

In the talk, we introduce an approach for modeling traveling waves interactions derived from the Euler Equations (EE) in shallow water and in two space dimensions. We use the asymptotic expansion method to obtain a class of functions with free parameters that are shown to be of a first order of approximation to EE, the order is comparable to the classical Boussinesq system.

We discuss the advantage of the approach in modeling Lab experiments involving long, small amplitude waves with speed close to 1 and multi-fission interactions.