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Reflection Patterns Generated by Condensed-Phase Oblique Detonation Interaction with a Rigid Wall MARK SHORT, CARLOS CHIQUETE, JOHN BDZIL, CHAD MEYER, Los Alamos National Laboratory — We examine numerically the wave reflection patterns generated by a detonation in a condensed phase explosive inclined obliquely but traveling parallel to a rigid wall as a function of incident angle. The problem is motivated by the characterization of detonation-material confiner interactions. We compare the reflection patterns for two detonation models, one where the reaction zone is spatially distributed, and the other where the reaction is instantaneous (a Chapman-Jouguet detonation). For the Chapman-Jouguet model, we compare the results of the computations with an asymptotic study recently conducted by Bdzil and Short (J. Fluid Mech. 2017) for small detonation incident angles. We show that the ability of a spatially distributed reaction energy release to turn flow streamlines has a significant impact on the nature of the observed reflection patterns. The computational approach uses a shock-fit methodology.

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