Abstract Submitted
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The impact of kinetics and the thresholds of twinning in *bcc* tantalum[1] KYLE CASPERSEN, ROBERT RUDD, MIKE SURH, DAVID RICHARDS, JIM GLOSLI, FRED STREITZ, Lawrence Livermore National Lab — The kinetics of micro-structural evolution (i.e. phase transitions and twinning) is not well understood. For small strain rates the effect of kinetics is negligible due to the rapid rate at which these evolutions occur; however, for the large strain rates that can occur under dynamic loading conditions the micro-structure, and hence the strength of the material, may depend on the details of the kinetics. Therefore, in this work we investigated kinetics of one particular micro-structural evolution process— twinning in *bcc* tantalum. To perform this investigation we performed a series of Molecular Dynamics simulations over a range of temperatures and pressures to determine the twinning threshold and understand the kinetics. We present here the results of these simulations, where one notable result was that the twinning threshold had an unexpected dependence on temperature.

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