Existence of a positive solution for quasilinear Schrödinger equations

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ABSTRACT: In this talk we present results on the existence of a positive solution for a class of quasilinear Schrödinger equations in $\mathbb{R}^N$ under subcritical or critical growth conditions. Applying a change of variable, we derive semilinear equations whose associated functionals are well defined on appropriate subspaces of the Sobolev space $H^1(\mathbb{R}^N)$ and satisfy the geometric hypotheses of the mountain pass theorem. Appropriate estimates on the mountain pass minimax level and the concentration compactness principle are used to overcome the lack of compactness due to the presence of the critical exponent of Sobolev and the fact that the domain is unbounded. The results presented are consequence of joint work with Prof. Gilberto F. Vieira (UFCG).