

Abstract Submitted
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Analysis of Radiative Shock Experiments and Simulations Using Uncertainty Quantification Techniques¹ BRUCE FRYXELL, JASON CHOU, MIKE GROSSKOPF, VIJAY NAIR, ZACH ZHANG, University of Michigan, DEREK BINGHAM, Simon Fraser University, BANI MALLICK, DUCHWAN RYU, Texas A&M University — The CRASH Center at the University of Michigan was established to study the properties of radiative shocks, using both radiation hydrodynamic simulations and experiments at the Omega Laser Facility. Comparison of the experimental results with the numerical simulations provides an excellent opportunity to do not only standard verification and validation studies, but to go one step further and provide a formal quantification of the errors and uncertainties in the numerical simulations using statistical uncertainty quantification techniques. The goal is to provide a formal framework for the quantification of errors and uncertainties in the numerical simulations. Instead of obtaining a single answer to a calculation, one ends up with a probability distribution for each quantity of interest. Thus each computed value has an associated error bar.

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