Eigenvalue problems for a class of Kirchhoff’s equations

Abstract

The result to be presented concerns the eigenvalue problem for the general Kirchhoff’s equation

\[-M \left( \int_{\Omega} |\nabla u(y)|^{p(y)} dy \right) \text{div} \left( |\nabla u(x)|^{p(x)-2} \nabla u(x) \right) = \lambda |u(x)|^{q(x)-2} u(x), \quad \text{for suitable} \ M, \ \text{in the context of variable exponent Lebesgue spaces. It is proven that given a bounded domain} \ \Omega \subset \mathbb{R}^n, \ \text{there is a solution} \ u \ \text{with} \ \int_{\Omega} |\nabla u(x)|^{p(x)} dx = r \ \text{for any} \ r > 0. \ \text{Several related problems can also be treated via the same methods.}

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