Dr. Iris Kinzie Mowgood

Orange, CA USA | www.irismowgood.com

Assistant Professor of Physics | Computational Physics Researcher | Equity, Diversity, and Inclusion Advocate

Devoted physicist and educator with a Ph.D. in Computational and Data Sciences and M.S. in Physics, specializing in computational modeling, superconductivity, and quantum systems. Demonstrated expertise in managing a HSI STEM federal grant, writing scientific grants, and delivering high-impact inclusive teaching. A dedicated advocate for equity, diversity, and inclusion in STEM, with a proven track record of empowering underrepresented students through mentorship, research opportunities, and inclusive teaching practices.

Equity, Diversity, and Inclusion (EDI) Accomplishments

- **First Female Physics Professor:** As the first female physics professor at multiple institutions, I have championed inclusive excellence in STEM through intentional action.
- **Leadership in Minority-Serving Programs:** Serve as Program Director for the Valerosos y Curiosos HSI STEM Grant at Concordia University Irvine, overseeing a Department of Education-funded initiative to empower Hispanic and underrepresented students in STEM.
    - Developed and implemented seven key initiatives: the STEM Peer Mentoring Program, STEM Summer Bridge, STEM Faculty Professional Development, Student Research Mentorship Program, Supplemental Instruction, STEM Academic Coaching and STEM Emerging Scholars Program.
- **Mentorship and Advocacy:** Provided formal and informal mentorship to underrepresented students, particularly Latinx/Latin/Latina/Hispanic students, assisting with networking, research opportunities, and resources.
- **Inclusive Teaching Practices:** Designed syllabi, course materials and lessons to reflect diverse perspectives and tailored instruction to meet the needs of students from historically marginalized backgrounds.
- **Faculty Training:** Advocated for and led professional development workshops on multicultural best practices for STEM faculty.

Education

Ph.D., Computational and Data Sciences
Chapman University, 2023

- Dissertation: *"Computational Modeling of Superconductivity from the Set of Time-Dependent Ginzburg-Landau Equations for Advancements in Theory and Applications"*
- Published and presented research in high-ranking physics journals nationally and internationally.
- Graduate research assistant in the Advanced Physics Laboratory with extensive experience in grant writing and research.
- Graduate teaching professor within the physics department.

M.Sc., Physics
California State University, Fullerton, 2016

- Master Thesis: *Mathematical Superconductivity*
- Graduate teaching assistant for physics labs.

B.Sc., Physics Education
University of California, Santa Cruz, 2013

- Emphasis on science pedagogy for grades 6th–12th.
- CalTeach intern with experience teaching at local high schools.

Professional Experience

Assistant Professor of Physics & VyC HSI STEM Program Director
Concordia University Irvine, 2024–Present

- Oversaw a Department of Education-funded initiative to empower Hispanic and underrepresented students in STEM.
    - Developed and implemented seven key initiatives: the STEM Peer Mentoring Program, STEM Summer Bridge, STEM Faculty Professional Development, Student Research Mentorship Program, Supplemental Instruction, STEM Academic Coaching and STEM Emerging Scholars Program.
- Manage the grant budget, ensuring compliance with Department of Education regulations.
- Recruit, hire, and onboard student employees and staff to support program initiatives.
- Lead strategic outreach efforts to enhance internal and external engagement with the program.

Ph.D. Research Assistant
Advanced Physics Laboratory, Institute for Quantum Studies, 2018–2023

- Conducted advanced computational research in quantum systems using COMSOL Multiphysics.
- Analyzed complex scientific data and disseminated findings through publications and conference presentations.

Lecturer, Physics Department
Chapman University, 2016–2023

- Taught labs and lectures for life science students in calculus-based mechanics and electromagnetism courses.
- Mentored students in advanced scientific research techniques, college skills, and career success.
- Implemented inclusive teaching practices, such as flexible office hours, study groups, and tailored course design to meet diverse student needs.

Lecturer, Physics and Astronomy Department
Orange Coast College, 2016–2018

- Taught introductory and advanced physics and astronomy labs, from algebra to calculus-based courses.

- Developed experiential and project-based curricula to foster student engagement and learning.

Research Contributions

Publications

1. *"Phase-Slip Centers as Cooling Engines"*
   Optical Memory and Neural Networks, vol. 32, no. 3 (Dec. 2023)
2. *"High-Frequency Diode Effect in Superconducting Nb3Sn Microbridges"*
   Physical Review B, vol. 107, no. 5 (Feb. 2023)
3. *"Violation of Magnetic Flux Conservation by Superconducting Nanorings"*
   Superconductor Science and Technology, vol. 35, no. 4 (Feb. 2022)
4. *"Gravitational Wave Sensors Based on Superconducting Transducers"*
   Physical Review Research, vol. 3, no. 4 (Nov. 2021)

Conference Presentations and Attendance

- Hispanic Association of Colleges and Universities 14th Annual International Conference (2024)
- American Association of Hispanics in Higher Education Conference (2024)
- APS March Meeting (2023) – Presenter
- 8th International Workshop on Numerical Modelling of High Temperature Superconductors (2022) – Presenter
- COMSOL Conference (2019) – Presenter

Technical Skills

- **Programming Languages:** Python, R, MATLAB, HTML/CSS, C++/C, JavaScript.
- **Data Science Tools:** Finite Element Modeling, Statistical and Data Analysis, Data Visualization.
- **Software:** Adobe Suite, Microsoft Suite, COMSOL Multiphysics, MATLAB.
- **Skills:** Computational Physics Modeling, Instructional Design, Grant Management, STEM Program Development, Machine Learning, Time Series Analysis, 3D Printing (SLA/FDM), Community Building, Machinery, Early Childhood Development.

Professional Identifiers

- ORCID ID: 0000-0003-3514-5122