

**62<sup>nd</sup> Annual  
SAS / MSNO / ACS / AVS May Conference**

**May 23, 2018  
John Carroll University  
Dolan Science Center**

**PROGRAM**

- 7:30 a.m.**      **Registration/Continental Breakfast:**  
(Edward M. & Ann Muldoon Atrium)
- 8:30 a.m.**      **Opening Remarks:** (Donahue Auditorium)  
Mike Setter, *John Carroll University*  
Rick Kus, *De Nora Tech, LLC*
- 8:45 a.m.**      **Keynote Address:** (Donahue Auditorium)  
Chair: Regan Silvestri, *Lorain County Community College*  
  
**Ka-Pi Hoh, *The Lubrizol Corporation***  
  
Have you dreamed about working in foreign country? Have you ever wondered what it would be like to live and work in China?
- 9:35 a.m.**      **Break (15 minutes):** (Edward M. & Ann Muldoon Atrium)

## Presentation Session I

	<b>Session IA Dolan A202 Chair:</b>	<b>Session IB Dolan A203 Chair:</b>	<b>Session IC Dolan E130 Chair:</b>
<b>9:50 a.m.</b>	IA-1  Hunter King  "Bioinspiration in Strategies to Harvest Water from the Air"  <i>The University of Akron</i>	IB-1  Vikram Bedekam  "Atom Probe Tomography of White Etch Area and Butterfly Defects Found In Wind Energy Gearbox Bearings"  <i>Timken Company</i>	IC-1  David Bastidas  "Microencapsulated Smart Corrosion Inhibitors for Steel Reinforced Concrete"  <i>The University of Akron</i>
<b>10:15 a.m.</b>	IA-2  Denice Johnson  "Importance of Monitoring Nutrients in Wastewater and Natural Waters"  NEORS D	IB-2  Xinyue Chen  "Layer Thickness Effect on Dielectric Properties and Interfacial Polarization for Multilayer Polymer Films"  <i>Case Western Reserve University</i>	IC-2  Kevin Abbasi  "An Experimental Guide to Characterization of Paint Pigments Using Various Microscopy Techniques: OM-SEM-EDS-AES-XPS-TofSIMS"  <i>Case Western Reserve University</i>
<b>10:40 a.m.</b>	IA-3  Evan Kolodey  "Identifying Possible Contaminants in a Water Supply"  <i>Lorain County Community College</i>	IB-3  Greta Babakhanova  "Fabrication of Responsive Liquid Crystalline Elastomer-Based Microchannels"  <i>Kent State University</i>	IC-3  Javier Esquivel  "High-strength and Corrosion Resistant Light Alloys Produced by High-energy Ball Milling and Vanadium Alloying"  <i>The University of Akron</i>
<b>11:05 a.m.</b>	IA-4  Michelle Neudeck  "Tolerance of Planktothrix Agardhii to Nitrogen Depletion"  <i>Bowling Green State University</i>	IB-4  Virgil Solomon  "Advanced Manufacturing of Functional Parts: A Case Study of 3D Printing of Ni-Mn-Ga Magnetic Shape-Memory Alloy Powders"  <i>Youngstown State University</i>	IC-4  Mohammad Umar Farooq Khan  "Strength and Corrosion Resistance Improvement of Mg by Mechanical Alloying with Al"  <i>The University of Akron</i>

**11:30 a.m. Break (20 minutes):** (Edward M. & Ann Muldoon Atrium)

**11:50 a.m. Yeager Award:** (Donahue Auditorium)  
Co-Chairs: Rick Kus, *De Nora Tech, LLC*  
Michael Levy, *ACS Chair – Envantage, Inc.*

**Nicole Wagner, Edinboro University**

"Overexpression and Purification of P.IsnB and Elucidation of P.IsnB-Catalyzed Reaction Mechanisms."

