

NORMALIZED SOLUTIONS FOR NONLINEAR FRACTIONAL KIRCHHOFF TYPE SYSTEMS

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ABSTRACT. In this paper, we consider the existence of positive solutions with prescribed normalizations for strongly coupled fractional Kirchhoff type systems in the whole space \mathbb{R}^N ($N = 2, 3$). Under constant vanishing potentials and attractive interspecies interactions, two cases are studied: one is L^2 -subcritical and the other is L^2 -supercritical. In the first case, we prove the existence of a positive solution by the constrained minimizing methods. In the second case, by using a minimax procedure, we prove the existence of a mountain pass type solution under high perturbations of the coupling parameter, which is also a ground state solution. Moreover, we study the L^2 -critical case under certain type of trapping potentials. In this case, we are concerned with not only attractive but also repulsive interspecies interactions, and prove the existence of a positive solution by introducing some auxiliary minimization problems. These conclusions extend some known ones in previous papers.

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