

Solitary water waves are unique?

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Abstract:

I will speak on analytical properties of solitary waves on the free surface of a two-dimensional steady flow of water over a finite bed, acted upon by gravity. I will begin by giving a precise account of the steady water-wave problem as a nonlinear pseudodifferential equation involving the Dirichlet-Neumann operator. I will mention the variational structure of the equation. After briefing on existence of solitary-wave solutions and the non-uniqueness result of Plotnikov, I will describe the recent work on the non-degeneracy of the linearized equation and its implication for uniqueness.