**12:30 p.m. Lunch:** (O'Connell Reading Room)

**1:00 - 2:15 p.m. Poster Session:** (Second Floor Hallway)

## Presentation Session II

	<b>Session IIA Dolan A202 Chair:</b>	<b>Session IIB Dolan A203 Chair:</b>	<b>Session IIC Dolan E130 Chair:</b>
<b>2:15 p.m.</b>	<p>IIA-1</p> <p>Cora Lind-Kovacs</p> <p>“Crystallization Studies of Negative Thermal Expansion Materials Using Lab and Synchrotron X-rays”</p> <p><i>The University of Toledo</i></p>	<p>IIB-1</p> <p>Jamie Foss</p> <p>“Analysis of Pesticide Residues in Cannabis Flower Regulated by California State using LC-MS/MS: Practical Considerations”</p> <p><i>Perkin Elmer</i></p>	<p>IIC-1</p> <p>Hannah Newsome</p> <p>“Characterizing the Effects of the Delta32 Mutation on CCR5 Expression and HIV Infectability”</p> <p><i>Lorain County Community College</i></p>
<b>2:40 p.m.</b>	<p>IIA-2</p> <p>La'Nese Lovings</p> <p>“Synthesis and Characterization of Al<sub>x</sub>Sc<sub>2-x</sub>Mo<sub>3</sub>O<sub>12</sub> Using Non-hydrolytic Sol-gel Methods”</p> <p><i>The University of Toledo</i></p>	<p>IIB-2</p> <p>Lu Han</p> <p>“Detailed Investigation of the Oxazine Ring-related Vibrational Modes of Benzoxazine Monomers Using Fully Aromatically Substituted, Deuterated, <sup>15</sup>N Isotope Exchanged and Oxazine-ring-substituted Compounds and Theoretical Calculation”</p> <p><i>Case Western Reserve University</i></p>	<p>IIC-2</p> <p>Octavia Whitfield</p> <p>“Characterization of a CCR5 Allele from an Individual Who Is Potentially Resistant to HIV”</p> <p><i>Lorain County Community College</i></p>
<b>3:05 p.m.</b>	<p>IIA-3</p> <p>Veronica Livingstone</p> <p>“One-pot In-situ Preparation of Polypyrrole Composites with Metal Oxide Fillers”</p> <p><i>The University of Toledo</i></p>	<p>IIB-3</p> <p>Michael Nichols</p> <p>“Gas Chromatograph-Mass Spectroscopy (GC-MS) and Principal Component Analysis (PCA) Analysis of Lavender, Lavandin, Spike Lavender to Determine the Differences in Their Chemical Compositions”</p> <p><i>John Carroll University</i></p>	<p>IIC-3</p> <p>Riley Figueroa</p> <p>“HIV Infectivity Counteracted by the CCR5-delta32 Mutation Effect on CXCR4 Gene”</p> <p><i>Lorain County Community College</i></p>

**3:30 p.m.            Break (20 minutes):** (Edward M. & Ann Muldoon Atrium)

### Presentation Session III

	<b>Session IIIA Dolan A202 Chair:</b>	<b>Session IIIB Dolan A203 Chair:</b>	<b>Session IIIC Dolan E130 Chair:</b>
<b>3:50 p.m.</b>	IIIA-1  Tim Prusnick  "Advances in Confocal Raman Microscopy for Materials Characterization and Scientific Research"  <i>Renishaw Inc.</i>	IIIB-1  Chris Orsulak  "Video-Rate AFM Enables New Research Opportunities"  <i>Oxford Instruments</i>	IIIC-1  Saddhesh Dalvi  "Adhesion and Hysteresis Phenomena on Rough Surfaces"  <i>The University of Akron</i>
<b>4:15 p.m.</b>	IIIA-2  Sadeq H. Alkhalifa  "Orientation Dependence of Draw- induced Crystallinity on Polarized Raman Band Intensities in Poly-L- Lactic Acid"  <i>Cleveland State University</i>	IIIB-2  Sonal Bhadauriya  "Tracking the Stability of Imprinted Nano-composite Structures via Atomic Force Microscopy"  <i>The University of Akron</i>	IIIC-2  Sukhmanjot Kaur  "Interfacial Adhesion of Mussel- inspired Adhesives"  <i>The University of Akron</i>
<b>4:40 p.m.</b>	IIIA-3  Ozan Akkus  "Fast Raman Imaging in Discrete Wavenumber Mode"  <i>Case Western Reserve University</i>	IIIB-3  Anthony Stender  "Nanoparticle Studies with Differential Interference Contrast (DIC) Microscopy"  <i>Ohio University</i>	IIIC-3  Saiaravind Sompalle  "Effect of Protein Fouling on Capture of <i>M. smegmatis</i> "  <i>University of Akron</i>

