



Posters by undergraduate students, graduate students, and young professionals were honored for excellence at the 2019 Technical Division Student Poster Competition and the 2019 Young Professional Poster Competition, both held at the TMS 2019 Annual Meeting & Exhibition

(TMS2019), March 10-14, in San Antonio, Texas. A number of symposia at TMS2019 also provided opportunities for professional recognition through poster and presentation competitions. Congratulations to the award recipients recognized in the following pages.

## Technical Division Student Poster Competition Winners

### Extraction & Processing Division Award

**Graduate:** “Thermochemical and Electrochemical Properties of Nd-Bi Alloys by Electromotive Force and Complementary Measurements,” Timothy Lichtenstein, Pennsylvania State University

### Functional Materials Division Award

**Undergraduate:** “Electrodeposition of Tungsten Oxide Hydrates on 2D and 3D Substrates for High Power Electrochemical Energy Storage,” Ellie Scott, North Carolina State University

### Light Metals Division Awards

**Graduate:** “Conventional and Low Phosphorous Ceramic Foam Filters (CFFs) - Chemical Reactivity and Thermal Stability,” Are Bergin, Norwegian University of Science and Technology & Hydro ASA

**Undergraduate:** “Aluminum-cerium Alloys Treated with Niobium Diboride Nanoparticles for Aerospace Applications,” Julie Colon, University of Puerto Rico Mayaguez

### Materials Processing & Manufacturing Division Awards

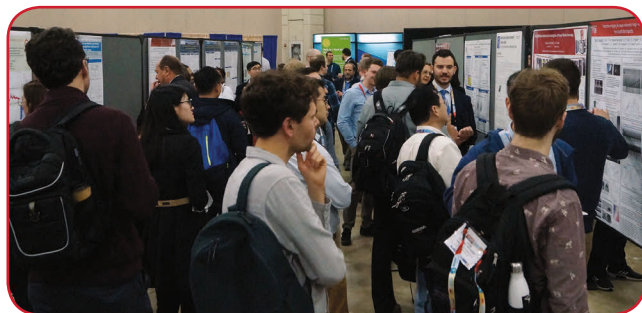
**Graduate:** “Predictive Finite Element Simulations of Grain Growth,” Erdem Eren, University of California, Davis

**Undergraduate:** “Alginate Particle Fabrication Using Vibration Assisted Drop Generation,” Brandon Wells, Purdue University

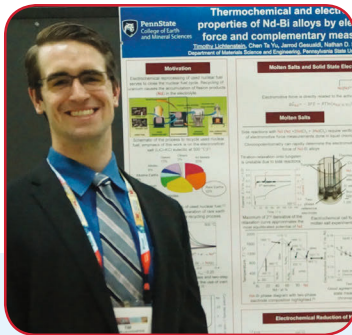
### Structural Materials Division Awards

**Graduate:** “Influence of  $\gamma'$ - $\gamma$  Co-precipitation on the Mechanical Properties and Coarsening Kinetics of IN718 Variant Superalloys,” Semanti Mukhopadhyay, The Ohio State University

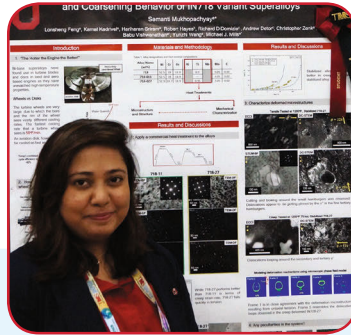
**Undergraduate:** “Identifying Damage Initiation of Woven Fiberglass Composites Under Compression,” Isabella Mendoza, Drexel University



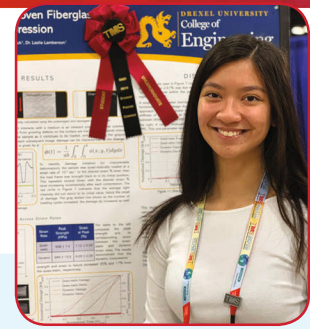
## Student and Young Professional Poster Competition Winners



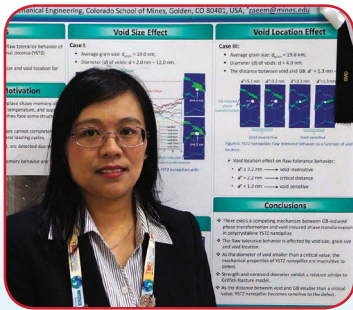
Timothy Lichtenstein,  
Pennsylvania State University



