



UNIVERSIDADE FEDERAL DE ALAGOAS  
PROGRAMA DE PÓS-GRADUAÇÃO EM  
MATEMÁTICA



Propagation of Regularity for Solutions of 2D Nonlinear Dispersive Models  
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**Resumo:** In this work we study special properties of solutions to nonlinear dispersive equations. We establish the propagation of regularity phenomena for solutions of the initial value problem (IVP) associated to some 2D Nonlinear Dispersive Models namely, the fifth order Kadomtsev-Petviashvili II (KP5 -II) and the Benjamin-Ono-Zakharov-Kuznetsov (BO-ZK) equations. We prove that if initial data has some prescribed regularity on the right hand side of the real line, then this regularity is propagated with infinite speed by the flow solution. In other words, the extra regularity on the data propagates in the solutions in the direction of the dispersion. The method of proof to obtain our result uses weighted energy estimates arguments combined with the smoothing properties of the solutions. Hence we need to have local well-posedness of the associated IVP via compactness method. In particular, we establish a local well-posedness theory for the BO-ZK equation which coincides with the best available in the literature proved employing more sophisticated tools. We also discuss some open problems and other related results recently obtained for KP-BO and Shrira equation.

**Data:** 28/04/2020

**Horário:** 17:00

**Local:** Sala da Web Conferência RNP

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