

17th Annual Berea Undergraduate Research Symposium
October 20th, 2017

Sponsored by Division I



Special Thanks

Chemistry Program

Undergraduate Research and Creative Projects Program

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Alice Hooker & Dan Brewer

Hatfield, Levey and Capps Research Funds

Oral Session I – Room 106

Moderator – Dawn Anderson

Speakers indicated by bold typeface

- 2:30 PM** **Chi Peng**, “Biology of the Cercaria of *Leucercuthrus micropteri* (Trematoda: Azygiidae) Recovered from the Snail, *Pleurocera semicarin*”, Berea College; Mentor – Ron Rosen
- 2:50 PM** **Jazmin Escamilla**, “Hepatitis C virus entry inhibitor Aryloxazole modulates Autophagy”, Liver Disease Branch, NIDDK - NIH; Mentor – Jake Liang & Zongyi Hu
- 3:10 PM** **Hannah Elliot**, Muntathar Alshimary, Rebecca Klem, Jeremy Wilde, “Factors Affecting the Diversity of Stream Salamanders in Two Watershed Systems in Central Kentucky”, Berea College; Mentor – Roy Scudder-Davis
- 3:30 PM** **Claire Thelen**, “Immunoglobulin Y Levels in Spectacled and Steller’s Eider Sea Ducks as Indicators of Disease and Population Decline”, Alaska Sealife Center; Mentor – Katrina Counihan
- 3:50 PM Refreshment Break
- 4:00 PM** **Emma Reasoner**, “Pinniped Husbandry, Training, and Conservation at the Indianapolis Zoo”, Indianapolis Zoo; Mentor – Ron Rosen
- 4:20 PM** **Khawla Nasser Al Deen**, “Mashrou3 Insan (the Human Project): A Participatory Action Research Project on Displaced Youth's Mental Health and Well-Being”, Lebanese American University in Beirut and NAHNOO Organization; Mentor – Samar Zebian
- 4:40 PM** **Sunaina Sherchan**, “Antioxidant Treatment for Closed Globe Ocular Blast Trauma”, Vanderbilt Eye Institute; Mentor – Tonia Rex
- 5:00 PM** **Talha Rehman**, “Designing Computer Based Interface Between X-Ray Generator, and Stages For Coded Aperture Coherent Scatter Spectral Imaging (CACSSI)”, Duke University Hospital; Mentor – Anuj J. Kapadia

Oral Session II – Room 101

Moderator – Mary Robert Garrett

Speakers indicated by bold typeface

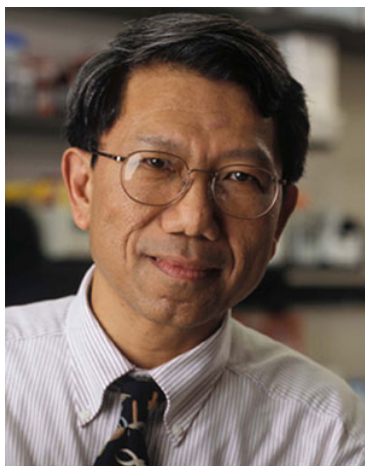
- 2:30 PM** **Seth Reasoner**, “Characterization of Host-Pathogen Interactions during Early Stage Chikungunya Virus Infection”, Vanderbilt University Medical Center; Mentors – Manuel Ascano, Jr.
- 2:50 PM** **Issac Domenech**, “Identification of Selective DDR1 Kinase Inhibitors Using Structure Activity Relationship”, Vanderbilt University Medical Center; Mentors – Ambra Pozzi & Corina Borza
- 3:10 PM** **Marco Santos**, “Investigating a Role for LOXL2 In TGF-1 Mediated Tubular Epithelial Mesenchymal Transition In Kidney Fibrosis”, Vanderbilt University Medical Center; Mentors – Rafi Mohamed, Alberto J. Lopez-Jimenez, Roberto Vanacore
- 3:30 PM** **Logan Paisley**, “A Summer at Summit: Applied skills in the world of Civil Engineering”, Summit Engineering; Mentor – Derek Motsch
- 3:50 PM Refreshment Break
- 4:00 PM** **Annie He, Samantha Sise, Alicia Crocker, & Bianca Godden**, “A Study of George White through Flight and Light”, Berea College; Mentor – Broughton Anderson & Matt Jadud
- 4:20 PM** **Bhavesh Ramkorun**, “Imaging of the Spinal Cord in Pediatric Patients”, Vanderbilt University Medical Center; Mentor – Seth Smith
- 4:40 PM** **Hannah Carter**, “Influence of reclaimed surface mine landscape on bees and plant-pollinator networks in southeastern Kentucky”, Eastern Kentucky University; Mentor – Valerie Peters
- 5:00 PM** ~~(REMOVED due to illness) Emma Batson & Gracie Casciola~~, “Appalachian Nature Education Study”, Berea College; Mentor – Neil Mechem

