

**Undergraduate Platform Award Winners**  
**94<sup>th</sup> Annual Meeting of the South Carolina Academy of Science**  
**April 2, 2022**

**ORAL SESSION 1: FIELD BIOLOGY**

**First Place: MacKenzie Jenkins, Winthrop University**

STRUCTURE OF SALT MARSH PLANT COMMUNITIES: POSSIBLE IMPACTS OF INCREASING  
SALINITY DUE TO RISING SEA LEVEL

Mentor: Jennifer Schafer

**ORAL SESSION 2: CELLULAR AND MOLECULAR BIOLOGY**

**First Place: Danielle Prisdorf, USC School of Medicine**

A DEEPER UNDERSTANDING BETWEEN TRANSFORMING GROWTH FACTOR BETA AND ITS ROLE  
IN CARDIAC FIBROSIS AND MYXOMA

Mentor: Mohamad Azhar

**Second Place: Andrew Gregory, USC Aiken**

INDUCING CELL DEATH IN AN HIV-DEPENDENT EXPRESSION OF PRO-APOPTOTIC BAX USING A  
MANNER THROUGH BAX EXPRESSION

Mentor: Bill Jackson

**ORAL SESSION 3: BIOCHEMISTRY**

**First Place: Tyneisha Bradley, USC Aiken**

IDENTIFYING THE LOCATION OF ORF1 AND TPASE PROTEINS IN ARABIDOPSIS

Mentor: C. Nathan Hancock

**Second Place: David Weidner, USC Aiken**

UNCOVERING THE REGULATORY REGIONS IN MINIATURE INVERTED REPEAT TRANSPOSABLE  
ELEMENTS

Mentor: C. Nathan Hancock

**ORAL SESSION 4: PHYSICS AND ASTRONOMY**

**First Place: Zachary Smith, College of Charleston**

GENERAL RELATIVISTIC MAGNETO-HYDRODYNAMIC SIMULATIONS OF ULTRA-LUMINOUS X-  
RAY OBJECTS

Mentor: Chris Fragile

**Second Place:** Joshua Jones, The Citadel  
THE BEHAVIOR AT POLYMER SHELL CASINGS COMPARED TO BRASS CASINGS WHEN EXPOSED  
TO HEAT  
Mentor: Kaelynn Leake

**ORAL SESSION 5: CHEMISTRY**

**First Place:** Faith Rosario and Sarah Knisely, Bob Jones University  
3,6-DIMETHOXYXANTHONE FROM 2,2',4,4'- TETRAHYDROXY-BENZOPHENONE VIA  
MICROWAVE-ASSISTED ANNULATION  
Mentor: Robert Lee

**Second Place:** Alexander Stensland, The Citadel  
CHARACTERIZING 3D ELECTROCHROMIC LBL SELF-ASSEMBLED POLYMER FILMS  
Mentor: Kaelyn Leake

**ORAL SESSION 6: ENGINEERING AND COMPUTER SCIENCE I**

**First Place:** Luke Eafano, The Citadel  
LAYER BY LAYER DIPPING TO COUNTERACT WING ICING ON PLANES  
Mentor: Kaelyn Leake

**Second Place:** Malik Fordham, USC Aiken  
CENTER OF GRAVITY DESIGN PACKAGING TEST EQUIPMENT  
Mentor: Bethany Fralick

**ORAL SESSION 7: ENGINEERING AND COMPUTER SCIENCE II**

**First Place:** Harrison Olsewski, USC Aiken  
SAVANNAH RIVER NUCLEAR SOLUTIONS HYDROSTATIC TESTING HAZARDS ANALYSIS  
Mentor: Bethany Fralick

**Second Place:** John Pretorius, USC Aiken  
THERMAL DESIGN OF RADIOACTIVE MATERIAL PACKAGES  
Mentor: Dr. Fralick Giles

**POSTER SESSION: FIELD BIOLOGY**

**First Place:** Robert Jackson, Francis Marion University  
JUVENILE STRIPED BASS (MORONE SAXATILIS) MOVEMENT IN THE GREAT PEE DEE RIVER  
Mentor: Jason Doll

**Second Place:** Madison Gentilo, Coastal Carolina University  
ENVIRONMENTAL BACTERIOPHAGE DETECTION ON COASTAL CAROLINA UNIVERSITY CAMPUS  
Mentor: Paul Richardson

