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Shock Response of Cu-Nb Nanolayer Composites T.C. GERMANN, R.G. HOAGLAND, S.N. LUO, N.A. MARA, A. MISRA, D.L. PAISLEY, Los Alamos National Laboratory — Large-scale classical molecular dynamics (MD) simulations and laser-launched flyer plate experiments have been used to study the shock response of Cu-Nb nanolayered composites. At a layer thickness of 5 nm, the hardness of such metallic multilayers (as measured by quasistatic indentation or compression tests) reaches a maximum due to the difficulty of dislocation transmission across the interfaces. We observe a similar strengthening effect under dynamic shock loading, both in the MD simulations and in *post mortem* examinations of shock-recovered samples subjected to ~ 20 GPa shock loading. The MD simulations provide insight into the dislocation nucleation and transmission processes that occur under compression, as well as the subsequent annihilation upon release.

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