Semanti Mukhopadhyay, The  
Ohio State University



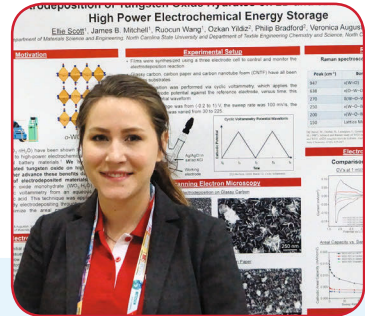
Isabella Mendoza, Drexel  
University



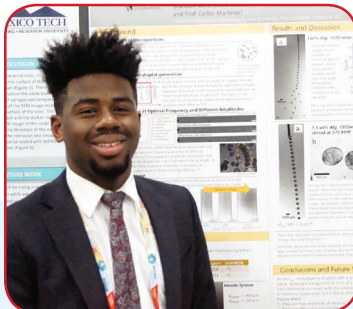
Ning Zhang, Colorado School of Mines



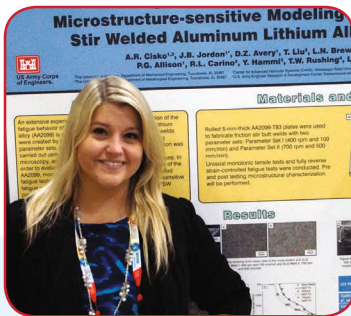
Are Bergin, Norwegian University of  
Science and Technology & Hydro ASA



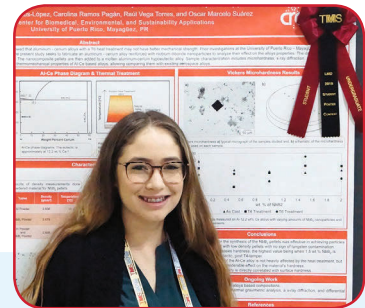
Ellie Scott, North Carolina State  
University



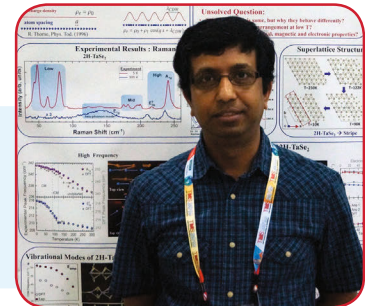
Brandon Wells, Purdue University



Abby Cisco, U.S. Army Engineer  
Research and Development Center



Julie Colon, University of Puerto  
Rico Mayaguez



Sugata  
Chowdhury,  
National  
Institute of  
Standards and  
Technology

## Young Professional Poster Competition Winners

### Light Metals Division Award

“Analysis and Interpretation about Evaluation and Atomic Vibration of New Raman Active Modes from CDW Phase in of Layered 2H-TaX<sub>2</sub> (X=S, Se),” Sugata Chowdhury, National Institute of Standards and Technology

### Materials Processing & Manufacturing Division Award

“Fatigue Characterization and Microstructure-sensitive Modeling of Extruded and Friction Stir Welded Aluminum Lithium Alloy 2099,” Abby Cisco, U.S. Army Engineer Research and Development Center

(Not pictured: Erdem Eren, University of California, Davis)

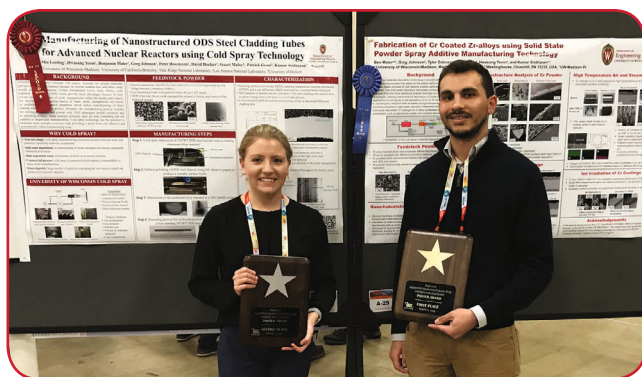
### Structural Materials Division Award

“Flaw Tolerance of Shape Memory Yttria-stabilized Tetragonal Zirconia Polycrystals,” Ning Zhang, Colorado School of Mines

## Additive Manufacturing for Energy Applications Symposium Best Posters

**First-Place Poster:** “Fabrication of Cr Cladded Zr-alloys Using Solid State Powder Spray Additive Manufacturing Technology,” Benjamin Maier, Hwasung Yeom, Greg Johnson, *Tyler Dabney*, and Kumar Sridharan, University of Wisconsin-Madison

**Second-Place Poster:** “Investigation of Manufacturing Oxide Dispersion Strengthened (ODS) Steel Fuel Cladding Tubes Using Cold Spray Technology,” *Mia Lenling*, Hwasung Yeom, Benjamin Maier, Greg Johnson, and Kumar Sridharan, University of Wisconsin-Madison; Peter Hosemann and Jeff Graham, University of California, Berkeley; David Hoelzer, Oak Ridge National Laboratory; and Stuart Maloy, Los Alamos National Laboratory



Mia Lenling (left) and Tyler Dabney accept their best poster awards from the Additive Manufacturing for Energy Applications Symposium.

