**The Dynamic Granular Flow of An Advanced Ceramic**

**Xiangyu Sun and K. T. Ramesh1**

1Department of Mechanical Engineering and Hopkins Extreme Materials Institute, The Johns Hopkins University

The rheology of granular materials is known to be influenced by pressure, strain rate, porosity, particle shape, and particle size. We performed pressure-shear plate impact as well as quasi-static compaction experiments on three boron carbide powders of different grain sizes. The strain rates achieved range from as low as 10-3 s-1 up to 105 s-1. We observe strong rate effects on the granular flow, and are able to quantify both compaction and shear. SEM characterization conducted on the deformed particles shows that continuing particle fracture is a key deformation mechanism.