

Abstract Submitted
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**Shock Compression of Aluminum Single Crystals to 70GPa:
Anisotropic Mechanical Response** D. CHOUDHURI, Y.M. GUPTA, Washing-
ton State University — To examine the mechanical anisotropy of aluminum crystals
at high stresses, Al single crystals were shock compressed along the [100], [110], and
[111] orientations to peak stresses up to 70 GPa. Laser-interferometry was used
to monitor the propagating wave profiles and, as expected, a single wave structure
was observed in all cases. Shock velocities and particle velocity histories including
the unloading profiles were measured for all three crystal orientations. Our results
showed that a common curve can be used to represent the Hugoniot for all three
orientations. However, variations were observed in the longitudinal sound speed
(onset of release) for the different orientations. These differences will be discussed
along with a comparison of the single crystal results with comparable results on 1050
aluminum. Work supported by DOE/NNSA.

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