### 5:05 - 7:00 p.m. Reception/Program

Chair: Brian Perry, *LORD Corporation*

#### Recognition of Meeting Sponsors

Rick Kus: *DeNora Tech, LLC*

#### Bell Award Presentations

Tom Steele: *SAS Member, Chemistry Professional*

#### Best Student Poster Awards

Tom Steele: *SAS Member, Chemistry Professional*

#### Best Student Paper Awards

Regan Silvestri: *Lorain County Community College*

#### MSNO Student Awards

Virgil Solomon: *Youngstown State University*

#### Closing Comments

Brian Perry: *LORD Corporation*

## Poster Session Biological Sciences Section

<b>Hao Wang</b> Kent State University	Photochemically and Thermally Driven Full-Color Reflection in a Self-Organized Helical Superstructure Enabled by a Halogen-bonded Chiral Molecular Switch
<b>Dulce Cintron</b> Lorain County Early College High School	The Role of CphA and CphB With Respect to Nitrogen Availability in Planktothrix Agardhii
<b>Runa Koizumi</b> Kent State University	Active Nematics Formed by Bacteria in Patterned Chromonics
<b>Grant Gilmore</b> The University of Akron	Observation of GPCR Interactions Using PIE-FCCS
<b>Soyeon Kim</b> The University of Akron	Determining the Structural Effects of Epidermal Growth Factor Receptor Mutation Associated with Non-Small Cell Lung Carcinoma
<b>Weizhuan He</b> Lorain County Community College	Construction of a Complete Knockout of the CCR5 Gene by Genome Editing
<b>Abegel Freedman</b> The University of Akron	Studying Protein-Micelle Interactions Using Fluorescence Cross-Correlation Spectroscopy
<b>Douglas E. Rohde</b> Lake County Crime Laboratory	Fentanyl Analogs in Ohio and the Pharmacophore Rule
<b>Jacqueline Vitali</b> Cleveland State University	Characterization of Dihydroorotase from <i>M. jannaschii</i>
<b>Francis Dave C. Siacor</b> Case Western Reserve University	Cellulose Nanocrystals from Mango ( <i>Mangifera indica</i> L.) Processing by-Products for 3D Printing Applications

## Physical Sciences Section

<b>Lihan Rong</b> Case Western Reserve University	Catenated Brush Polymer Synthesized via Ring Expansion Polymerization and Atom Transfer Radical Polymerization as Precursor
<b>Xiaolong Lang</b> Case Western Reserve University	Isomeric and Structural Effects on Polymer Cononsolvent Systems
<b>Brittany Wilson</b> University of Toledo	Exploration of Molybdenum Oxide Synthesis Conditions for Future Use in Polypyrrole Composites
<b>Lu Han</b> Case Western Reserve University	Instruction of Smart Ortho-structure Molecular Design of Higher Performance Polybenzoxazines from Fundamental Understanding the Vibrational Structure, Ring-opening Kinetics of Oxazine Ring, Hydrogen Bonding System
<b>Italo Silva</b> Case Western Reserve University	Effect of Silica Nano and Microparticles on the Filtration properties of Water-based Drilling Fluids
<b>Feipeng Yang</b> The University of Akron	Rocking-curve Analysis of Interface Morphology Between Polymer Thin Film and Metallic Substrate in Nanoscale
<b>William Lenart</b> Case Western Reserve University	Effect of Polymer Brush Conformation on the Transport Properties of Polymer Grafted Nanoparticles through Confined Channels
<b>Zoe Cornwall</b> Lorain County Community College	Unprecedented Whiskey Flavors Created by a Novel Aging Process
<b>Lucio Souza</b> Case Western Reserve University	High Performance Polybenzoxazine + Epoxy Coating for Harsh Environments
<b>Haithem Mustafa</b> Case Western Reserve University	Center for Applied Raman Spectroscopy
<b>Sedigheh Rashidi</b> The University of Akron	Investigating the Effect of Aluminide Coating on High-temperature Behavior of Superalloy(s)

