

Abstract Submitted
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Origin of ejecta in the water impact problem ROUSLAN
KRECHETNIKOV, University of California at Santa Barbara — In this work we
present a new analysis of the early time evolution of ejecta – jet forming during the
impact of a flat plate on the surface of an incompressible viscous liquid. The key
goals here are to clarify the effects of viscosity and surface tension. In the course
of construction of the solution, first the standard assumptions behind the existence
of the inviscid approximation are revisited. Second, scalings of the structure of the
solution near the plate edge are determined, with which the viscous solution in the
Stokes approximation near the edge is constructed analytically. Third, the struc-
ture of a uniformly valid solution matching the Stokes solution to the inviscid one
is revealed here. Finally, the analysis of both viscous and inviscid solutions allows
us to uncover the scalings for the early time-evolution of the ejecta.

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