NU-MRSEC Research Experience for Undergraduates

Closing Symposium

Wednesday August 17, 2016 and Thursday August 18, 2016

Technology Institute L361

Wednesday August 17, 2016

12: 50 p.m. **Opening Remarks,** Kathleen Stair, REU Program Director

1:00 p.m. "*Solution-Processed Short-Channel Carbon Nanotube Transistors*"
Hadass Inbar, Materials Science & Engineering and Chemistry, Technion-Israel Institute of Technology
Mark Hersam, Supervising Faculty; Dr. Vinod Sangwan, Mentor

1:15 p.m. *"Polymer Doping of Flexible, Transparent, Solution-Processed Metal Oxide Transistors"*
Joshua Tedesco, Materials Science and Engineering, Rutgers University
Tobin Marks, Supervising Faculty; Katie Stallings and Wei Huang, Mentors

1:30 p.m. "*Morphological Study of Cobalt Hydroxide-organic Hybrid Supercapacitor Materials*"
Emily Beeman, Materials Science and Engineering, University of California, Davis
Samuel Stupp, Supervising Faculty; Garrett Lau and Nick Sather, Mentors

1:45 p.m. "*Tuning Carrier Concentration in Thermoelectric Materials:* $Yb_9\ Zn_{4+x}Sb_9$"
Michael Wucher, Geology, Pomona College
Jeffrey Snyder, Supervising Faculty; Saneyuki Ohno, Mentor

2:00 p.m. "*NanoMine: Data Driven Discovery for Engineering Polymer Nanosystems*"
Valentina Guarino,[1] Engineering Sciences, College of DuPage
Cate Brinson, Supervising Faculty; Richard Zhao and Xiaolin Li, Mentors

2:15 p.m. "$SrMnO_{3-\delta}$ *For Reduced Temperature TC Fuel Production*"
Colin Kelliher,[2] College of DuPage
Sossina Haile, Supervising Faculty; Ho-Il Ji, Mentor

2:30 p.m. "*Determining the Reaction Rate Constant of LSM using a Modified ECR Method*"
Danielle Richards, Chemical Engineering, New Mexico Institute of Mining and Technology
Sossina Haile, Supervising Faculty; Anupama Khan, Mentor

2:45 p.m. BREAK

3:00 p.m. "*Nonstoichiometry of* $La_{0.8}\ Sr_{0.2}MnO_3\pm_\delta$"
Muskaan Goyal,[3] Chemical Engineering, California Institute of Technology
Sossina Haile, Supervising Faculty; Timothy C. Davenport and Michael Ignatowich, Mentor

3:15 p.m. "*Fuel Production via Thermochemical Cycling of Doped Ceria*"
Zach Lipel, [3] Chemical Engineering, California Institute of Technology
Sossina Haile, Supervising Faculty; Timothy C. Davenport and Michael Ignatowich, Mentors

3:30 p.m. *"Synthesis and Characterization of Large Single Crystals of Superconducting NiBi"*
Kelly Powderly, Chemistry and Integrated Sciences, Northwestern University
Danna Freedman, Supervising Faculty; Samantha Clark, Mentor

3:45 p.m. "*Prototyping Alloys Designed for Additive Manufacturing"*
Samuel Cabrera,[4] Mechanical Engineering, University of California, Irvine
Gregory Olson, Supervising Faculty; Dr. Ricardo Komai, Mentor

4:00 p.m. "*Limits on Phase Separation Kinetics in Ni-Al Alloys: An Atom-Scale Study"*
Tim Murat, Chemical and Biological Engineering, University of Wisconsin-Madison
David Seidman, Supervising Faculty; Sungil Baik, Mentor

4:15 p.m. " *The Atomic Layer Deposition of Tin Sulfide"*
Sarah Rappaport, Materials Science & Engineering, Northwestern University
Lincoln Lauhon, Supervising Faculty; Michael Moody, Mentor

4:30 p.m. *" Development of a Synthesis Technique for 2D Hexagonal Boron Nitride"*
Robynne Paldi, Materials Science & Engineering, University of California, Merced
Vinayak Dravid, Supervising Faculty; Jeff Cain and Even Hanson, Mentors

Thursday August 18, 2016

1:00 p.m. "*Microfluidic Synthesis of Giant Liposomes"*
David Cadena,[1] Physics, University of Texas at San Antonio
Derk Joester, Supervising Faculty; Michael Whittaker, Mentor

1:15 p.m. *"Trion Identification in WSe_2 for Trion-Polariton Cavities"*
Ryan Bailey-Crandell, Physics, Oregon State University
Nathan Stern, Supervising Faculty; Teodor Stanev, Mentor

1:30 p.m. "*Optical Properties Modeling of Metallic Nanoparticle Array"*
Yue Yu, Physics, Grinnell College
George Schatz, Supervising Faculty; Marc Bourgeois, Mentor

1:45 p.m. "*Template-Stripped Aluminum Arrays for Ultraviolet Plasmonics"*
Lisa Au, Chemistry, Carleton College
Teri Odom, Supervising Faculty; Michael Knudson and Thaddeus Reese, Mentors

2:00 p.m. "*The Study of the Synthesis and Growth Mechanism of Silver Triangular Nanoprisms"*
Meaghan Bruening, Chemistry, St. Catherine University
Richard Van Duyne, Supervising Faculty; Lingxuan (Betty) Peng, Mentor

2:15p.m. "*Nanomechanical Properties of the Polybutadiene in 3D Printed ABS"*
Kelly Ruffenach,[1] Materials Science & Engineering, Rutgers University
Catherine Brinson, Supervising Faculty; David Collinson and Matthew Eaton, Mentors

2:30 p.m. "*Polymer Doping: Not Illegal"*
Michael Allen,[1] Materials Science & Engineering, University of Utah
Kenneth Shull, Supervising Faculty; David Delgado and Kazi Sadman, Mentors

2:45 p.m. BREAK

3:00 p.m. "*Optimizing Protocol for Investigating Metal Soap Protrusions at the Microscale in Georgia O'Keeffe Paintings"*
AnneClaire Wageman, Chemistry, University of Texas at Austin
Marc Walton, Supervising Faculty; Dr. Johanna Salvant, Mentor

3:15 p.m. "*Studying the Composition of Daumier Bronzes Using Handheld-XRF Techniques"*
Seth Young, Chemical Engineering, Oklahoma State University
Marc Walton, Supervising Faculty; Emeline Pouyet, Mentor

3:30 p.m. "*Structural Characterization of TruC"*
Deanna Badong,[7] Biochemistry, Mills College
Alfonso Mondragón and Monica Olvera de la Cruz, Supervising Faculty; Clarence Chan and Aykut Erbas, Mentors

3:45 p.m. "*Computational Design and Optimization of Helix Networks with Pre-Strained Bi-Elastomer Strips"*
Raudel Avila,[1] Mechanical Engineering, The University of Texas at El Paso
Yonggangg Huang, Supervising Faculty; Yeguang Xue, Mentor

4:00 p.m. Certificate presentation

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