

Multilayered flows in the shallow-water limit: formulation and stability

Francisco de Melo Virissimo¹

¹ Bath

In this talk, we will formulate and discuss the problem of density-stratified interfacial flows in the shallow-water limit. This type of flow occurs in nature with the atmosphere and ocean as prime examples. We will focus our attention on the two and three-layer flows, without the so-called Boussinesq approximation which requires small density differences. The governing equations will be derived and its dynamics will be studied from both analytical and numerical points of view, particularly the issue of whether the solutions maintain hyperbolicity (i.e. wave-like behaviour).