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Analysis of shock wave propagation from explosives using computational simulations and artificial schlieren imaging CHRISTOPHER ARMSTRONG, MICHAEL HARGATHER, New Mexico Tech — Computational simulations of explosions are performed using the hydrocode CTH and analyzed using artificial schlieren imaging. The simulations include one and three-dimensional free-air blasts and a confined geometry. Artificial schlieren images are produced from the density fields calculated via the simulations. The artificial schlieren images are used to simulate traditional and focusing schlieren images of explosions. The artificial schlieren images are compared to actual high-speed schlieren images of similar explosions. Computational streak images are produced to identify time-dependent features in the blast field. The streak images are used to study the interaction between secondary shock waves and the explosive product gas contact surface.

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