

Seminario de análisis matemático y aplicaciones
Analisi matematikoa eta aplikazioak mintegia

Travelling waves for a nonlocal KdV-Burgers equation

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ABSTRACT: In this talk existence results for travelling wave solutions to a Korteweg-de-Vries-Burgers type of equation with a nonlocal diffusion term corresponding to a fractional differential operator of order between 1 and 2 are presented. This equation arises from formal asymptotic expansions for a shallow water flow associated to the triple-deck theory.

We first demonstrate the regularising effect of the fractional differential operator by deriving existence and monotonicity properties for the travelling wave solutions to the nonlinear nonlocal conservation law in the absence of the dispersive term.

In contrast, the travelling waves for the fractional KdV-Burgers equation are in general not monotone, as it is the case for the classical KdV-Burgers equation, which then requires a more complicated existence proof.

LUGAR / LEKUA:

Sala de seminarios de la sección de matemáticas
Matematika ataleko mintegi gela

DÍA Y HORA / EGUNA ETA ORDUA:

18/12/2014, 12:00