



UNIVERSIDADE FEDERAL DE ALAGOAS  
PROGRAMA DE PÓS-GRADUAÇÃO EM  
MATEMÁTICA



**The Nonlinear Quadratic Interactions of the Schrödinger Type on the Half-Line**  
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**Resumo:**

In this work we study the initial boundary value problem associated with the coupled Schrödinger equations with quadratic nonlinearities, that appears in nonlinear optics, on the half-line. We obtain the local well-posedness for data in Sobolev spaces with low regularity, by using a forcing problem on the full line with a presence of a forcing term in order to apply the Fourier restriction method of Bourgain. The crucial point in this work is the new bilinear estimates on the classical Bourgain spaces  $X^{s,b}$  with  $b < \frac{1}{2}$ . Here the understanding of the dispersion relation is the key point in these estimates, where this relation clarifies the notion of the resonant and the non resonant case.

**Data:** 07/07/2020

**Horário:** 17:00

**Local:** Sala da Web Conferência RNP

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