



Existence of solutions for a NSE with discontinuous nonlinearity in Orlicz-Sobolev spaces

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In this work we establish the existence of positive solutions, via a penalization method, in Orlicz-Sobolev spaces, for the following nonlinear Schrödinger equation,

$$\begin{aligned} -\operatorname{div}(\varepsilon^2 \phi(\varepsilon |\nabla u|) \nabla u) + V(x) \phi(|u|) u &= H(u - \beta) f(u) \text{ in } \mathbb{R}^N, \\ u &\in W^{1, \Phi}(\mathbb{R}^N), \end{aligned} \quad (1)$$

where $N \geq 2$, $\varepsilon, \beta > 0$, are positive parameters, H is the Heaviside function given by

$$H(s) = \begin{cases} 1 & \text{if } s > 0 \\ 0 & \text{if } s \leq 0 \end{cases},$$

considering f continuous, and two class of potentials $V : \mathbb{R}^N \rightarrow \mathbb{R}$.

Referências

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