**POSTER SESSION: CELLULAR BIOLOGY**

**First Place:** Jeremy Money, USC Columbia  
EXPLORING THE EFFECTS OF REDUCED FIG4 EXPRESSION ON AXONAL TRANSPORT AND  
MITOCHONDRIAL FUNCTION  
Mentor: Jeff Twiss

**Second Place:** Jourdan Gruber, USC Aiken  
THE EFFECTS OF TBX5A ON THE CRANIOFACIAL DEVELOPMENT OF ZEBRAFISH  
Mentor: April DeLaurier

**POSTER SESSION: BIOCHEMISTRY**

**First Place:** Shoba Swaminathan, USC School of Medicine  
INVESTIGATING PROTEIN MODIFICATION BY ITACONATE  
Mentor: Norma Frizzell

**Second Place:** Megan Collins, USC Aiken  
STUDYING THE TRANSPOSITION MECHANISM OF THE MJING MINIATURE INVERTED REPEAT  
TRANSPOSABLE ELEMENT IN YEAST  
Mentor: Nathan Hancock

**POSTER SESSION: PHYSICS**

**First Place:** David Dorf, College of Charleston  
UNIVERSALITY IN NEAR-CRITICAL O<sub>2</sub>  
Mentor: Ana Oprisan

**Second Place:** Junior Langa, Clemson University  
ENGINEERING NIOBIUM-GERMANIUM INTERFACES FOR VOLTAGE-TUNABLE QUANTUM  
DEVICES  
Mentor: Kasra Sardashti

## **POSTER SESSION: MOLECULAR BIOLOGY**

**First Place:** MacKenzie Thackston, Charleston Southern University  
ALU DIMORPHISM AT THE PV92 LOCUS OF CHROMOSOME 16 IS IN EQUILIBRIUM FOR  
UNIVERSITY STUDENT POPULATION  
Mentor: James Brooks

**Second Place:** Zara Lacera, USC Aiken  
CHARACTERIZING THE GENES AFFECTING MPING TRANSPOSITION IN YEAST  
Mentor: C. Nathan Hancock

## **POSTER SESSION: COMPUTER SCIENCE**

**First Place:** Austin Hartley, USC Aiken  
SRNS ENVIRONMENTAL MONITORING  
Mentor: Marcus Mcghee

**Second Place:** Samuel Boyd, USC Aiken  
PROGRAMMABLE LOGIC CONTROLLER SYSTEM: ALTERNATIVE SETUP TESTING WITH  
CYBERSECURITY PENTESTING CAPACITY  
Mentor: Mackenize Morris

## **POSTER SESSION: EXERCISE AND SPORTS SCIENCE**

**First Place:** Elizabeth Allen and Kimberly Zorn, USC Aiken  
RELATIONSHIP BETWEEN ELECTROCARDIOGRAPHICALLY MEASURED HEART RATE AND  
CAFFEINE INTAKE  
Mentor: Christopher DeWitt

**Second Place:** Michaela Caughman, USC Aiken  
THE EFFECT OF GUIDED DIAPHRAGMATIC BREATH TRAINING ON SYMPTOMS ASSOCIATED  
WITH ANXIETY IN COLLEGE STUDENTS  
and  
Sarah Powell, USC Aiken  
THE EFFECT OF GUIDED DIAPHRAGMATIC BREATH TRAINING ON SYMPTOMS ASSOCIATED  
WITH DEPRESSION IN COLLEGE STUDENTS  
Mentor: Andrew Hatchett

**POSTER SESSION: ENGINEERING, MATH, AND METEOROLOGY**

**First Place:** Sasha Bronovitsky, Coastal Carolina University  
CONSOLIDATED CHAMBER DESIGN FOR OLFACTORY CONDITIONING ASSAYS WITH  
DROSOPHILA MELANOGASTER  
Mentor: Fang Ju Lin

**Second Place:** William McCloud, College of Charleston  
CHARACTERIZATION OF VOLCANIC AEROSOLS: USING AN AFM AND AN SEM TO IDENTIFY THE  
SURFACE MORPHOLOGY OF ASH  
Mentor: Michael Larsen

**2022 DWIGHT CAMPER OUTSTANDING UNDERGRADUATE RESEARCH AWARD**

Korinne Swanson, Coastal Carolina University  
Mentor: Paul Richardson