## Ernest B. Yeager Award

In 1962, the Cleveland Section of the Society for Applied Spectroscopy established the Ernest B. Yeager Award, which now consists of a certificate and a three hundred dollar stipend. This award is made annually to an outstanding undergraduate student who is attending a college or university in Northeastern Ohio, and who has demonstrated an interest in some phase of spectroscopy. The award also carries a free one-year membership in the Society for Applied Spectroscopy.

Year	Recipient	Year	Recipient
1962	Eric A. Entemann	1990	No Award Given
1963	John H. Konnert	1991	Stephen C. Stone
1964	Sheldon J. Green	1992	No Award Given
1965	Cheryl H. Miller	1993	Baonian Hu
1966	Dale Wingeleth	1994	Amy L. Lusk
1967	Richard D. Ash, Jr.	1995	John W. Cave
1968	Jon Mynderse	1996	Michael Fiorentino
1969	Virginia E. Coates	1997	Jonathan Flad
1970	Charles F. Cobb	1998	Christopher S. Callam
1971	Gerald R. Cappo	1999	David T. Clark
1972	Donald R. Diehl	2000	Adam Van Wynsberghe
1973	Fred A. Fortunato	2001	David C. Oertel
1974	Douglas B. Rahrig	2002	Richard L. Barger, Jr.
1975	William Hart	2003	Michelle Adams
1976	John Havens	2004	Tiffany Leigh Copeland
1977	Thomas M. Leiden	2005	Stacey Lynne Dean
1978	Scott A. Raybuck	2006	Colleen M. Burkett
1979	Jeff Weidenhamer	2007	Manasi Bhate
1980	Alexander Kondow	2008	Nikolas Joseph Neric
1981	Raymond E. Cline	2009	Deacon J. Nemchick
1982	Marie Zaper	2010	Rachel V. Bennett
1983	Brian L. Cousins	2011	Daphne A. Guinn and Jennifer L. Miller
1984	Ka-Pi Hoh	2012	Jean Quenneville
1985	Chris Scott	2013	Yihui Chen
1986	Ann M. Mulichak	2014	Jocienne Nelson
1987	Rex Ramsier	2015	Kevin Budge
1988	Joy Gorecki	2016	Ian Campbell
1989	Sheryl Tucker	2017	Rachel Molé

### *2018 Ernest B. Yeager Award Recipient*

**Nicole Wagner**  
**Edinboro University**

### **“Overexpression and Purification of P.IsnB and Elucidation of P.IsnB-Catalyzed Reaction Mechanisms.”**

Ernest B. Yeager, the Frank Hovorka Professor Emeritus of Chemistry at Case Western Reserve University, was internationally known for his pioneering contributions to the fundamental understanding of electrochemical reactions and to the development of fuel cell and battery technology. During nearly 50 years on the Case Western Reserve faculty, he mentored 80 doctorate students and 45 post-doctorate fellows, authored 270 scientific papers and edited and co-edited 20 books. He was internationally recognized as an authority in physical acoustics and electrochemistry. His students and colleagues knew him for his uncompromising demand for excellence in research and scholarly writing. Professor Yeager, 77, died March 8, 2002 in Cleveland, Ohio, after a long struggle with Parkinson's Disease.