EXISTENCE OF ANTISYMMETRIC SOLUTIONS FOR A CLASS OF NONLINEAR SCHRÖDINGER EQUATIONS

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We consider the nonlinear Schrödinger equation

$$-\triangle u + V(x)u = f(u) \quad \text{in} \quad \mathbb{R}^N \ ,$$

and assume that V is invariant under an orthogonal involution. We will present some results on the existence of a particular type of sign changing solution, which changes sign exactly once. The basic tool employed here is the Concentration–Compactness Principle and the interaction between translated solutions of the corresponding autonomous problem. This is joint work with Janete S. Carvalho (UnB, Brazil) and Olimpio H. Miyagaki (UFJF, Brazil).