

Universidade Estadual de Santa Cruz
Grupo de Pesquisa em Matemática Pura e Aplicada

Seminários de Análise

Título:

Global well posedness for inhomogeneous nonlinear Schrödinger equation with combined power-type nonlinearities

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Resumo: In this talk we consider the inhomogeneous nonlinear Schrödinger equation (INLS) with combined power-type nonlinearities. More precisely, we study the case when a nonlinearity is \dot{H}_x^1 -critical and the other nonlinearity is subcritical, that is, we taking the initial value problem (IVP)

$$\begin{cases} i\partial_t u + \Delta u = \lambda_1 |x|^{-b_1} |u|^{p_1} u + \lambda_2 |x|^{-b_2} |u|^{\frac{4-2b_1}{N-2}} u & t \in \mathbb{R}, x \in \mathbb{R}^N \\ u(x, 0) = u_0(x) \in H^1(\mathbb{R}^N) \end{cases} .$$

We develop a energy-critical stability result for the INLS equation with one critical-nonlinearity to prove well-posedness in the energy space for the INLS equation with two power-type nonlinearities under some conditions on the parameters λ_1 and λ_2 and on the exponents b_1 and b_2 .

For this purpose, we treat the energy-subcritical nonlinearity as a perturbation to the energy-critical INLS, which is globally wellposed. This is a joint work with Prof. Mykael Cardoso (UFPI).