Resolution of the singularities in the water impact problem: compressibility and viscosity effects ROUSLAN KRECHETNIKOV, University of Alberta — This work presents an analysis of the flow structure resulting from the flat plate impact on the surface of a compressible viscous liquid at zero deadrise angle. The key goals are to elucidate the effects of compressibility and viscosity and to resolve both near the plate edge, $r \to 0$, and the early times, $t \to 0$, limit singularities in the classical incompressible inviscid pressure-impulse theory. The constructed solution is contrasted to its incompressible flow counterpart, which allows one to identify the characteristic time and spatial scales of each distinct stage of the flow evolution, as defined by different governing physical mechanisms.

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