

# Traveling wave solutions of Boussinesq/Boussinesq systems for internal waves

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**Abstract:** In the present talk a three-parameter family of Boussinesq systems for internal waves derived in [1] is considered. These systems model two-way propagation of internal waves in a two-layer interface problem under the Boussinesq/Boussinesq regime. The idealized model consists of two inviscid, homogeneous fluids, with the upper layer bounded above by a horizontal rigid lid while the lower layer is bounded below by an impenetrable, horizontal flat bottom. The approach is based on the reformulation of the Euler system for internal waves with two nonlocal operators, from which different asymptotic models, consistent with the Euler equations, are derived. The one considered in this talk corresponds to assume an interfacial wave with layers of small amplitude with a Boussinesq structure in both fluid domains. The talk is devoted to study the existence, generation and stability of traveling wave solutions. This is a joint work with V. A. Dougalis and D. E. Mitsotakis.

## References:

1. J. L. Bona, D. Lannes, J. C. Saut, Asymptotic models for internal waves, J. Math. Pures Appl., 89 (2008) pp 538-566.