

## 2021 Mach Conference Poster Session

### **Impact behavior of armor ceramics: sensitivity analysis\***

*Presenter:* Amartya Bhattacharjee, Johns Hopkins University

*Co-Authors:* Anindya Bhaduri, Ryan Hurley, Lori-Graham-Brady

### **Traction law for the glass fiber-epoxy interphase: Effects of fiber surface roughness and transverse pressure**

*Presenter:* Sanjib Chowdhury, University of Delaware

*Co-Authors:* Michael Hemphill, Munetaka Kubota, John Gillespie

### **Sintering Doped Boron Carbide from Pre-Reacted Powder\***

*Presenter:* Kent Christian, Rutgers University

*Co-Authors:* Jun Du, Chawon Hwang, Rich Haber

### **Phase field theory and analysis of fracture and dynamic transformation kinetics in polycrystalline ceramics and ceramic composites**

*Presenter:* John Clayton, ARL

*Co-Authors:* Brian Leavy, Joshua Crone, Jaroslaw Knap

### **Spall failure of Mg-6Al via laser-driven micro-flyer impact experiments**

*Presenter:* Christopher DiMarco, Johns Hopkins University

*Co-Authors:* Debjoy Mallick, Chengyun Miao, Laszlo Kecskes, Tim Weihs, K.T. Ramesh

### **Homogenized Modeling of Anisotropic Impact Damage in Rolled AZ31B with Aligned Second-Phase Particles\***

*Presenter:* Caleb Foster, Texas A&M University

*Co-Authors:* Angela Olinger, Justin Wilkerson

### **Reconstruction of 2D and 3D microstructures using transfer learning with applications to porous materials\***

*Presenter:* Ashwini Gupta, Johns Hopkins University

*Co-Authors:* Anindya Bhaduri, Lori Graham-Brady

### **Influence of Differential Speed Rolling on the Mechanical Properties of Magnesium Zinc Alloy\***

*Presenter:* Christopher Hale, North Carolina A & T University

### **Time-Resolved Characterization of High-Rate and Ballistic Failure Phenomena**

*Presenter:* Phillip Jannotti, U.S. Army Research Laboratory

*Co-Authors:* Nicholas Lorenzo, Brian Parquette, Rick Summers

### **Thermomechanical Processing of Dilute Mg-Zn-Ca Alloys\***

*Presenter:* Jenna Krynicki, Johns Hopkins University

*Co-Authors:* Laszlo Kecskes, John Gibbins, Honglin Zhang, Zhigang Xu, Timothy P. Weihs

**Topology Optimization of bonded 3D Woven Lattices for Static and Dynamic Properties**

*Presenter:* Hak Yong Lee, Johns Hopkins University

*Co-Authors:* James Guest

**High Temperature Dynamic Tensile Extrusion of Materials**

*Presenter:* Nicholas J. Lorenzo, U.S. Army Research Laboratory

**Dynamic Shearing Resistance of a PBX binder: HTPB\***

*Presenter:* Pinkesh Malhotra, Johns Hopkins University

*Co-Authors:* Tong Jiao, Rodney Clifton, Pradeep Guduru, David Henann

**Multiscale Modeling of Dyneema using the Embedded Element Method\***

*Presenter:* Valerie Martin, Penn State University

*Co-Authors:* Reuben Kraft, Stephen Ellis,

**Spall failure mechanisms of 7085 aluminum alloy\***

*Presenter:* Chengyun Miao, Johns Hopkins University

*Co-Authors:* Dung-Yi Wu, Todd Hufnagel, KT Ramesh

**Effect of Material Selection on Pressures in a Head Surrogate System**

*Presenter:* Thomas O'Shaughnessy, US Naval Research Laboratory

*Co-Authors:* YungChia Chen, X. Gary Tan

**Effect of Microstructure and Strain-rate on the Out-of-plane Compressive Response of UHMWPE Composites\***

*Presenter:* Jason Parker, Johns Hopkins University

*Co-Authors:* K.T. Ramesh

**Dislocation-Obstacle interactions: the influence of obstacle size, shape, and distribution on the Orowan bypass stress**

*Presenter:* Benjamin Szajewski, Army Research Laboratory

*Co-Authors:* Joshua Crone, Jaroslaw Knap

**Solid Solutions Zr<sub>1-x</sub>Hf<sub>x</sub>B<sub>2</sub> – Investigation of Properties from the First Principles**

*Presenter:* Oleksandr Vasiliev, Institute for Problems in Materials Science, NAS of Ukraine

*Co-Authors:* Valerii Bekenev, Valerii Kartuzov, Egor Kartuzov

**Analyzing the Quality of Imaged Based Microstructural Data through a Bayesian Framework\***

*Presenter:* Noah Wade, Johns Hopkins University

*Co-Authors:* Lori Graham-Brady

**Development of ReaxFF Parameters for Mg/Al/Si/O Interaction for Mechanical Response of S-glass\***

*Presenter:* Jejoon Yeon, University of Delaware

*Co-Authors:* Sanjib Chowdhury, Chaitanya Daksha, Donato Belmonte, Adri Van Duin, John Gillespie

**Effects of Microstructure and Defect Distributions on the Dynamic Compressive Response of Hot-pressed Boron Carbide\***

*Presenter:* Arezoo Zare, Johns Hopkins University

*Co-Authors:* Amartya Bhattacharjee, Qirong (Bruce) Yang, Kent Christian, Rich Haber, Lori Graham-Brady, Matt Shaeffer

**Crystal plasticity modeling of quasistatic and high rate plastic deformation of  $\beta$ -HMX\***

*Presenter:* Milovan Zecevic, Los Alamos National Laboratory

*Co-Authors:* Marc Cawkwell, Kyle Ramos, Darby Luscher

**Survival of Microorganisms Under Extreme Stresses\***

*Presenter:* Lily Zhao, Johns Hopkins University

*Co-Authors:* Emine Ertekin, Jocelyne DiRuggiero, K.T. Ramesh

\*poster in the Student/Postdoc Poster competition