

Paper

Title:

Isolated singularities of positive solutions for Choquard equations in sublinear type case

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Abstract.

Our purpose of this paper is to study the isolated singularities of positive solutions to Choquard equation in the sublinear case

$$-\Delta u + u = I_\alpha[u^p]u^q \text{ in } \mathbb{R}^N \setminus \{0\}, \quad \lim_{|x| \rightarrow +\infty} u(x) = 0,$$

where $q \in (0, 1)$, $p > 0$, $N \geq 3$, $\alpha \in (0, N)$ and $I_\alpha[u^p](x) = \int_{\mathbb{R}^N} \frac{u^p(y)}{|x-y|^{N-\alpha}} dy$. We investigate the nonexistence and existence of isolated singular solutions of Choquard equation. Furthermore, we obtain qualitative properties for the minimal singular solutions.