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The thresholds of twinning in *bcc* tantalum¹ KYLE CASPERSEN, ROBERT RUDD, MIKE SURH, LUIS SANDOVAL, DAVID RICHARDS, Lawrence Livermore National Laboratory — The dominate stress relaxation mechanism for most crystalline materials under most conditions is dislocation motion, or slip. However, materials subjected to extreme conditions (for example, conditions that arise in laser based dynamic compression experiments) can exhibit more complex stress relaxation mechanisms. Specifically, for large stress and large strain rates there is a competition between slip and phase transformations and twinning. The conditions at which phase transformations and twinning become important are not known. Therefore, here we present a molecular dynamics study of thresholds of twinning in *bcc* tantalum under various temperatures, pressures, and strain rates.

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