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Bifurcation structure of steady, deep-water gravity waves with constant vorticity

Two-dimensional steady, periodic, surface waves on deep water is considered under the case where the flow has uniform vorticity. The object is to see how the bifurcation structure changes as the constant vorticity varies. There have been many works for bifurcation of water waves on irrotational flow, but a few on rotational flow. The same problem is investigated by Simmen & Saffman (1985), who showed an existence of bifurcation and gave several types of limiting wave by a boundary-integral method. Here the computation is mainly similar to them except for discretization. Particular distinction is to simulate the bifurcation structure in detail, and to find a different branch and a new type of limiting wave.