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Some results on Hamiltonian elliptic systems involving nonlinear Schrdinger equations

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In this talk we discuss about the following class of Hamiltonian elliptic systems involving Schrödinger equations

$$\begin{cases} -\varepsilon^2\Delta u + V(x)u = g(x,v) & \text{in} \quad \mathbb{R}^N, \\ -\varepsilon^2\Delta v + V(x)v = f(x,u) & \text{in} \quad \mathbb{R}^N, \end{cases} \tag{0.1}$$

where $N \geq 2$, ε is a positive parameter and $V : \mathbb{R}^N \to \mathbb{R}$ is a nonnegative, for example, locally Hölder continuous function, and $f, g : \mathbb{R}^N \times \mathbb{R} \to \mathbb{R}$ are continuous functions. We present results about existence, multiplicity, and non-existence of solutions for (0.1) in the subcritical, critical, and supercritical cases. Besides, we going to talk about the method of reduction by inversion for (0.1), comparing with other methods.

Joint work with do Ó, J.M. (UFPB) Ferraz, D. (UFPB), and Medeiros, E. (UFPB).

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