The Hal Marcus College of Science and Engineering (HMCSE) celebrates student-centered research by our faculty and research staff. The 2017 Summer Undergraduate Research Program (SURP) is the third year in which we have invested in an intensive undergraduate research experience requiring selected students to devote 250 or more hours to a research project under close supervision of a faculty mentor.

Additionally, HMCSE faculty mentor undergraduate and graduate students over the summer and throughout the year in other programs, from course-based research to graduate thesis projects. Thank you for joining us for today’s celebration of all HMCSE summer research efforts by our faculty, staff, and students.

**AGENDA**

10:00     Poster Session

*Poster presentations are listed by department & floor*

12:00     Lunch, 1st Floor

**FINANCIAL SUPPORT PROVIDED BY:**

- AppRiver
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3rd Annual
SUMMER RESEARCH
SYMPOSIUM
2017
August 11

Hal Marcus
College of Science and Engineering
UNIVERSITY of WEST FLORIDA
SURP
SUMMER UNDERGRADUATE RESEARCH PROGRAM
Investigating Cell Death Phenomena in Drosophila
Zachary Callahan, Wadey Abdelqader, Kendra Hammock, and Dr. Hui-Min Chung

Characterization of cytotoxicity and localization of Fluorescent Polycyclic Azaborine Chromophores
Niccole Auld, Dr. Alan Schrock, Dr. Michael Huggins, Dr. Carl Saint-Louis, and Dr. Peter Cavnar

Neutrophil Apoptosis Studies with Atypical Antipsychotics using JC-1 Flow-Based Assays
Bayla Bessemer, Courtney Swain, and Dr. Peter Cavnar

The Role of Hsp90 in Retinal Regeneration
Alexander Kuss and Dr. Scott Taylor

Mechanisms that Regulate Development of Retinal Neurons in Marine Pinfish, Lagodon rhomboïdes
Patience Moseley and Dr. Scott Taylor

Modulating Inflammasome Activity by Using FcyRIIa
Katherine Quintin, Michelle Colbert, Katherine Cascino, Dr. Michael Chattergoon, and Dr. Andrea Cox

Relatedness of Neuston in the Gulf of Mexico
Jennifer Gibson and Dr. Alexis Janosik

Microplastics Presence in Local Crabs and Waters
Sara Ousley and Dr. Alexis Janosik

Microplastics in the Plankton
Tristan Garza and Dr. Alexis Janosik

Assessing Gopher Tortoise Use and Potential as Receiving Site at Naval Live Oaks
Alexandrea Fox, Daniel Morris and Dr. Philip Darby

c-Abl and PARIS (ZNF746) as α-synuclein Targets in Dopaminergic Neurodegeneration: Validation Strategies Using Genetic and Pre-clinical Animal Models of Parkinson’s Disease (PD)
Saurav Brahmachari, Preston Ge, Stephan Quintin, Esther Kim, Rosa Shi, Senthilkumar Karuppagounder, Han Seok Ko, Valina Dawson, and Dr. Ted Dawson

Using Phage as a Biomarker Identification tool for Early Alzheimer’s Disease Detection
Olivia Brock, Benjamin Medeiros, and Dr. Rodney Guttmann

The Influence of a Major Flood Event on Bottlenose Dolphins (Tursiops truncates)
Tori Stone and Dr. Christina Toms
CHEMISTRY

Analysis of DDT and its Metabolites in Polluted Sediments
Jeffery Wright, Jr., Michael Hopko, Frazer Mayson, Dr. Pamela P. Vaughan, and Dr. Johan Liebens.

Synthesis and Biological Activity of Novel 1,3-Oxazole Sulfonamides
Esam Almanasrah and Dr. Korry Barnes

Succinate Polyester Polyol Copolymers and Blends: Synthesis, Compatibility, Crystallization Kinetics, and Crystal Morphologies
Jacqueline Blue, Clay Finley, Heather Hamilton, Thomas Hunt, Marshal Stitt and Dr. Alan K. Schrock

Succinate Polyester Block Copolymers: Synthesis and Morphology Characterization
Hannah Booher, Thomas Hunt, Marshall Stitt, and Dr. Alan K. Schrock

The Synthesis and Spectroscopic Analysis of Tunable Highly Fluorescent Polycyclic Azaborine Chromophores
Breanna Brown, Caleb McClinton, Julie Wilson, Lacey Magill, Renee Shavnore, Dr. Carl Saint-Louis, Dr. Alan K. Schrock, and Dr. Michael Huggins

