



A FIBERING MAP APPROACH FOR A LAPLACIAN SYSTEM WITH SIGN-CHANGING WEIGHT FUNCTION

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Abstract

We prove the existence of at least two positive solutions for the Laplacian system

$$\begin{cases} -\Delta u = \lambda a(x) |u|^{q-2} u + \frac{\alpha}{\alpha + \beta} b(x) |u|^{\alpha-2} |v|^\beta & \text{for } x \in \Omega, \\ -\Delta v = \lambda a(x) |v|^{q-2} v + \frac{\beta}{\alpha + \beta} b(x) |u|^\alpha |v|^{\beta-2} v & \text{for } x \in \Omega, \\ u = v = 0 & \text{for } x \in \partial\Omega. \end{cases}$$

(E_λ)

On a bounded region Ω by using the Nehari manifold and the fibering maps associated with the Euler functional for the system.

Keywords and phrases: Laplacian system, variational methods, Nehari manifold, fibering map, sign-changing weight functions..

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