



NU-MRSEC Research Experience for Undergraduates

Closing Symposium

Tuesday, August 14 and Wednesday, August 15, 2018

Abbott Auditorium, Pancoe Hall



TUESDAY, August 14, 2018

- 12: 55 p.m. Opening Remarks, Kathleen Stair, REU Program Director
- 1:00 p.m. *“The Tunability of Hybrid Supramolecular and Covalent Polymer Hydrogels”*
Cynthia Perez, Biomedical Engineering, University of Texas at San Antonio
Prof. Sam Stupp, Supervising Faculty; Dr. Liam Palmer & Thomas Cotey, Mentors
- 1:15 p.m. *“A House Divided? Salt Identity Effects on Laponite Gel Structures”*
Gabriella Diaz,¹ Chemical Engineering, Texas A&M University, Kingsville
Prof. Kenneth Shull, Supervising Faculty; David Delgado, Mentor
- 1:30 p.m. *“Investigating YBaMn₂O_{5+δ} for Applications in Two-step Thermochemical Fuel Production”*
Kenneth Crossley, Physics, Colorado College
Prof. Sossina Haile, Supervising Faculty; Xin Qian & Dr. Emanuela Mastronardo, Mentors
- 1:45 p.m. *“Determining the Interface Conductivity of Nb-doped SrTiO₃ (Nb-STO) with Various Electrodes,”*
Gillian Hagen, Physics, Mount Holyoke College
Prof. Sossina Haile, Supervising Faculty, Dr. Daehee Lee & Ruiyun Huang, Mentors
- 2:00 p.m. *“Exploring Group 6 Hexacyanometallates for Applications in Quantum Computing,”*
Orion Forowycz, Integrated Sciences Program, Northwestern University
Prof. Danna Freedman, Supervising Faculty; Tyler Pearson & Daniel Laurenza, Mentors
- 2:15 p.m. *“Simultaneous Polymer Synthesis and Self-assembly for Nanopatterning,”*
Taija Stoner-Harris, Chemistry, Southern University of Baton Rouge
Prof. Mizhou Wang, Supervising Faculty; Zhe Qiang, Mentor
- 2:30 p.m. BREAK
- 2:45 p.m. *“Flexible Field Effect Transistors via Polymer Doping in Metal Oxide Matrix,”*
Andy Cheung, Chemistry, Hong Kong University of Science and Technology
Prof. Tobin Marks, Supervising Faculty; Wei Huang, Mentor
- 3:00 p.m. *“Comparing Large-scale Shear Mixed Graphene to Industry Standards for Electronic Ink Applications,”*
Justin Qian, Materials Science and Engineering, University of Pennsylvania
Prof. Mark Hersam, Supervising Faculty; Julia Downing and Dr. Ted Seo, Mentors
- 3:15p.m. *“Optimizing Annealing Conditions for Composite Thin Films,”*
Monica Inouye, Chemistry, California State University Fullerton
Prof. Mark Hersam, Supervising Faculty; Prof. Haihua Wang & Sonal Rangnekar, Mentors
- 3:30 p.m. *“Interfacial Contact Schemes in High-Performance MoS₂ - Based Transistors,”*
Vineetha Bheemarasetty, Materials Science and Engineering & Applied Physics, Carnegie Mellon University
Prof. Lincoln Lauhon, Supervising Faculty; Michael Moody & Jack Olding, mentors
- 3:45 p.m. *“Cryogenic Mechanical Properties of Polymers for Aerospace Applications,”*
Ryan Tris, Engineering, College of DuPage
Prof. Kenneth, Supervising Faculty; Matthew Eaton, Mentor

4:00 p.m. *“Cr Variation in W-Free Co-Based Superalloys,”*
Spencer Taylor, ¹ Materials Science and Engineering, University of North Texas
Prof. David Dunand, Supervising Faculty; Fernando Reyes, Mentor

WEDNESDAY, August 15, 2018

9:30 a.m. *“Photo-Triggered Polymerizations for Functional Bioactive Polymers Studies in ATRP and ROMP,”*
Steven Schara, ¹ Materials Science and Nanoengineering; Chemistry, Rice University
Prof. Nathan Gianneschi, Supervising Faculty; Hao Sun, Mentor

9:45 a.m. *“Epifluidic Mapping of Sweat Production,”*
Adriane Roberson, Biology, Southern University of Baton Rouge
Prof. John Rogers, Supervising Faculty; Tyler Ray, Mentors

10:00 a.m. *“A Dye-free Method of Visualizing Sweat in Wearable Devices”*
Steve Rebollo ³
Dr. Ying Jia (NUFAB) and Tyler Ray (Rogers), Mentors

10:15 a.m. *“Optimizing freezing and etching parameters for CryoSEM analysis of hydrogels,”*
Kavya Anjur ³
Dr. Reiner Bleher and Eric Roth (NUANCE BioCryo facilities), Mentors

10:30 a.m. *“Liquid-Graphene Interactions Using Environmental SEM,”*
Benjamin Kaiser, Physics, Bethel University
Prof. Vinayak Dravid, Supervising Faculty; Jingshan Du, Mentor

10:45 a.m. BREAK

11:00 a.m. *“Effects of Spark Plasma Sintering on the Microstructure of Thermoelectric Materials,”*
Jill Rix ³
Karl Haggland (NUANCE) and Xiaomi Zhang (Dravid), Mentors

11:15 a.m. *“Study of CuOx Thin Films Supported on α -TiO₂(110) Single Crystal Substrate for Heterogeneous Catalytic Applications”*
Manuel Osorio, Physics, DePaul University
Prof. Michael Bedzyk, Supervising Faculty; Anusheela Das, Mentor

11:30 a.m. *“Novel Metal-Insulator Transition in Molybdenum Oxynitride,”*
Nathan Szymanski, Pure Physics & Applied Match, University of Toledo
Prof. James Rondinelli, Supervising Faculty; Lauren Walters & Richard Saballos, Mentors

11:45 a.m. *“Tuning the Electronic Structure of Two-dimensional Materials through Molecular Assembly”*
Trevor Steiner, ¹ Materials Science and Engineering, University of Minnesota
Dr. Pierre Darancet, Supervising Faculty; Dr. Qunfei Zhou, Mentor

12:00 p.m. *“Interaction of Hydrogen Peroxide and Phosphates in Lignin Depolymerization,”*
Awa Porgo, ¹ Chemical Engineering, Stevens Institute of Technology
Prof. Justin Notestein, Supervising Faculty; Louisa Savereide-, Mentors

12:15 p.m. Photo, Certificate presentations & Lunch

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