

Abstract Submitted  
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**Effect of strain rate and dislocation density on the twinning behavior in Tantalum**<sup>1</sup> JEFFREY FLORANDO, JAMES MCNANEY, MARY LEBLANC, MUKUL KUMAR, Lawrence Livermore National Laboratory, CHANGQIANG CHEN, KALIAT RAMESH, KEVIN HEMKER, Johns Hopkins University — Compression experiments on polycrystalline Ta were conducted at liquid nitrogen temperatures at strain rates ranging from  $10^{-4}$  to  $10^5$  s<sup>-1</sup>. In addition, samples were cold-rolled and then tested at liquid nitrogen temperatures to determine the effect of dislocation density on the overall twin fraction. Samples were also pre-strained to induce a range of dislocation densities to see the effect of the initial density on the amount of twinning observed. Recovered samples were characterized using EBSD orientation mapping along with transmission electron microscopy to assess the occurrence of twinning under each test condition.

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