

1023-L1-1753      **Leigh L Noble\*** ([leigh.noble@usma.edu](mailto:leigh.noble@usma.edu)), 646 Swift Rd, United States Military Academy, MADN-MATH, West Point, NY 10996-1905. *Characterizing internal stress states in advanced ceramics using fractal analysis*. Preliminary report.

Ceramics often replace metal parts while providing improvements to a system. Currently, the exact relationship between characteristics of advanced ceramic materials and mechanisms of failure is being explored by the research community. Simulations in the literature of material stressed close to the point of failure suggest that fluctuations of internal stress states are an important step prior to failure. Progress in characterizing these stress states by using fractal analysis will be discussed. Understanding these stress states may lead to better predictions of cracking and mechanical behavior in advanced ceramics. This talk presents work from an ongoing project concerning armor ceramics under high strain rate and large strain conditions. (Received September 26, 2006)