

Benjamin R. Roulston

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Education

Ph.D., Astronomy	Anticipated 08/2022
Boston University, Boston, MA	
Thesis Title: "Forged by Giants: Understanding the Dwarf Carbon Stars"	
Thesis Advisors: Dr. Paul Green & Prof. J.J. Hermes	
M.A., Astronomy	05/2018
Boston University, Boston, MA	
B.S. (Honors), Physics	05/2016
Clarkson University, Potsdam, NY	

Research Appointments

Predoctoral Fellowship	01/2019 – Present
Smithsonian Astrophysical Observatory, Advisor: Dr. Paul Green	
Visting Student	07/2018 – 12/2018
Smithsonian Astrophysical Observatory, Advisor: Dr. Paul Green	
Graduate Research Assistant	05/2017 – 09/2017
Boston University Center for Space Physics, Advisor: Prof. Wen Li	
Undergraduate Researcher	05/2014 – 06/2016
Clarkson University, Advisor: Prof. Joshua Thomas	

Teaching Appointments

Teaching Fellow, Boston University	
AS203 Principles of Astronomy II, for astronomy majors	Spring 2018
AS202 Principles of Astronomy I, for astronomy majors	Fall 2017
AS101 The Solar System, for non-science majors	Spring 2017
AS202 Principles of Astronomy I, for astronomy majors	Fall 2016
Teaching Assistant, Clarkson University	
PH132 Physics II, for physical science majors	Spring 2016
PH131 Physics I, for physical science majors	Fall 2015
PH131 Physics I, for physical science majors	Spring 2015

Awards & Honors

SDSS Travel Grant	June 2019
<i>SDSS 2019 Collaboration Meeting, Ensenada, Mexico</i>	
Clarkson University Physics Department Outstanding Senior Award	May 2016

Awarded Telescope Proposals

2022, 3.7 nights 6.5m MMT, Optical Spectroscopy	[PI 2022A]
2021, 208ks, Cycle 23, <i>Chandra X-ray Telescope</i> : ACIS-S	[Co-I, Program 23200076]
2021, 5.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2021C]
2021, 2.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2021B]
2021, 1.0 nights 6.5m MMT, Optical Spectroscopy	[PI 2021A]
2021, 1.0 nights 6.5m Magellan Telescopes, Optical Spectroscopy	[PI 2021A]
2021, 1.0 nights FLWO 1.2m, FAST Spectroscopy	[PI-DDT 2021A]
2020, 100ks, Cycle 22, <i>Chandra X-ray Telescope</i> : ACIS-S	[Co-I, Program 22200008]
2020, 2 orbits, Cycle 28, <i>Hubble Space Telescope</i> : WFC3, ACS	[Co-I, Program 16392]
2020, 3.0 nights FLWO 1.2m, KeplerCam Imaging	[PI 2020C]
2020, 0.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2020B]
2020, 3.5 nights 6.5m Magellan Telescopes, Optical Spectroscopy	[PI 2020B]
2020, 5.0 nights FLWO 1.2m, KeplerCam Imaging	[PI 2020B]
2020, 0.5 nights FLWO 1.2m, KeplerCam Imaging	[PI-DDT 2020A]
2020, 0.5 nights 6.5m MMT, Optical Spectroscopy	[PI-DDT 2020A]
2019, 121.5ks, Cycle 21, <i>Chandra X-ray Telescope</i> : ACIS-S	[Co-I, Program 21200072]
2019, 1.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2019C]
2019, 1.5 nights 6.5m Magellan Telescopes, Optical Spectroscopy	[PI 2019B]
2019, 1.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2019B]
2019, 0.5 nights 6.5m MMT, Optical Spectroscopy	[PI 2019A]
2017, 2.0 nights 1.8m Perkins Telescope, Infrared Spectroscopy	[11/2017]
2015, 2.0 nights 1.6m Mont Mégantic Observatory, Optical Spectroscopy	[07/2015]

