Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Temperature Equilibration in Tantalum NICHOLAS HARTLEY, University of Oxford, PATRICK BELANCOURT, University of Michigan, DAVID CHAPMAN, AWE, plc., TILO DOEPPNER, LLNL, R PAUL DRAKE, University of Michigan, DIRK GERICKE, University of Warwick, SIEGFRIED GLENZER, SLAC, DIMITRI KHAGHANI, GSI Darmstadt, CAROLYN KURANZ, University of Michigan, SEBASTIEN LEPAPE, TAMMY MA, LLNL, PAUL NEUMAYER, GSI Darmstadt, ART PAK, LLNL, LAUREN PETERS, University of Oxford, SCOTT RICHARDSON, AWE, plc., JAN VORBERGER, Max Planck Institute, Dresden, THOMAS WHITE, Imperial College London, GIANLUCA GREGORI, University of Oxford — Understanding the behavior of materials with significantly different electron and ion temperatures is important for much of the experimental and theoretical work on dense plasmas. We present measurements of electron-ion temperature equilibration in proton-heated tantalum, under warm dense matter conditions. Our results agree with theoretical predictions calculated from *ab initio* molecular dynamics simulations, as well as with those from the Fermi Golden Rule approach often used for dense plasmas. However, the fast relaxation time observed in the experiment contrasts with much slower equilibration found in particle-heated carbon, indicating that the energy flow pathways in warm dense matter are far from being fully understood.

Nicholas Hartley
University of Oxford

Date submitted: 02 Sep 2014 Electronic form version 1.4