

# Exploration of Parameters for a Future Radiative Shock/Shear Experiment\*

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The Shock/Shear experimental platform was created to study turbulence in the High-Energy-Density (HED) regime [1]. The design allows two counter propagating shock waves to cross at the center of an aluminum tracer strip. By isolating shear induced mixing caused by shock waves, the platform helps highlight and study turbulent effects. This study aims to extend the Shock/Shear platform to the radiative regime in order to increase understanding of how radiation affects turbulence. This research will use the Eulerian radiation-hydrodynamics code (CRASH) developed at the University of Michigan which includes block adaptive mesh refinement, multigroup diffusive radiation transport, and electron heat conduction. Characterization of this experiment under different computational parameters such as ablator thickness, foam density, and laser drive energy will increase understanding of the environment necessary to produce a radiative shock, and thus aid the design and development of a radiative Shock/Shear experiment at the National Ignition Facility.

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## References

[1] Flippo, K. A., F. W. Doss, B. Devolder, J. R. Fincke, E. N. Loomis, J. L. Kline, and L. Welsch-Sherrill. "Investigating Turbulent Mix in HEDLP Experiments." *Journal of Physics: Conference Series*, 2016. <https://doi.org/10.1088/1742-6596/688/1/012018>.