## Advanced Real Time Imaging Symposium Awards

**First-Place Oral Presentation:** “In Situ Characterization of Hot Cracking Using Dynamic X-ray Radiography,” Po-Ju Chiang, Runbo Jiang, Ross Cunningham, and *Anthony Rollett*, Carnegie Mellon University; Niranjana Parab, Cang Zhao, Kamel Fezzaa, and Tao Sun, Argonne National Laboratory

**Second-Place Oral Presentation:** “High Resolution 4D X-ray Tomography of Dendrite Growth in Aluminum Alloys,” *Tiberiu Stan*, Yue Sun, Kate Elder, and Peter Voorhees, Northwestern University; and Xianghui Xiao, Argonne National Laboratory

**Second-Place Oral Presentation:** “New Insights on Liquid Metal Breakup from High Speed Image Analysis during Close Coupled Gas Atomization,” *Jordan Tiarks*, Trevor Riedemann, Emma White, and Iver Anderson, U.S. Department of Energy, Ames Laboratory

### First-Place Oral Presentation (Student):

“Characterization of Localized Plastic Deformation Behaviors Associated with Dynamic Strain Aging in Pipeline Steels Using Digital Image Correlation,” *Taylor Jacobs*, Los Alamos National Laboratory; David Matlock and Kip Findley, Colorado School of Mines

### Second-Place Oral Presentation (Student):

“Real-Time Deformation Mechanisms of Advanced Nanocomposites by High-Resolution In-situ Testing,” Arvind Agarwal and *Pranjal Nautiyal*, Florida International University

### Third-Place Oral Presentation (Student):

“Observation of the Reaction between Iron Ore and Metallurgical Fluxes for Improved Pre-reduction,” *James Whiston*, Stephen Spooner, and Z. Li, WMG, University of Warwick; and K. Meijer, Tata Steel Europe

### First-Place Manuscript/Conference Proceedings:

“Quantitative Thermal Analysis of Solidification in a High-Temperature Laser-Scanning Confocal Microscope,” *Dasith Liyanag*, Suk-Chun Moon, Madeleine Du Toit, and Rian Dippenaar, University of Wollongong

### Second-Place Manuscript/Conference Proceedings:

“High-Frequency Ultrasound Analysis in Both Experimental and Computation Level to Understand the Microstructural Change in Soft Tissues,” Leila Ladani and *Koushik Paul*, University of Texas at Arlington; and Jeremy Stromer, University of Connecticut

### Third-Place Manuscript/Conference Proceedings:

“Surface Tension of High Temperature Liquids Evaluation with a Thermal Imaging Furnace,” Andrew Caldwell, Mindy Wu, and *Antoine Allanore*, Massachusetts Institute of Technology

### Third-Place Manuscript/Conference Proceedings:

“In Situ Characterization of Hot Cracking Using Dynamic X-ray Radiography,” Po-Ju Chiang, Runbo Jiang, Ross Cunningham, and *Anthony Rollett*, Carnegie Mellon University; Niranjana Parab, Cang Zhao, Kamel Fezzaa, and Tao Sun, Argonne National Laboratory



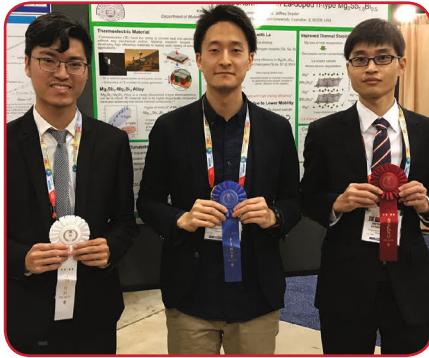
## Alloys and Compounds for Thermolectric and Solar Cell Applications VII Symposium Best Posters

