S. Reece Boston
University of North Carolina
rboston@ad.unc.edu

Education

Ph.D., Physics University of North Carolina-Chapel Hill, 2022

M.S., Physics University of Georgia, 2015

B.S., Mathematics and Physics Georgia College, 2010

A.A., Mathematics Georgia Perimeter College, 2007

Published Work

- Boston, S. Reece, *Newtonian and Relativistic White Dwarf Asteroseismology*, Ph.D. dissertation, UNC, (2022).

- Boston, S. Reece, C. R. Evans and J. C. Clemens, "The Limits of Newtonian White Dwarf Asteroseismology." Astrophysical Journal, (2022) [Awaiting Submission].

- de Souza, Rafael, <u>S. Reece Boston</u>, Alain Coc, and Christian Iliadis, "Thermonuclear fusion rates for tritium+deuterium using Bayesian methods." Physical Review C, (2018).

- Boston, S. Reece, "Time Travel in Transformation Optics." Physical Review D, (2015).

Research Codes

`GRPulse`: High-precision asteroseismology code for Newtonian, post-Newtonian, and General Relativistic stellar models. Built-in capability for several basic stellar backgrounds.

`Thrain`: Asteroseismology code for simple analytic models of white dwarf stars. Equations of state, opacities, and element abundances are all given by simple equations for quick and precise calculation. Though simple, the models are powerful, and able to reproduce many physical discoveries of stellar evolution codes.

Research Experience

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

Industry Experience

Data Scientist at Community, Sept 2021 - Present

Languages

- English (native)
- Spanish (spoken in home)
- C++ (advanced)
- R (advanced)
- python (intermediate)
- SQL (advanced)

Teaching Experience

Research Mentor Summer 2020-Summer 2021
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 (LOI: python).

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
Monetary grant 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.

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