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Existence and concentration of nontrivial solutions for a fractional magnetic Schrödinger-Poisson type equation

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Abstract. We consider the following fractional Schrödinger-Poisson type equation with magnetic fields

$$\varepsilon^{2s}(-\Delta)^s_{A/\varepsilon}u + V(x)u + \varepsilon^{-2t}(|x|^{2t-3} * |u|^2)u = f(|u|^2)u \quad \text{in } \mathbb{R}^3,$$

where $\varepsilon > 0$ is a parameter, $s \in (\frac{3}{4}, 1)$, $t \in (0,1)$, $(-\Delta)^s_A$ is the fractional magnetic Laplacian, $A : \mathbb{R}^3 \to \mathbb{R}^3$ is a smooth magnetic potential, $V : \mathbb{R}^3 \to \mathbb{R}$ is a positive continuous electric potential and $f : \mathbb{R} \to \mathbb{R}$ is a continuous function with subcritical growth. Using suitable variational methods, we show the existence of a family of nontrivial solutions which concentrates around global minima of the potential $V(x)$ as $\varepsilon \to 0$.

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