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On a nonlinear Schrödinger equation: uniqueness, non-degeneracy and applications to energy minimization

lundi 16 janvier 2023 13:30 (1 heure)

In this talk, I will first state a general result about the uniqueness and the non-degeneracy of positive radial solutions to some semi-linear elliptic equations $-\Delta u = g(u)$. Then I will consider the case of the double power non-linearity $g(u) = u^q - u^p - \mu u$ for $p > q > 1$ and $\mu > 0$. In this case, the non-degeneracy of the unique solution u_μ allows us to derive its behavior in certain regimes of the parameter μ. This implies the uniqueness of energy minimizers at fixed mass. Joint work with Mathieu Lewin.

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