1086-76-820 **Katie L Oliveras*** (oliverak@seattleu.edu), **Vishal Vasan**, **Bernard Deconinck** and **Diane Henderson**. *Recovering the Water-wave Surface from Pressure Measurements.*

A new method is proposed to recover the water-wave surface elevation from pressure data obtained at the bottom of the fluid. The new method requires the numerical solution of a nonlocal nonlinear equation relating the pressure and the surface elevation which is obtained from the Euler formulation of the water-wave problem without approximation. From this new equation, a variety of different asymptotic formulas are derived. The nonlocal equation and the asymptotic formulas are compared with numerical data, physical experiments, and field data. (Received September 13, 2012)