

ANDREW VINCENT IV

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Augusta, GA, USA 30904

EDUCATION

BS	Augusta University, Physics	Fall 2019 - May 2023
BS	Augusta University, Mathematics	Fall 2019 - May 2023

GPA: 4.0

RESEARCH EXPERIENCE

REU at University of Washington, Seattle, WA Summer 2022
Research Intern, Arthur Barnard

- Pioneered the fabrication of a cryogenic tip to be used for coulomb screening measurements in materials such as twisted bilayer graphene.
- Required use of tools and techniques such as mechanical exfoliation, O₂ plasma cleaning, optical microscopy, atomic force microscopy, scanning electron microscopy, electrochemical etching, transfer of 2D flakes under a microscope.
- Use of lathe and mill to machine copper parts for a dilution fridge.

Augusta University Physics Department, Augusta, GA Fall 2019 – present
Undergraduate Research, Theja De Silva

- We study the influence of time-dependent orbital Feshbach resonance on dynamical phase transition and superfluid phase transition in a two-component cold-fermions system.
- Our results will have an impact on understanding two-band superconductors such as MgB₂, iron-based superconductors, and heavy fermion superconductors.

UGA Skidaway Institute of Oceanography, Savannah, GA Summer 2020
Research Intern, Catherine Edwards

- Assistance in the piloting and upkeep of autonomous underwater vehicles (AUVs)
- Analysis of oceanic and operational data from AUVs to assist with the efficiency of data collection for underwater acoustic modeling

WORK EXPERIENCE

UGA Skidaway Institute of Oceanography, Savannah, GA August 2023 – present
Research Professional, Catherine Edwards lab

- Using shell scripting and MATLAB to improve processing and visualization of real-time Slocum glider, sail-drone, ADCP, and HF radar data

- AUV piloting, deployment, recovery, upkeep, and repairs
- Assistance with WERA Ocean Radar Systems

UGA Skidaway Institute of Oceanography, Savannah, GA December 2020 – July 2023

Student Assistant / ParaPro, Catherine Edwards lab

- Summer 2021: Developed method to use AUV data to estimate currents using a geostrophic model
- Using shell scripting and MATLAB to improve processing and visualization of real-time data
- AUV piloting, deployment, recovery, upkeep, and repairs
- Assistance with WERA Ocean Radar Systems

Augusta University, Augusta, GA

Student Teaching Assistant

Spring 2021, Fall 2022, Spring 2023

- Introductory Physics I labs, assisting students in Arduino-based projects

Physics tutor

Fall 2021

- Trigonometry and calculus based introductory physics

Mathematics tutor

Spring 2020

- Algebra, pre-calculus, calculus, and statistics

PUBLICATIONS

1. **Andrew Vincent**, Theja De Silva, “Two band atomic superfluidity in the presence of orbital Feshbach resonance,” arXiv:2312.00749 (Under review).

PRESENTATIONS

2. Laurel Anderson, Chadwick Evans, Jordan Fonseca, Jiaqi Cai, **Andrew Vincent**, Takashi Taniguchi, Kenji Watanabe, Xiaodong Xu, Arthur Barnard, “Sensing quasi-local Coulomb screening in moiré materials with planar scanning probes,” APS March Meeting, March 2023. (abstract: meetings.aps.org/Meeting/MAR23/Session/G44.2)
3. **Andrew Vincent**, Jordan Fonseca, Chadwick Evans, Arnab Manna, Arthur Barnard, “Fabrication of planar screening probes to study strongly correlated 2D materials such as twisted bi-layer graphene,” APS March Meeting, March 2023. (abstract: meetings.aps.org/Meeting/MAR23/Session/A46.3)
4. **Andrew Vincent**, Theja De Silva, “Superfluidity of two-component fermions at the vicinity of orbital Feshbach resonance,” APS March Meeting, March 2022. (abstract: meetings.aps.org/Meeting/MAR22/Session/A46.11)

5. **Andrew Vincent**, Theja De Silva, “Analytical Results for Two-Band Atomic Superfluid Systems as a Guidance for Superconducting Materials,” Phi Kappa Phi Student Research and Fine Arts Conference (Augusta University), March 2021

RESEARCH AND TRAVEL GRANTS

Society of Physics Students Travel Award , \$300	Spring 2023
Funding for 2023 APS March Meeting	
Future of Physics Days Travel Grant , \$495	Spring 2023
Funding for 2023 APS March Meeting	
Medical College of Georgia Student Research Program Voucher , \$1000	Spring 2022
Competitive funding for 2022 APS March Meeting	
CURS Travel Grant Augusta University , \$1000	Spring 2022
Joint funding for 2022 APS March Meeting	

HONORS AND AWARDS

Academic Achievement Award , Augusta University	Spring 2023
Outstanding Senior in Mathematics , Augusta University	Spring 2022
Goldwater Scholarship Nominee , <i>Augusta University Nominee</i>	Spring 2022
Georgia Power Foundation Scholarship	Spring 2021
Best Undergraduate Research in Theoretical Physics , Augusta University	Spring 2021
Scholarship for Nuclear Science	Spring 2020, Fall 2021
Zell Miller Scholarship	Fall 2019 – Spring 2023

ASSOCIATIONS

Society of Physics Students, AU chapter, *President*, spring 2022, fall 2022, spring 2023
Outstanding SPS Chapter Award 2021-22
POPUS Scholarship Mentor, fall 2022 – spring 2023
Augusta University Student Ambassador, Department of Mathematics, Department of Physics, fall 2021 – spring 2023
American Physical Society, 2021 – present

COMPUTER SKILLS

Proficient in: MATLAB, Mathematica, LaTeX, Linux shell scripting (bash)
Extended Experience with: R, Python, XML, Excel