

Transverse stability of periodic waves in water-wave models

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The classical water-wave problem is concerned with the irrotational flow of a perfect fluid with constant density, subject to the forces of gravity and surface tension. The governing equations are the Euler equations in a domain bounded below by a flat bottom and above by a free surface. In this talk we discuss the transverse stability of several classes of two-dimensional periodic traveling waves, for the Euler equations or for some simpler model equations. The results rely upon spectral criteria which apply to rather general classes of reversible or Hamiltonian systems.