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Title: Large amplitude internal waves and their stability

Abstract: Some recently developed model equations governing the asymptotic evolution of internal gravity waves in inviscid near-two layer fluids will be discussed. The models' effectiveness for revealing aspects of the dynamics of these waves, and in particular conservation laws, connection to complete integrability, and stability of self-generated shear flows will be illustrated with analytical and numerical results for the models and the parent incompressible Euler system.