1st TMS/ABM International Materials Congress
TMS CO-ORGANIZADOR
ANAIS PROCEEDINGS
ISSN 1516-392X

ON THE BEHAVIOUR OF BODY CENTERED CUBIC METALS DURING ONE-DIMENSIONAL SHOCK LOADING

Jeremy Millett[1]
Neil Bourne[1]
George Gray[2]
Nigel Park[1]
Glenn Whiteman[1]

Abstract
The response of metallic materials to shock loading, like all loading regimes, is controlled largely by factors operating at the microscopic or atomic levels. Over the past few years, face centred cubic (FCC) metals have received a level of attention where the role of features such as stacking fault energy and precipitation hardening have been investigated. We now turn our attention to body centred cubic (BCC) metals. In the past, only tantalum, tungsten and their alloys have received significant attention, due to their use by the ordnance community. In particular, this investigation examines the shear strength of these materials under shock loading conditions. Previous results on tantalum and tungsten are reviewed, and more recent experiments on niobium, molybdenum and Ta-2.5wt% W presented. Results will be discussed in terms of known deformation mechanisms and variations of Peierl's stress.

[1] *AWE.*
[2] *Los Alamos National Laboratory.*