1016-35-173   **Roger Thelwell*** (`thelwell@amath.washington.edu`), Dept. of Applied Math, Box 352420, University of Washington, Seattle, WA 98195-2420, and **Bernard Deconinck**. *Stability analysis via Hill's method.*

Understanding the stability of solutions of partial differential equations is important in many areas of engineering and physics. Spectral stability analysis may be used to prove instability, or it may be used as a first step towards proving stability. Persistent observable features should correspond to stable solutions. Unstable solutions often lead to more complicated behavior in the physical model.

Hill's method is a numerical method allowing for the computation of spectra of linear operators, not necessarily with periodic boundary conditions. It is ideally suited to the spectral stability analysis of many nonlinear wave problems. In this talk we will apply it to several stability questions arising in the theory of surface water waves. (Received February 11, 2006)