

A multiplicity result for the Chern-Simons-Schrödinger equation with a general nonlinearity

Patrícia Leal da Cunha*

*FGV

Resumo

We give a multiplicity result for the following Chern-Simons-Schrödinger equation

$$-\Delta u + 2qu \int_{|x|}^{\infty} \frac{u^2(s)}{s} h_u(s) ds + qu \frac{h_u^2(|x|)}{|x|^2} = g(u), \quad \text{in } \mathbb{R}^2,$$

where $h_u(s) = \int_0^s \tau u^2(\tau) d\tau$, under very general assumptions on the nonlinearity g . In particular, for every $\ell \in \mathbb{N}$, we prove the existence of (at least) ℓ distinct solutions, for every $q \in (0, q_\ell)$ and a suitable q_ℓ .