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Exact solutions for small-amplitude capillary-gravity water waves

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We present explicit solutions for the ordinary differential equations system describing the motion of the particles beneath small-amplitude capillary-gravity waves which propagate on the surface of an irrotational water flow with a flat bottom. The required computations involve elliptic integrals of first kind, the Legendre normal form and a solvable Abel differential equation of the second kind.

Submission history

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