

## **On the first bifurcation of solitary waves**

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Solitary water waves on the vorticity flow in a two-dimensional channel of finite depth are considered. The main object of study is a branch of solitary waves starting from a laminar flow and then approaching an extreme wave. It is proved that there always exists a bifurcation point on such branches. Moreover, the first bifurcation occurs at a simple eigenvalue. The structure of the set of bifurcating solutions is described.