**First-Place Poster:** “High Thermolectric Performance in La-doped n-type  $Mg_3Sb_{1.5}Bi_{0.5}$ ,” *Kazuki Imasato*, Max Wood, and G. Jeffrey Snyder, Northwestern University

**Second-Place Poster:** “Thermolectric Properties of  $Y_xAl_yB_{14}$  Prepared by Reactive Spark Plasma Sintering,” *Hyoung-Won Son*, Quansheng Guo, and Takao Mori, National Institute for Materials Science

**Third-Place Poster:** “Phase Diagrams of Material Systems with Quasicrystalline Phases,” *Pei-chia Lo*, *Tse-yang Huang*, Tzu-ning Kuo, Anbalagan Ramakrishnan, and Sinn-wen Chen, National Tsing Hua University

The winners of the Alloys and Compounds for Thermolectric and Solar Cell Applications VII Symposium best poster competition are, from left to right: Tse-yang Huang, Kazuki Imasato, and Hyong-won Son.



## Biological Materials Science Symposium Best Posters

**First-Place Poster:** “3D Printing Bioinspired Composite Materials with Ultrasound Directed Self-Assembly,” *Paul Wadsworth*, Isaac Nelson, Taylor Ogden, and Steven Naleway, University of Utah

**Second-Place Poster:** “Structural Basis for the Damage Tolerance of the Low-Density Cellular Structure of Cuttlebone,” *Ting Yang* and Ling Li, Virginia Polytechnic Institute and State University

**Third-Place Poster:** “Calcium Phosphate Microspheres: A Novel Approach to Calcium Phosphate Cements,” *Jerry Howard*, Isaac Nelson, John Colombo, Steven Naleway, and Krista Carlson, University of Utah

## Green Materials Engineering: An EPD Symposium in Honor of Sergio Monteiro Best Posters

**First-Place Poster:** “Charpy Impact Test of Polymeric Composites with Epoxy Resin Reinforced by Jute Fabric,” *Carlos Vieira*, José Machado, Juliana Carvalho, Anna Carolina Neves, Felipe Lopes, and Sérgio Monteiro, State University Northern of Rio de Janeiro

**Second-Place Poster:** “Performance of Natural Curaua Non-woven Fabric Composites as Stand-alone Targets against Standard 9 mm and 7.62 mm Projectiles,” *Fabio Braga*, Faculty of the National Service of Industrial Apprenticeship (SENAI); Michelle Oliveira, Fabio Garcia Filho, Sergio Monteiro, and Édio Lima Jr., Military Institute of Engineering

**Third-Place Poster:** “Study of the Technological Properties of Multiple Mortar Use with Efficient Addition of Rock Waste,” *Micaela Nicolite*, *Lucas Amaral*, Geovana Carla Delaqua, Markssuel Marvila, Jonas Alexandre, and Carlos Maurício Vieira, State University of Northern Rio de Janeiro; and Sérgio Neves, Military Engineering Institute

## Mechanical Behavior Related to Interface Physics III Symposium Best Posters

**First-Place Poster:** “Mechanical Behavior of Nanotwinned Metals under Micropillar Compression: An In Situ Study,” *Jin Li*, Tongjun Niu, Jie Ding, Jaehun Cho, Sichuang Xue, Zhe Fan, Yifan Zhang, Haiyan Wang, and Xinghang Zhang, Purdue University

**Second-Place Poster:** “Application of Small Scale Mechanical Testing to Link Interface Properties to Macroscopic Hysteresis Behavior of SiC/SiC Composites,” *Joseph Kabel*, Darren Parkison, and Peter Hosemann, University of California, Berkeley; Christian Deck, General Atomics; and Yutai Katoh, Oak Ridge National Laboratory

**Third-Place Poster:** “Tuning the Mechanical Behaviour of Nanocrystalline Austenitic Steel by Proton Irradiation,” *Markus Alfreider* and Daniel Kiener, University of Leoben; and Peter Hosemann, University of California, Berkeley

## REWAS 2019 Symposium Best Posters

**First-Place Poster:** “Distribution and Chemical Species of Chromium in the EAF Dust from Stainless Steel Plant,” *Zhi Li*, *Guojun Ma*, and Xiang Zhang, Wuhan University of Science and Technology

**First-Place Poster (Student):** “Waste Tire Rubber Powders Based Composite Materials,” *Carlos Revelo*, Mauricio Andres Correa, and Henry Colorado, Universidad de Antioquia; and Claudio Aguilar, Universidad Técnica Federico Santa María

Carlos Revelo takes first place in the student poster contest sponsored by the REWAS 2019

