

Cornell University Library

arXiv.org > math-ph > arXiv:1106.3824

Search or Article-id

(Help | Advanced search)

Mathematical Physics

### Elliptic and hyperelliptic functions describing the particle motion beneath small-amplitude water waves with constant vorticity

#### Delia Ionescu-Kruse

(Submitted on 20 Jun 2011 (v1), last revised 24 Aug 2011 (this version, v2))

We provide analytic solutions of the nonlinear differential equation system describing the particle paths below small-amplitude periodic gravity waves travelling on a constant vorticity current. We show that these paths are not closed curves. Some solutions can be expressed in terms of Jacobi elliptic functions, others in terms of hyperelliptic functions. We obtain new kinds of particle paths. We make some remarks on the stagnation points which could appear in the fluid due to the vorticity.

Comments:Discrete and Continuous Dynamical Systems - Series B 2011Subjects:Mathematical Physics (math-ph)Cite as:arXiv:1106.3824 [math-ph]<br/>(or arXiv:1106.3824v2 [math-ph] for this version)

#### **Submission history**

From: Delia Ionescu-Kruse [view email] [v1] Mon, 20 Jun 2011 06:51:20 GMT (136kb) [v2] Wed, 24 Aug 2011 12:02:22 GMT (131kb)

Which authors of this paper are endorsers?

Link back to: arXiv, form interface, contact.

## All papers

- PDF
- PostScript
- Other formats

Current browse context: math-ph

< prev | next >

new | recent | 1106

Change to browse by: math

# References & Citations NASA ADS Bookmark(what is this?)

