

Nonlinear Partial Differential Equations

Boundary value problems and equations arising in fluid mechanics

Bounds for rotational water waves

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Water waves generated by two-dimensional flows possibly with counter-currents are considered. We give bounds for Bernoulli's constant and for wave profiles. As in the rotational case we use properly chosen conjugate streams. The major novelty is that bounds will be proved under the assumption that the vorticity distribution is subject to a new condition that describes a wider class of vorticities than usual Lipschitz condition. Another important point is dependence of bounds on the classification of vorticity distributions proposed earlier.

This is a joint work with Nikolay Kuznetsov, St Petersburg.