g(x, u) \quad \text{on } \partial \Omega\]

where \(\Omega\) is a smooth bounded region in \(\mathbb{R}^N\), \((\lambda, \mu) \in \mathbb{R}^2\), \(f\) and \(g\) are Caratheodory functions satisfying sublinear growth conditions, and the coefficient function \(b(x)\) and the weights \(m_1, m_2\) lie in appropriate \(L^p\)-spaces. In particular we characterize eigencurves \((\lambda, \mu_n(\lambda))\) associated with the problem and then prove existence for resonance problems subject to a generalized Landesman-Lazer condition. Our results were motivated by, and are complementary to, the recent work of Mavinga and Nkashama. (Received September 21, 2015)