

SHOCK09-2009-000167

Abstract for an Invited Paper
for the SHOCK09 Meeting of
the American Physical Society

Transmission Electron Microscopy in the study of Shock Compression¹

IAN JONES, University of Birmingham

The application of TEM to Shock Compression will be reviewed, with particular reference to specimen preparation and the avoidance of dislocation rearrangement. General principles will be illustrated by a specific study of Ti6Al4V. Ti-6Al-4V has been deformed by means of one-dimensional plate impact to stresses of 5 and 10 GPa. In one case, a Ti-6Al-4V flyer plate delivered a square edged shock pulse, whilst in the other, a layered composite flyer delivered a pseudo-ramped pulse in the form of a series of shock steps. Dislocation and twin densities were studied as a function of pulse height and shape.

¹In collaboration with Ming Chu, University of Birmingham and Jeremy Millett, AWE, Aldermaston.