### Welcome and Opening Remarks: Ryan Hurley, Conference Co-Chair

**Plenary Lecture: Chiara Daraio, “Disorder and anisotropy in architected materials with extreme properties”**

### Session A: Characterization and Modeling of Dynamic Fracture of Composites

- **12:45 - 1:05**
  - Projectile nose effect on failure of fiber reinforced composite strips characterized by reverse impact technique
    - (J. Gao, N. Kedir, J. Andes Hernandez, T. N. Tallman, W. Chen)

- **1:05 - 1:25**
  - Penetration and branching of dynamic cracks at material interfaces analyzed via a strain rate dependent continuum damage model
    - (Y. Lam, K. Kirane)

### Session B: Slip, Twins, and Voids

- **12:45 - 1:05**
  - Void growth during stripping of Li electrodes in solid electrolyte cells
    - (V. Deshpande)

### Session C: Symposium on the Mechanics of Biological and Biomimetic Soft Materials

- **12:45 - 1:05**
  - Subject-specific 3D Brain Simulations Using Heterogenous, Linear Viscoelastic Material Properties Derived from Magnetic Resonance Elastography
    - (A. Alshareef, A. Knutsen, C. Johnson, A. Carass, K.T. Ramesh, J. Prince)

- **1:25 - 1:45**
  - On the Role of Texture and Precipitate Orientation in Spall Failure of a Rolled Magnesium Alloy

- **1:45 - 2:05**
  - Dynamic shearing resistance of pure polycrystalline metals: Pressure-shear plate impact experiments and extension of dislocation-based modeling to large strains
    - (B. Zuanetti, D. J. Luscher, K. Ramos, C. Bolme, V. Prakash)

- **2:05 - 2:25**
  - Untangling inelasticity and phase transition kinetics in Sn under extreme deformation conditions
    - (W. Schill, R. Austin, J. Belof, K. Schmidt, J. Brown, N. Barton)

### Session D: Mechanics and Manufacturing of Architected Materials

- **12:45 - 1:05**
  - Architectured Tubes under Consideration of Their Manufacturing Process
    - (T. Siegmund, K. Mahoney, N. Schaefer)

- **1:05 - 1:25**
  - Development and validation of a three-dimensional, subject-specific human head model using the viscous dissipation-based visco-hyperelastic constitutive framework
    - (K. Upadhyay, A. Alshareef, A. Knutsen, C. Johnson, K.T. Ramesh)

- **1:25 - 1:45**
  - Numerical assessment of brain's biomechanical response to blast-induced global head motion
    - (S. Sutar, S. Ganpule)

- **1:45 - 2:05**
    - (I. Morrissey, J. Moore)

- **2:05 - 2:25**
  - Multimaterial Mechanical Metamaterials with Programmable Response
    - (J. Mueller, J. Lewis, K. Bertoldi)

### Poster Session

**2:45 - 4:30**
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<td>11:00</td>
<td>Plenary Lecture: Fionn Dunne, “Slip, dislocations and stored energy in microstructurally-sensitive crack nucleation and growth”</td>
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| 2:30-2:50 | **Session A**  
Atomic to Continuum Scale Composite Mechanisms  
| 2:50-3:10 | **Session B**  
Hypervelocity Impact Phenomena  
Ultra-high-molecular-weight polyethylene as a hypervelocity impact and cosmic rays shielding material for Whipple shield (J-H Cha, S. Kumar, S. Kumar, C-G Kim) |
| 3:10-3:30 | **Session C**  
Symposium on the Mechanics of Biological and Biomimetic Soft Materials  
Regional and Local Topography Effects of Hypervelocity Impacts into Rubble Piles (D. Graninger, A. Stickle, M. Syal) |
| 3:30-3:50 | **Session D**  
Multiscale Mechanics and Machine Learning for Porous and Particulate Materials  
| 3:50-4:10 | **Session E**  
Processing and Characterization of Hard Ceramics  
Observations of first contact and crater development during hyper-velocity impact (Y. Kim, G. Simpson, J. Moreno, M. Shaeffer, K.T. Ramesh) |
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<th>Session A</th>
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<td>11:00</td>
<td>Plenary Lecture: Stuart Leigh Phoenix, “Puzzling behavior in the impact response of UHMWPE and other fibrous materials and challenges in modeling them”</td>
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<td>12:00</td>
<td>Session A: Atomic to Continuum Scale Composite Mechanisms</td>
<td>Session B: Slip, Twins, and Voids</td>
<td>Session C: Symposium on the Mechanics of Biological and Biomimetic Soft Materials</td>
<td>Session D: Particle Based Material Models for Yield, Flow, and Fracture</td>
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<td>1:10 - 1:30</td>
<td>Reactive Molecular Dynamics Study on Mechanical Properties of S-glass (J. Yeon, S. Chowdhury, J. Gillespie)</td>
<td>Dislocation network evolution in tantalum under dynamic compression (R. Austin, N. Bertin, S. Aubry, N. Barton)</td>
<td>Porcine model to investigate strain induced changes to neuronal tissues (H. Thomson, B. Hoffe, A. Mazurkiewicz, R. Banton, M. Hollahan, O. Petel)</td>
<td>Parameter-free prediction of amorphous plasticity based on nonaffine lattice dynamics (I. Kriuchevsky, A. Zaccone, T. Sirk)</td>
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<td>2:10 - 2:30</td>
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