V - WENLU - Workshop em Equações Diferenciais não Lineares da UFPB - Verão 2016

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Title: Quasilinear Schrödinger equations with unbounded or decaying potentials

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Abstract: We study the existence of nonnegative and nonzero solutions for the following class of quasilinear Schrdinger equations:

$$\begin{cases} -\Delta u + V(|x|)u - [\Delta(u^2)]u = Q(|x|)g(u), \quad x \in \mathbb{R}^N, \\ u(x) \to 0 \quad \text{as} \quad |x| \to \infty, \end{cases}$$

where V and Q are potentials that can be singular at the origin, unbounded or vanishing at infinity. In order to prove our existence result we used minimax techniques in a suitable weighted Orlicz space together with regularity arguments and we need to obtain a symmetric criticality type result.