

Speaker: Ángel Durán, Universidad de Valladolid, Spain

Title: Numerical solution of the fractional nonlinear Schrödinger equation

Abstract: The fractional nonlinear Schrödinger (fNLS) equation, originally derived in the context of quantum mechanics, generalizes the classical nonlinear Schrödinger equation when modelling other problems, in particular some of water wave dynamics. In addition, the fNLS equation has also interest from a mathematical point of view, specially that related to its numerical approximation. The talk is divided into two parts. The first one is concerned with the existence and numerical generation of solitary-wave solutions of the fNLS equation. Then conditions on the numerical method for a correct long time simulation of the dynamics of these waves will be discussed.

This is a joint work with Nuria Reguera.