Full dispersion water waves models

Jean-Claude Saut

[1], [1] Universit Paris - Sud

By "Full dispersion models" we mean models of water waves, in various asymptotic regimes, which keep the original dispersion of the full water waves system. The aim is to have a validity on larger ranges of frequencies. In usual water waves models (Korteweg-de Vries, Boussinesq, Kadomtsev-Petviashvili, Davey-Stewartson, nonlinear Schrdinger,...) the original dispersion is Taylor expanded at a given frequency, yielding local equations or systems with good dispersive properties. Full dispersion models are nonlocal and in some sense only weakly dispersive, making their mathematical analysis in general delicate. We will discuss some of those models, present recent results on the associated Cauchy problem and survey some interesting open issues.