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Defect characterization and the effect of pre-existing and shock-induced defects on the shock response of single crystal explosives KYLE RAMOS, MARC CAWKWELL, DANIEL HOOKS, Los Alamos National Laboratory — Defects in single crystal materials have been shown to influence shock response. In single crystals of organic molecular explosives, it has proven difficult to perform quantitative characterization of samples prior to shock experiments, so many previous experiments relied on simple techniques and experience to ensure sample consistency. This has made interpretation of some previous results difficult. Several types of defect characterization have been performed both statically and dynamically to determine the influence of defects. Additionally, with guidance from molecular dynamics simulations, continuum observations have been correlated with changes in deformation mechanisms in cyclotrimethylene trinitramine (RDX) across a range of loading pressures. Recent examples will be discussed.

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