The Synthesis and Characterization of Highly Fluorescent Polycyclic Aromatic Hydrocarbons
Ashton Taylor, Haleigh Castonguay, Breanna Brown, Caleb McClinton, Dr. Carl Saint-Louis, Dr. Alan K. Schrock, and Dr. Michael Huggins

Metal Organic Framework Cu9cl2(cap)6 as a Tunable Molecular Magnet
William Farmer, Sam Skinner, and Dr. Leo ter Haar
Crystal Structure of 1,10-Phenanthroline Trifluoromethyl Copper(I)
Kassandra Oldham, Wendy Teuchtler, Jade Jacobs, Niccole Auld, Kaleigh Haga, Brett Bookheimer, and Dr. Timothy Royappa

Progress Towards the Synthesis of 1,10-Phenanthroline Trifluoromethyl Copper(I)
Matthew Leighton, Benjamin Friedman, William Farmer, Elisey Shcherbina, and Dr. Timothy Royappa

High-Yielding Synthesis of Copper(I) and Gold(I) Thiolates
Chau Tran, Mohsan Khan, and Dr. Timothy Royappa

A Facile New Route to Ligandless Copper(I) Carboxylates
Joshua Sockman, Anthony Noll, Mackenzie Kidd, Sherry Sandri, John Ducilon, Amy Ishver, and Dr. Timothy Royappa

Synthesis of a Hydrolytic Enzyme Mimic
Grace Tegenkamp, Lacey Carroll, and Dr. Ajay Lajmi

Development of New Synthetic Methodologies Involving Iodine Mediated One-pot Cyclization/Alkylation Sequence and Electrophilic Diazocyclization
Hailee Hawkins, Katherine Whalen, Cory Kornman, and Dr. Tanay Kesharwani

Synthesis of Dihaloisoquinolines Via Iodine Mediated One-pot Cyclization/Chlorination Sequence and Electrophilic Nitrocyclization
Christopher Cunningham, Cory Kornman, and Dr. Tanay Kesharwani

Synthesis of Biologically Useful Azaindole Derivatives Using Electrophilic Cyclization
Aimee Phillips, Kajal Naran, and Dr. Tanay Kesharwani

Unprecedented Cu Catalyzed Green Electrophilic Chlorocyclization Using Table Salt
Christopher Walter, Natalie Fallows, and Dr. Tanay Kesharwani

Synthesis of Oxygen and Sulfur Containing Heterocycles via Electrophilic Chlorocyclization
Sohail Mirza, Soha Khan, Alex Tran, and Dr. Tanay Kesharwani

Sample Preparation Methods for Surface-Assisted Laser Desorption/Ionization Mass Spectrometry of Biomolecules Using Transition Metal Oxide Nanoparticles
Alyssa McCoy, Julia Schwieg, Lauren Barnes, Bryan Zanca, Joseph Yount, Michelle Lapak, Dr. Abayomi Olaitan, and Dr. Karen S. Molek

Surface-assisted Laser Desorption/Ionization Mass Spectrometry of Carbohydrates and Nucleic Acid Using Metal Oxide Nanoparticles
Savanna Ward, Lauren Barnes, Julia Schwieg, Alyssa McCoy, Bryan Zanca, Joseph Yount, Michelle Lapak, Jesse Taylor, Dr. Abayomi Olaitan, and Dr. Karen S. Molek
Big Data and Interdisciplinary Geosciences Research: Examining the Rainfall Influences of the North Atlantic Subtropical High
Jared White, Allen Ward, Zackary Bruley, Dr. Dallas Snider, Dr. Anthony Okafor and Dr. Jason Ortegren

Leveraging Database Technologies to Analyze the Correlation Between Atmospheric Pressures in the North Atlantic Ocean and Rainfall Totals in the Eastern United States
Allen Ward, Dr. Dallas Snider, and Dr. Jason Ortegren

Creating a Classroom Programming Lab Environment Using Android and Blocky
Don Kerrigan and Dr. Brian Eddy

Understanding the Role of Class Information in Method Level Feature Location
Jonathan Jurczak and Dr. Brian Eddy

Generating Flow Maps for Efficient Water Simulation in OpenGL
Hunter Werenskjold and Dr. Brian Eddy

Developing a Testbed of Microservices for Research and Education
Bhavyansh Mishra, Valeria Gamboa, and Dr. Brian Eddy

A Case-based Reasoning Approach to Activity Recognition in Smart Home Environments
Ruben Ramirez and Dr. Thomas Reichherzer

A Case Study on the Impact of Cloud Service Configurations in Building Secure, Scalable, and Efficient IoT Networks
Ruben Ramirez, Dr. Thomas Reichherzer, Dr. Norman Wilde, Dr. Amitabh Mishra, and Dr. Ezhil Kalaimannan