First-author Refereed Publications

4. **Roulston, Benjamin R.**; Green, Paul J.; Montez, Rodolfo; Filippazzo, Joseph; Drake, Jeremy J.; Toonen, Silvia; Anderson, Scott F.; Eracleous, Michael; Frank, Adam 2022, ApJ, *New Clues to the Evolution of Dwarf Carbon Stars From Their Variability and X-ray Emission*
3. **Roulston, Benjamin R.**; Green, Paul J.; Toonen, Silvia; Hermes, J.J. 2021, ApJ, *Unexpected Short-Period Variability in Dwarf Carbon Stars from the Zwicky Transient Facility*
2. **Roulston, Benjamin R.**; Green, Paul J.; Kesseli, Aurora Y.; 2020, ApJS, *Classifying Single Stars and Spectroscopic Binaries Using Optical Stellar Templates*
1. **Roulston, Benjamin R.**; Green, Paul J.; Ruan, John J.; MacLeod, Chelsea L.; Anderson, Scott F.; Badenes, Carles; Brownstein, Joel R.; Schneider, Donald P.; Stassun, Keivan G.; 2019, ApJ, *The Time-Domain Spectroscopic Survey: Radial Velocity Variability in Dwarf Carbon Stars*

Other Refereed Publications

1. Green, Paul J.; Montez, Rodolfo; Mazzoni, Fernando; Filippazzo, Joseph; Anderson, Scott F.; De Marco, Orsola; Drake, Jeremy J.; Farihi, Jay; Frank, Adam; Kastner, Joel H.; Miszalski, Brent; **Roulston, Benjamin R.**; 2019, ApJ, *A Chandra Study: Are Dwarf Carbon Stars Spun Up and Rejuvenated by Mass Transfer?*

Invited Talks and Seminars

2. “The Chemically Peculiar Dwarf Carbon Stars: Insights from Spectroscopy” November 4, 2021
Keynote, 2021 AAVSO Spectroscopy Workshop, Boston, USA
1. “The Time-Domain Spectroscopic Survey” June 24 — June 28, 2019
2019 SDSS Collaboration Meeting, Ensenada, Mexico

Contributed Talks

7. “Short Period Dwarf Carbon Stars”
AAS238 June 7 – Jun 9, 2021
6. “Stellar Variables in The Time-Domain Spectroscopic Survey”
AAS237 January 11 – January 15, 2021
5. “Variable Stars in the TDSS”
SDSS 2020 Collaboration Meeting June 22 — June 25, 2020
4. “Detection and Spectral Typing of Binaries from Optical Spectra with PyHammerSB2”
AAS235, Honolulu, USA January 4 – January 8, 2020
3. “Stellar Variables in the Time-Domain Spectroscopic Survey”
SDSS 2019 Collaboration Meeting, Ensenada, Mexico June 24 — June 28, 2019
2. “The Time-Domain Spectroscopic Survey: Orbital Separations of Dwarf Carbon Stars”
AAS233, Seattle, USA January 6 – January 10, 2019
1. “The Time-Domain Spectroscopic Survey: Radial Velocity Variability in Dwarf Carbon Stars”
Cool Stars 20, Boston, USA July 29 – August 3, 2018

Professional Service

<i>Chandra</i> Cycle 23 Peer Review Facilitator	2021
AAS Congressional Visit Day Participant	2020
LOC Member Cool Stars 20	2018

Outreach

Sonifying the Digital Universe: making the rich universe of time-variable stars, black holes and quasars accessible on the web to the blind and visually impaired (BVI) community, and beyond.	May 2020 – Present
Beacon Hill Seminar — 2 hour talk, Variable Stars	Fall 2021
Beacon Hill Seminar — 2 hour talk, Stellar Evolution	Spring 2021
ADA Job Shadow Lead, Center for Astrophysics Harvard & Smithsonian	Fall 2020, Fall 2021
SAO Latino Initiative Program Mentor	Summer 2021
Python Hour with SAO Latino Initiative Program	Summer 2019, 2020, 2021
Ask a Scientist (3 talks), Cambridge Public Schools, Grade 7	November 2020
Boston University Astronomical Society, Invited Speaker	December 2019
Boston University Center for Space Physics Science for Kids Day	June 2018

Curriculum Vitae

Boston University Observatory Public Nights	Fall 2016 – Present
Science Olympiad Event Supervisor, Clarkson University	Spring 2014, 2015, 2016
Clarkson University Roller Coaster Camp, Counselor	Summer 2014, Summer 2015
Clarkson University Observatory Public Nights	Fall 2014 – Spring 2016

Professional References

Dr. Paul J. Green

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Prof. J.J. Hermes

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Prof. Scott F. Anderson

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