

# 2019 Midwest Mechanics Graduate Student Symposium

March 9-10, 2019, Madison, WI

Sponsored by the Society for Experimental Mechanics and the University of Wisconsin-Madison



## Saturday, March 9

12:30-12:40

### Welcome from SEM

Wendy Crone

University of Wisconsin-Madison and President of SEM

12:40-1:20

### Fracture Performance of Annealed Additively Manufactured Structures (Keynote)

Kevin Hart

Milwaukee School of Engineering

1:20-1:35

### Investigation into Post Constrained Recovery Properties of Nickel Titanium Shape Memory Alloys

Muhammad Istiaque Haider

University of Wisconsin-Milwaukee

1:35-1:50

### Phononic metastructures as ultrasonic filters for nondestructive evaluation measurements

Elizabeth Smith

University of Illinois, Urbana-Champaign

1:50-2:05

### Fundamental understanding of ultrasonic waves generated by shear-mode piezoelectric transducers

Hussain Altammar

University of Wisconsin-Milwaukee

2:05-2:20

### Vortex Dynamics of an Oscillating Hydrofoil for Energy Harvesting at High Reynolds Numbers

Bernardo Luiz Rocha Ribeiro

University of Wisconsin-Madison

2:20-2:40

### Coffee Break

2:40-2:55

### Numerical and Experimental Investigation of Ice Adhesion using the Blister Test

Christopher Giuffre

Iowa State University

2:55-3:10

### Quantitative Evaluation of Bonding Strength of Thin Films Using Peel Test

Maysam Rezaee

University of Wisconsin-Milwaukee

3:10-3:25

### Utilization of Asymmetric Beam Test for Characterization of Ice Adhesion

Bishoy Dawood

Iowa State University

3:25-3:40

### Atomistic-Continuum model for 2D multi-layer materials

Upendra Yadav

Michigan Technological University

3:40-3:55

### Effects of Cut Boundary Location on Finite Element Submodeling: The Case of a Deformable Block

William Elke

Milwaukee School of Engineering

3:55-4:35

### Photograph and Ice-cream social

4:35-4:50

### Temperature effects and matrix-scale material properties of an elastomeric open-cell foam

Alexander Landauer

Brown University, University of Wisconsin-Madison

- 4:50-5:05 **Poroviscoelastic (PVE) Damping Tuned by Interfaces: Application to Passive Vibration Absorbers**  
Lejie Liu  
University of Wisconsin-Madison
- 5:05-5:20 **Highly tunable dynamic response of vertically aligned carbon nanotube foams**  
David Murgado  
University of Wisconsin-Madison
- 5:20-5:35 **Application of multiscale analysis techniques in continuous and discontinuous fiber-reinforced composite materials to investigate the failure induced by microscopic instability phenomena**  
Andrea Pranno  
University of Calabria, Italy and University of Wisconsin-Madison
- 5:35-5:50 **Instabilities in Hyperelastic Fiber Composites**  
Nitesh Arora  
University of Wisconsin-Madison
- 5:50-6:05 **A generalized superelliptic void microstructure mapping for topology optimization**  
Tej Kumar  
University of Wisconsin-Madison
- 6:05-6:20 **A coupled chemo-mechanical theory for high temperature oxidation in polymers**  
Shabnam Konica  
Michigan Technological University
- 6:20**  
**Dinner and Social**
- Sunday, March 10**
- 8:00-8:45**  
**Breakfast**
- 8:45-9:25 **Elastomer Cutting: Radius, Constitutive Response, and Rate (Keynote)**  
Shelby Hutchins  
University of Illinois, Urbana-Champaign
- 9:25-9:40 **Characterization of Shear Wave Speed-Stress Relationship in Collateral Ligaments**  
Jonathon Blank  
University of Wisconsin-Madison
- 9:40-9:55 **Modeling ACL constitutive behavior with full-field methods**  
Callan Luetkemeyer  
University of Michigan
- 9:55-10:15**  
**Coffee Break**
- 10:15-10:30 **Comparison of mechanical parameters in the lean and obese type II diabetic rat urinary bladder**  
Marissa Grobbel  
Michigan State University
- 10:30-10:45 **Rate-dependent crack nucleation in cartilage**  
Guebum Han  
University of Wisconsin-Madison
- 10:45-11:00 **Length Scale Effects in Fibrous Materials**  
Stephen Tyznik  
University of Wisconsin-Madison
- 11:00-11:15 **Quantifying Mechanical Strain in CPVT Stem Cell Derived Cardiomyocytes**  
Alana Stempien  
University of Wisconsin-Madison
- 11:15-11:30 **A diffuse interface framework for modelling the evolution of multi-cell aggregates as a soft packing problem driven by the growth and division of cells**  
Debabrata Auddya  
University of Wisconsin-Madison
- 11:30-11:35**  
**Closing Remarks**