Poster Session – Lobby

3:00 to 5:00 PM

- Poster 1** Favour Akabogu, “Triops Cancriformis: A Potential Non-mammalian Animal Model for Studying the Mechanisms of Kidney Ultrafiltration”, Aspirnaut Program, Vanderbilt University; Mentor – Kendra Oliver
- Poster 2** Amber Follin, “Identifying genetic modifiers in a Drosophila model of Inclusion Body Myopathy”, Johns Hopkins School of Medicine; Mentor – Kyla Britson & Thomas Lloyd
- Poster 3** James Bryson McCarthey, “The Impact of Lysine Acetylation On Glyoxalase Ii Activity”, Vanderbilt University; Mentor – Jim Galligan
- Poster 4** Marah Zeidan, “Improving Long Term Outcomes in Retinoblastoma survivors”, Vanderbilt University Medical Center; Mentor – Debra Friedman
- Poster 5** Allison Harper, “Measurement of Influenza Severity in Tennessee Hospitalized Patients, 2016-2017”, Vanderbilt University Medical Center; Mentor – H. Keipp Talbot
- Poster 6** Matalynn Shealy, “A Gastroparesis Study on the Reinstitution of Oral Nutrition from J-tube Placements”, Foundation for Surgical Innovation and Education in Portland, Oregon; Mentor – Christy Dunst
- Poster 7** Sydney Short, “Hybrid ECMO Using Double Lumen Cannula Ensures Adequate Heart/Brain Oxygen Supply”, Berea College; Mentor – Sarah Blank
- Poster 8** Sara Garner, Tomas Flores, & Shay Steele, “Measurement of Chemical Shift Tensors and J-Coupling in Sodium/Lead Mixed Pyrophosphate Glasses”, Berea College; Mentor – Jay Baltisberger
- Poster 9** Sarah Tabor & Michael James, “Synthesizing Cleavable Acetal Antibody Drug Conjugates”, Berea College; Mentor – Elizabeth Thomas
- Poster 10** Isaac Mendoza & Luis Guzman Salazar, “Synthesis of Cleavable Acetal Antibody Drug Conjugate” Berea College; Mentor – Elizabeth Thomas
- Poster 11** Kateryna Nabukhotna, “Integrin β -1 Promotes KRAS-Mutated Lung Cancer Viability via FAK Activation”, Vanderbilt University Medical Center; Mentor – Scott Zent & Roy Zent
- Poster 12** Clara Reasoner, “GC-MS Analysis of Volatile Organic Compounds in Metastatic and Non-Metastatic Breast Cancer Cells”, Integrated Nanosystems Development Institute, Indiana University-Purdue University Indianapolis; Mentor – Mangilal Agarwal
- Poster 13** Luis Gonzalez Anguier, “Selective C–O bond reductions in carbohydrate derivatives using boron based reagents”, University of North Carolina at Chapel Hill; Mentor – Michel Gagné
- Poster 14** Amber Earlywine, “Targeting Proteolytic Activity Using Protease Inhibitors as Natural Therapeutics for Human Metapneumovirus (HMPV)”, University of Kentucky College of Medicine; Mentor – Rebecca Dutch
- Poster 15** Mario Chavarria & Cheyenne Haynes, “N-Heterocyclic Carbene Complexes”, Berea College; Mentor – Anes Kovacevic
- Poster 16** Beau Schweitzer, “Synthesis of Poly(4-hydroxystyrene) by Living Anionic Polymerization for Block Copolymer Lithography”, University of Wisconsin-Madison; Mentor – Koei Azuma & Padma Gopalan
- Poster 17** Aubree Zimmer, “Determination of actinomycin Y1 aryl amine reactivity in the production of Y5”, University of Kentucky College of Pharmacy; Mentor – Steven Van Lanen
- Poster 18** Dusty Cole, Vincent Davis, & Michael Moorer, “Design and Implementation of A Web-Based Simulation”, Berea College; Mentors – Martin Veillette
- Poster 19** Lakshiya Indreswaran, “Optimal Strategy for Partisan Combinatorial Games: The case of a Little Bit of Aggression”, Berea College; Mentor – Mario Nakazawa
- Poster 20** Miguel Valdes, “The POGIL Approach Used in Non-STEM Disciplines”, Berea College; Mentor – Megan Hoffman

