

Abstract Submitted  
for the MAR10 Meeting of  
The American Physical Society

**The effect of defect structure on the dynamic frictional force at sliding Al/Al interfaces**<sup>1</sup> J.E. HAMMERBERG, B. L. HOLIAN, Los Alamos National Laboratory, R. J. RAVELO, University of Texas, El Paso, T.C. GERMANN, Los Alamos National Laboratory — For moderate sliding velocities, less than velocities which induce structural or phase transformations, the defect and dislocation densities determine the local plastic flow characteristics near a sliding interface. We present the results of large-scale NEMD simulations for the tangential frictional force at an Al/Al interface in the velocity range 10 - 500 m/s for pressures of 15 GPa. The defect structures in the initial state are similar to those used in NEMD simulations to characterize the effect of defect densities on the high strain rate branch of the flow stress for Cu and Al (R.Ravelo, B.L.Holian and T.C.Germann, SCCM-2009). We discuss the contribution to dissipation of pre-existing defects and dynamically generated defects and their influence on the resulting steady state frictional force.

<sup>1</sup>This work supported by the U.S. Department of Energy under contract DE-AC52-06NA25396

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Date submitted: 19 Nov 2009

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