

Abstract Submitted
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**Multi-dimensional evolution of explosive product gas cloud
Part I: Evolution in confined two-dimensional and three-dimensional
geometries**¹ VERONICA ESPINOZA, CHRISTIAN PETERSON, MICHAEL
HARGATHER, New Mexico Tech — The evolution of an explosively-driven gas
cloud was studied at different scales, geometries, and confinements. The tests used
exploding bridgewires and small PETN charges as the explosion sources and mea-
sured the shock wave and gas production. These experiments were imaged with
high-speed schlieren imaging to visualize the produced gas cloud and the evolution
of the surface motion. The explosive events were confined between two acrylic sheets
with a varied confinement thickness. Image processing is used to track the gas cloud
and to characterize the complexity of the surface in terms of a fractal dimension.
Turbulence quantities are estimated from the refractive images and show variations
as a function of confinement thickness.

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