Hacking Wearable Devices to Track Individuals & Their Fitness Activities
Nathaniel Reyes and Dr. Thomas Reichherzer

Growth Kinetics of Surface Modified Zinc Oxide Quantum Dots at Room and Cold Temperatures Using LiOH and KOH
Dillion Francis, De’Zhanae McCall-Butler, Jessica Davis-Gunn, Aaron Mena, Brandon Colon, Dr. Pamela P. Vaughan, Dr. Alan K. Schrock, Dr. Peter Cavnar, and Dr. Karen S. Molek

Growth Kinetics of Surface Modified Zinc Oxide Quantum Dots at Room and Cold Temperatures Using NaOH and CsOH
Jessica Davis-Gunn, De’Zhanae McCall-Butler, Dillion Francis, Aaron Mena, Brandon Colon, Dr. Pamela P. Vaughan, Dr. Alan K. Schrock, Dr. Peter Cavnar, and Dr. Karen S. Molek

Biological Toxicity Testing of Photochemically Degraded Oil/Water Accommodated Fractions
Savannah Bifulco, Phillip Bann, Lauryn Reid, Cheyenne Brannon, Dr. Wade H. Jeffrey, and Dr. Pamela P. Vaughan
EARTH AND ENVIRONMENTAL SCIENCES

Jared White and Dr. Jason Ortegren

Changes in Annual and Seasonal Spatioemporal Variability of Tornado Frequency in the Southeastern U.S.A., 1976-2015
Tyler Mitchell and Dr. Jason Ortegren

Climatologies of Southeastern U.S. Tropical and Non-Tropical Tornado Outbreaks Using Different ‘Outbreak’ Definitions, 1976-2016
Rebecca Foglietti and Dr. Jason Ortegren

Persistent Multi-Year Oscillation of April-May Rainfall in Pensacola and the Gulf Coast Region, 1960-2016: Spatiotemporal Characteristics and Possible Causes
Yasmin Hernandez and Dr. Jason Ortegren

Statistical and Spatial Analysis of Age and Health Regarding Saguaro Cactus in an Urban Environment
Ridley Lancaster, Dr. Derek Morgan, and Dr. Zhiyong Hu

Living Shorelines: An Assessment of Geomorphic Change and Water Quality
Amber Huggins, Dr. Phillip Schmutz, and Dr. Matthew Schwartz

The Bacterial and Nutrient Analysis of the Effects of Storm Events on Bayou Chico’s Watershed
Sierra Hobbs, Son Truong, Dr. Jane Caffrey, and Dr. Matthew Schwartz

DDT Analysis of Wetland Sediments in Upper Escambia Bay
Michael Hopko, Jeffery Wright, Dr. Johan Liebens, and Dr. Pamela P. Vaughan

The Utility of Using a Near-Infrared (NIR) Camera to Measure Beach Surface Moisture
Shannon Nelson and Dr. Phillip Schmutz
ELECTRICAL AND COMPUTER ENGINEERING

Maneuverability evaluation of an Attendant Controlled Wheelchair with Desired Dynamics
Jonathan Herrero and Dr. Oscar Chuy

Utilizing Arm Configuration to Stabilize an Assistive Motorized Wheelchair
Adam Mooers and Dr. Oscar Chuy

Transient Stability Assessment using Big Data and Data Mining Techniques
Zachary Pannell, Dr. Bhuvaneswari Ramachandran, and Dr. Dallas Snider

Short-Term Load Forecasting Including Uncertainties Using Stochastic Optimization
Tyler Stevens, Eric Collins, Dr. Achraf Cohen, and Dr. Bhuvaneswari Ramachandran

MECHANICAL ENGINEERING

Using Reinforcement Learning for Balancing an Inverted Pendulum
Renan Barbosa and Dr. Michael Reynolds

Towards Reduction of Wind Turbine Noise by Using Biomimetic Blade Designs
Murilo Basso and Dr. Cheng Zhang

Improving Solar Car Shell Design by using Computational Fluid Dynamics Modeling
Marcus Jackson and Dr. Cheng Zhang

Detached Eddy Simulation of the Flow around Model Cars
Michael Taylor and Dr. Cheng Zhang

PHYSICS

Using Symmetries to Generate Building Blocks for Simulations of Quantum Magnetism
Amy Platt, David Smith, and Dr. Christopher Varney

Investigating High Speed Deflagrations through Rock Rubble Resulting from Methane Gas Explosions in Confined Spaces
Davy Pardonner, Brianne Treffner, Claire Strebinger, Dr. Jergen Brune, and Dr. Gregory Bogin