Nonlinear Sciences > Pattern Formation and Solitons

Exact internal waves of a Boussinesq system

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We consider a Boussinesq system describing one-dimensional internal waves which develop at the boundary between two immiscible fluids, and we restrict to its traveling waves. The method which yields explicitly all the elliptic or degenerate elliptic solutions of a given nonlinear, any order algebraic ordinary differential equation is briefly recalled. We then apply it to the fluid system and, restricting in this preliminary report to the generic situation, we obtain all the solutions in that class, including several new solutions.

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