

# Fractional Schrödinger-Poisson systems with indefinite potentials

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## Abstract

This paper is devoted to the following fractional Schrödinger-Poisson systems: 
$$\begin{aligned} &(-\Delta)^s u + V(x)u + \phi(x)u = f(x, u) \quad \& \text{in } \mathbb{R}^3, \\ &(-\Delta)^t \phi(x) = u^2 \quad \& \text{in } \mathbb{R}^3, \end{aligned}$$
 where  $(-\Delta)^s$  is the fractional Laplacian,  $s, t \in (0, 1)$ ,  $V : \mathbb{R}^3 \rightarrow \mathbb{R}$  is continuous. In contrast to most studies, we consider that the potentials  $V$  is indefinite. With the help of Morse theory, the existence of nontrivial solutions for the above problem is obtained.

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