The University of Texas at San Antonio

UTSA Physics and Astronomy

Dr. Edwin L. Thomas

Rice University

Friday, February 23rd, 2018
AET 0.204
3:15 PM

Microstructures of Materials Under Extreme Conditions

The ultrahigh strain rate behavior of lightweight materials, such as block copolymers, glassy homopolymers, multilayer graphene films, and silver single crystal micro-cubes is explored using a miniaturized ballistic test: LIPIT, Laser Induced Projectile Impact Test. Micron sized projectiles are launched at the various targets using a laser pulse, and the deformation field around the embedded projectile is analyzed for thick targets, while the kinetic energy loss for penetration can be measured for thin targets. We also study the deformation of single crystal Ag micro-cube projectiles due to their impact on hard, impenetrable substrates, and investigate the strong gradient nano-micro-grain structures thereby produced due to the extreme strain rates. Such studies provide valuable information for applications such as advanced materials for air and space craft and protection.

Department Contact Information
Veronica.Castellanos@utsa.edu
http://physics.utsa.edu