

Meeting: 1001, Evanston, Illinois, SS 14A, Special Session on Nonlinear Waves

1001-76-278 **Shu-Ming Sun***, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061, and **Mark Groves**, Department of Mathematical Sciences, Loughborough University, LE11 3TU Loughborough, Leicesters, England. *The Existence of Three Dimensional Localized Waves.*

The talk will give an existence proof of a three-dimensional localized solitary-wave solution to the water-wave problem with strong surface-tension effects. Such existence was predicted from a model equation derived by B. B. Kadomtsev & V. I. Petviashvili (1970), using an explicit solution of the model equation. This prediction will be rigorously confirmed for the full water-wave problem in the present talk. It is shown that the full nonlinear governing equations of the water-wave problem have a nontrivial solution that decays in every horizontal direction at infinity. (Received August 29, 2004)