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**Numerical simulation of compressible multiphase flows using the Parallel Adaptive Wavelet-Collocation Method** MOHAMAD ASLANI, JONATHAN REGELE, Iowa State University — Numerical simulation of incompressible multiphase flows to describe fluid atomization is becoming more common. However, compressible multiphase flow simulations are mostly limited to shock-bubble interactions with only a few studies involving shock waves impacting liquid droplets. A methodology for simulating compressible multiphase flow is developed from existing approaches for the Parallel Adaptive Wavelet-Collocation Method. The method uses an interface capturing function with a steepening procedure for the fluid interface. Simulations of shock waves impacting liquid droplets illustrate the numerical capabilities.

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