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**Roberto Camassa, Matthew Hurley, Richard McLaughlin, Pierre-Yves Passaggia and Colin Thomson\*** (cfct@live.unc.edu). *Dynamics of Fully Nonlinear Internal Solitary Waves in Deep Water.*

Weakly nonlinear models for internal waves have many attractive features, not least of which is that they are completely integrable. They fail, however, to accurately model large-amplitude waves commonly observed in the ocean. This talk will present a fully nonlinear model for internal waves in a deep two-layer system analogous to the classical Boussinesq system. We will then compare properties of solitary waves in this system to direct numerical simulations and laboratory experiments. (Received January 17, 2017)