- Poster 21** Alexandra Yuhas, Aric Parker, Gyanu Karki, & Samriddha KC, “Combinatorial Game Theory: A Game of Aggression”, Berea College; Mentor – Kristen Barnard & Beth Kelly
- Poster 22** Anna Joines, “Marginal fracture of amalgam restorations and amalgam’s resistance to low frequency biaxial fatigue”, University of Kentucky; Mentor – Richard Mitchell
- Poster 23** Lauren Heller, “Advancing a stem cell-based therapy for epidermolysis bullosa simplex through the utilization of the CRISPR/Cas9 system to knockout the mutant K14 gene”, Gates Center for Regenerative Medicine in Denver, Colorado; Mentor – Sean McGrath, Bilousova Lab
- Poster 24** Daniela Olivera Velarde, “Data analysis of JPARC run to test Current-Mode Detector for Use in NOPTREX Time Reversal Experiment”, University of Kentucky; Mentor – Troy Messina (Berea) & Christopher Crawford (UK)
- Poster 25** Dustin Watts, “Distinguishing Important Differences between the Sample Forms of $\text{LiGaCr}_4\text{O}_8$ ”, University of Florida; Mentor – Yasu Takano
- Poster 26** Kemo Jammeh & Mo Thi, “Variable Star Astronomy: Observing the Pattern of Change in Select Variable Stars”, Berea College; Mentor – Tracy Hodge
- Poster 27** Dzhoana Ivanova, “Modeling the mid Infrared emission from NGC 595”, Berea College; Mentor – Tracy Hodge
- Poster 28** Alicia Bedolla, Evelyne Rivera, Joey Barger, & Jasmine Roman, “Betta fish (*Betta splendens*) spontaneously use the combination of numerosity and surface area during discrimination learning”, Berea College; Mentor – Sarah Jones
- Poster 29** Jennifer Bentz, Jessica Cox, Bethany Howard, & Aldrin Vinton, “Psychology and Social Class: Examining Our History, Beliefs, and Outcomes”, Berea College; Mentor – Wendy Williams
- Poster 30** Constantine Botimer, Chance Davis, Jedidiah Radosevich, & Chris True, “Biomass Stove Design Project: Automated Fuel Feeder System”, Berea College; Mentor – Mark Mahoney
- Poster 31** Sara Ullom, Cherokee Griffiths, Rebecca O’Connor, “Analyzing Trade Books and Other Print Media for Classroom Use”, Berea College; Mentor – Maggie Robillard



Plenary Talk – Room 106 at 5:25 PM

Dr. Rocky Tuan
University of Pittsburgh
School of Medicine
Pittsburgh PA

“Application of 3D Microtissue Chip Technology to Study Composite Skeletal Tissue Physiology: *Microgravity-Induced Pathologies and Drug Screening*”

Dr. Rocky S. Tuan is the Director of the Cellular and Molecular Engineering Lab, located in the Department of Orthopaedic Surgery, within the School of Medicine, here at the University of Pittsburgh.

Rocky is also a Distinguished Professor and the Executive Vice Chairman for Orthopaedic Research, and serves as the Arthur J. Rooney, Sr. Chair Professor in Sports Medicine, within the Department of Orthopaedic Surgery. He also holds secondary appointments as a Professor within the Department of Bioengineering and Department of Mechanical and Materials Science.

Rocky was a 1972 graduate of Berea College and currently serves as a member of our Board of Trustees.