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Compressible bubbly shock problem: Revisited ASHA CHIGURUPATI, SANJIVA LELE, Stanford University — The problem of shock waves in bubbly flows has been studied in great depth and is a part of an extensive body of literature. Most of this literature assumes the liquid to be incompressible. In this study, we look at the problem of shock waves in bubbly flows where liquid is treated as compressible. A simple 1-D flow problem is considered to study the effect of liquid compressibility on shock speed. The results obtained show higher values of shock speeds for incompressible case when compared to compressible case. This difference is negligible for higher void fractions (of the order of 10ˆ-1) but grows immensely as you decrease the void fractions further by several orders of magnitude. Results pertaining to the structure and propagation of shock waves, particularly in this range of void fractions, will be presented. Future investigations will focus on studying the accompanying bubble-bubble interactions and looking at transient solutions of the problem.

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