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Nicolaus Copernicus University in Toruń

EXISTENCE AND MULTIPLICITY OF NORMALIZED SOLUTIONS TO LOWER CRITICAL CHOQUARD EQUATION WITH KINDS OF BOUNDED POTENTIALS

XINFU LI — LI XU

ABSTRACT. This paper studies the existence and multiplicity of normalized solutions to the lower critical Choquard equation with a L^2 -subcritical local perturbation and kinds of bounded potentials

$$\begin{cases} -\Delta u + V(x)u \\ = \lambda u + (I_\alpha * |u|^{(N+\alpha)/N})|u|^{(N+\alpha)/N-2}u + \mu|u|^{q-2}u & \text{in } \mathbb{R}^N, \\ \int_{\mathbb{R}^N} |u|^2 dx = a^2, \end{cases}$$

where $N \geq 1$, $\mu, a > 0$, $2 < q < 2 + 4/N$, $\alpha \in (0, N)$, I_α is the Riesz potential, $V(x)$ is a bounded potential and $\lambda \in \mathbb{R}$ is an unknown parameter that appears as a Lagrange multiplier.

1. Introduction and main results

In this paper, we study the existence and multiplicity of normalized solutions to the lower critical Choquard equation with a L^2 -subcritical local term and kinds

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