S. Reece Boston
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Education

Ph.D., Physics, University of North Carolina-Chapel Hill, ongoing

M.S., Physics, University of Georgia, 2015, GPA 3.88

B.S., Mathematics and Physics, Georgia College, 2010, Cum Laude, GPA 3.81

A.A., Mathematics, Georgia Perimeter College, 2007, GPA 3.33

Published Work

- Boston, S. Reece, Bart H. Dunlap, J. C. Clemens, and Charles R. Evans, "The Limits of Newtonian White Dwarf Asteroseismology." [In Draft]
  Role: developed theory for post-newtonian pulsations, created C++ code for high-precision numerical analysis of stellar pulsations in newtonian, post-newtonian physics.

- de Souza, Rafael, S. Reece Boston, Alain Coc, and Christian Iliadis, "Thermonuclear fusion rates for tritium+deuterium using Bayesian methods." Physical Review C, (2018).
  Role: early analysis with Bayesian MCMC in R with JAGS, rewrote legacy fortran code into C++ to calculate S-factor for use with JAGS library for hundred-fold increase in productivity.

- Boston, S. Reece, "Time Travel in Transformation Optics." Physical Review D, (2015).
  Role: Mathematical calculation of a metamaterial that mimics time-travel spacetimes from general relativity.

Research Experience

Research Assistant Fall 2016 - Present
Department of Physics and Astronomy, University of North Carolina - Chapel Hill
Research Advisor: Charles R. Evans
Topic: The numerical calculation of pulsation frequencies for white dwarf and other stellar objects in classical and general relativistic settings. Calculations performed in C++.

Languages

- English (native)
- Spanish (conversational)
- C++ (7+ years)
- R (9+ years)
- UNIX (7+ years)
- LaTeX(9+ years)

Teaching Experience

Research Mentor Summer 2020-Present
Department of Physics and Astronomy, University of North Carolina - Chapel Hill
Role: Acting mentor for REU/Senior Honor's Thesis in relativistic pulsation of neutron stars and white dwarfs.

Physics Instructor Summer 2019, Summer 2020
Department of Physics and Astronomy, University of North Carolina - Chapel Hill
Course: Physics for Life Sciences
Recorded many of the online lectures during COVID-19 response (Lec 7-10,14,26-27).

Research Mentor Fall 2018 - Summer 2019
Department of Physics and Astronomy, University of North Carolina - Chapel Hill
Role: Mentoring NCCMS high school student in guided research project on relativistic pulsation of neutron stars. Student won Regeneron STS 2019 Scholarship.

Teaching Assistant Fall 2016 - Ongoing
Department of Physics and Astronomy, University of North Carolina - Chapel Hill
Courses: Numerical Methods (LOI: python), Electronics Lab, Physics for Life Sciences

STEM Teacher Fall 2015 - Spring 2016
Mount Pisgah Christian School
Courses: AP Physics 1, High School Physics, Introductory Programming (LOI: C++)
Coach: FIRST Robotics Competition, FIRST Lego League

Teaching Assistant Fall 2010 - Spring 2015
Department of Physics and Astronomy, University of Georgia
Courses: Physics Labs, Scale-Up Physics for Engineers

Awards and Honors

Hamilton Award 2021, UNC
Monetary award given by the Physics and Astronomy department at UNC.

NC Space Grant 2020, UNC
Awarded through NASA for promising gradate student work related to NASA missions.

Outstanding Physics TA 2018, UNC
Awarded for performance as teaching assistance. Included monetary award.

Outstanding Physics Major 2010, GCSU
Presented to top graduating physics major.

Sarah Nelson Scholarship 2008-2009, GCSU
Presented to exceptional math majors.