

## **2021 Interfaces and Effects in Composite Energetic Materials (IECEM 2021)**

Tuesday, April 13<sup>th</sup>, 2021

Time (EDT)	Topic
9:45 am	Sign in
10:00 am	<b>Alice Savage (DEVCOM-ARL)</b> <i>Introductory Remarks and Overview of Sept. 2020 Workshop</i>
10:20 am	<b>John D. Yeager (LANL)</b> <i>Title: From Nano to Bulk: Property-Structure Relationships in Plastic-Bonded Explosives and Mocks</i>
11:05 am	<b>A. Dhiman (Purdue)</b> <i>Title: Interfaces Under Shock: Equation of State at Interface Level and its Correlation with Microstructural Effects</i>
11:30 am	Break – 10 minutes
11:40 am	<b>Dylan Carter (AFRL/RQ)</b> <i>Title: Interfacial strain measurements in solid propellant using digital image correlation</i>
12:05 pm	<b>Matthew J. Herman (LANL)</b> <i>Title: Formulation Advancements and Interfacial Reinforcement of High Loaded Composite Materials via Biologically Inspired Core-Shell Coating Technique</i>
12:30 pm	Lunch Break – 30 minutes
1:00 pm	<b>Belinda P. Johnson (University of Illinois Urbana-Champaign)</b> <i>Title: Experimentally Tracking Hot Spot Behavior in Model Plastic-Bonded Explosives Under Shock Compression</i>
1:25 pm	<b>Anagi M. Balachandra (Metna Co.)</b> <i>Title: Nondestructive Inspection of Polymer-Inorganic Interfaces via Single-sided Nuclear Magnetic Resonance</i>
1:50 pm	<b>Jennifer Sietins (DEVCOM-ARL)</b> <i>Title: 3D Microstructural Interface Characterization with In-situ <math>\mu</math>CT Tensile Loading</i>
2:15 pm	<b>Mark Varady (DEVCOM-CBC)</b> <i>Title: Influence of Particle-polymer Interface Adhesion on Chemical Transport in Polymer Composites</i>
2:40 pm	Adjourn for the day

Wednesday, April 14<sup>th</sup>, 2021

Time (EDT)	Topic
9:45 am	Sign in
10:00 am	<b>Barrett Hardin (AFRL/RW)</b> <i>Introductory Remarks and Overview of Computational Research Gaps</i>
10:20 am	<b>David Walters (LANL)</b> <i>Title: Simulating Crystal-Binder Delamination of PBXs using Cohesive Zone Models</i>
10:45 am	<b>Michelle Pantoya (Texas Tech)</b> <i>Title: The Interface Science of Metal Particle Reactivity</i>
11:10 am	Break – 10 minutes
11:20 am	<b>Adelia J. A. Aquino (Texas Tech)</b> <i>Title: Density Function Theory Calculations Characterizing Interface Reactions in Composite Energetic Materials</i>
11:45 am	<b>Alexandra Burch (LANL)</b> <i>Title: Finite Element Modeling of Bicrystal Delamination of Energetic and Inert Mock Crystals and Effects of Binder Adhesion on Composite Fracture Toughness</i>
12:10 pm	Lunch Break – 30 minutes
12:40 pm	<b>In-Chul Yeh (DEVCOM-ARL)</b> <i>Title: Computational Study of Energetic Materials at Interfaces</i>
1:05 pm	<b>Marisol Koslowski (Purdue)</b> <i>Title: Critical Heating Mechanisms in Shock-loaded Energetic Materials</i>
1:30 pm	<b>Waruna Kulatilaka (Texas A&amp;M)</b> <i>Title: Advanced Laser Diagnostics for Imaging Chemical Species, Particles, and Flow Structures in Reacting Energetic Materials</i>
1:55 pm	<b>Manoj K. Shukla (US Army Engineer Research and Development Center)</b> <i>Title: Computational modeling on interfacial interactions and mechanical properties of polymer nanocomposites</i>
2:20 pm	<b>Steve Beaudoin (Purdue)</b> <i>Title: The Role of Adhesion and Elastic Modulus on the Sensitivity of Energetic Materials to Vibration and Impact</i>
2:45 pm	Adjourn for the day

Thursday, April 15<sup>th</sup>, 2021

Time (EDT)	Topic
9:45 am	Sign in
10:00 am	<b>Didier MONTAIGNE (AFRL/RW) Overview of AM Research and Challenges</b>
10:20 am	<b>Bram Lasschuit (Delft University of Technology)</b> Title: Characterisation of 3D Printed Solid Propellants with Computational Homogenisation
10:45 am	<b>Blair Brettman (Georgia Tech)</b> Title: Rheology and Formulation in 3D Printing High Solids Suspensions
11:10 am	Break – 10 minutes
11:20 am	<b>Wouter Peerbooms (Delft University of Technology)</b> Title: Sedimentation of Dense Suspensions in Narrow Tubes
11:45 am	<b>Ranko Vrcelj (Cranfield University)</b> Title: TBD
12:10 am	<b>Jena McCollum (UC-Colorado Springs)</b> Title: Assessing Strain Field Evolution in Thermosetting Particulate Composites Through Digital Image Correlation
12:35 pm	Lunch Break – 30 minutes
1:05 pm	<b>Zane Roberts (LANL)</b> Title: Tailoring Inert Direct-Ink-Write 3D Printing Formulations for Explosive Dilution
1:30 pm	<b>Amy Peterson (UMass-Lowell)</b> Title: Linking Surface Wettability and Interfacial Adhesion of Thermosetting Polymer Composite
1:55 pm	<b>Discussion and Wrap-up</b>
2:55 pm	Meeting adjourns