

Abstract Submitted
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A multiscale strength model in HYDRA M. M. MARINAK, N. R. BARTON, Lawrence Livermore National Laboratory — We describe a multiscale strength model recently implemented in HYDRA. The model incorporates results from a hierarchy of methods which span from the atomistic to the continuum level. Those are obtained from focused physics codes that treat density functional theory, molecular statics, molecular dynamics, dislocation dynamics and continuum mechanics. The model is designed to handle extreme pressures and temperatures, and is especially appropriate for strain rates in excess of 10^4 s^{-1} . As such it can be used to provide insight into HEDP experimental observations. The model has demonstrated success in capturing planar Rayleigh-Taylor growth for ~ 1 Mbar shocks in Ta and V. [N. R. Barton and M. Rhee, *Journal of Applied Physics* **114**, 123507 (2013)]
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