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EXISTENCE OF POSITIVE SOLUTIONS FOR A QUASILINEAR ELLIPTIC SYSTEM OF p–KIRCHHOFF TYPE

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Abstract. In this paper, we consider the existence of positive solutions to the following p-Kirchhoff-type system

$$\begin{cases} -M\Big(\int_\Omega |\nabla u|^p dx\Big)\Delta_p u = g(x)|u|^{q-2}u + \frac{\alpha}{\alpha+\beta}|u|^{\alpha-2}u|v|^\beta, & x\in\Omega, \\ -M\Big(\int_\Omega |\nabla u|^p dx\Big)\Delta_p v = h(x)|v|^{q-2}v + \frac{\beta}{\alpha+\beta}|u|^\alpha|v|^{\beta-2}v, & x\in\Omega, \\ u = v = 0, & x\in\partial\Omega, \end{cases}$$

where Ω is a bounded domain in $\mathbb{R}^N$, $M(s) = a + bs^k$, $\Delta_p u = \operatorname{div}(|\nabla u|^{p-2}\nabla u)$ is the p-Laplacian operator, $\alpha > 1$, $\beta > 1$, $1 < p < q < \alpha+\beta < p^* = \frac{Np}{N-p}$.

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