Ben Eller

University of Maryland, College Park
Chemical Physics Program

PERSONAL/CONTACT INFORMATION

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PUBLICATIONS

- "Can armchair nanotubes host organic color centers?" B. Eller, J. Fortner, J. Kłos, Y. Wang and C. W. Clark, J. Phys.: Condens. Matter **34** 464004 (2022)
- "Thermal stability of a quantum rotation sensor" E. Arabahmadi, D. Schumayer, M. Edwards, B. Eller, and D. A. W. Hutchinson, Phys. Rev. A **104**, 033323 (2021)
- "Producing flow in racetrack atom circuits by stirring" B. Eller, O. Oladehin, D. Fogarty, C. Heller, C. W. Clark, and M. Edwards, Phys. Rev. A **102**, 063324 (2020)
- "Superfluid transport dynamics in a capacitive atomtronic circuit" A. Li, S. Eckel, B. Eller, K. E. Warren, C. W. Clark, and M. Edwards, Phys. Rev. A **94**, 023626 (2016)

PRESENTATIONS

- Presented a contributed plenary symposium talk at the NT24 conference on low-dimensional materials, June 2024
- Presented contributed 10-min talks at APS (American Physical Society) March Meetings 2022, 2019, 2018 and 2017
- Presented a contributed 10-min talk at APS DAMOP, June 2018

EDUCATION

PhD Chemical Physics 2019-present
University of Maryland

Tentative thesis topic: Modeling Quantum Defect-Tailored Ultrashort Nanotubes. Co-advised by Charles W. Clark & YuHuang Wang.

M.S. Applied Physical Sciences 2017-2019
Georgia Southern University

Thesis topic: Modeling the production of quantized circulation in atomtronic circuits at zero and non-zero temperature. Advised by Mark Edwards.

B.S. Physics 2013-2017
Georgia Southern University

Undergraduate research: Bose-Einstein condensates and atomtronics. Advised by Mark Edwards.

RESEARCH EXPERIENCE

- Studied optical and electronic properties of theoretical models of chemically functionalized carbon nanotubes using density functional theory methods from Fall 2019 to the present
- Performed theoretical research on Bose-Einstein condensates and their potential for use as atomtronic devices using numerical solutions of the Gross-Pitaevskii equation from Fall 2015 through Spring 2019

TEACHING EXPERIENCE

- Taught an upper-division undergraduate quantum mechanics lecture as a substitute while working towards my M.S. in applied physical sciences
- Performed physics tutoring and TA duties every semester from Fall 2015 through Spring 2019

ACTIVITIES & OUTREACH

- Served on a development team for the Institute for Robust Quantum Simulation to develop quantum activity kits for educational outreach on quantum mechanics and qubits
- Organized speakers for the Joint Quantum Institute's Friday Quantum Seminar series in the Fall of 2023
- Volunteered for Cyber Defense Camp on the University of Maryland campus in the Summer of 2023
- Organized the Kamp Kwal-i-fire PhD qualifying exam preparation series in the Summer of 2020
- Served as president of the Georgia Southern chapter of Society of Physics Students (SPS) from Fall 2017 through Spring 2018
- Involved in numerous science outreach activities since joining SPS in Fall 2015 at local schools and STEM events