

**Benjamin R. Roulston, Ph.D.**

Office: 251 Science Center  
Phone: (315) 268-2349  
E-mail: [broulsto@clarkson.edu](mailto:broulsto@clarkson.edu)  
Website: <https://benjaminroulston.com>  
University Faculty Page: <https://www.clarkson.edu/people/benjamin-roulston>

CU Box 5820  
Department of Physics  
Clarkson University  
8 Clarkson Ave.  
Potsdam, NY 13699

---

**Professional Appointments**

Assistant Professor of Physics Clarkson University	07/2023 – present
Director of Reynolds Observatory Clarkson University	07/2023 – present
Postdoctoral Scholar Research Associate in Astronomy California Institute of Technology, Sponsor: Prof. Shri Kulkarni	09/2022 – 09/2023
Predoctoral Fellowship Smithsonian Astrophysical Observatory, Advisor: Dr. Paul Green	07/2017 – 08/2022

---

**Education**

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

---

**Teaching Experience**

Assistant Professor, Clarkson University	
PH131 — Physics I	F23, F24, Sum25, F25
PH132 — Physics II	S24, S25
PH157 — Elementary Astronomy	S24, F24, F25
AE469/PH469 — Space Environment	S25
Teaching Fellow, Boston University	
AS101 — The Solar System	S17
AS202 — Principles of Astronomy I	F16, F17
AS203 — Principles of Astronomy II	S18
Teaching Assistant, Clarkson University	
PH131 — Physics I	S15, F15
PH132 — Physics II	S16

---

**Mentoring** (style represents mentored undergraduate student, *graduate student*)

# Curriculum Vitae

<u>Alex Rosmarino</u> (Clarkson)	F24 – present
<u>Lucas Ferreira da Rocha</u> (Clarkson)	F23 – present
<u>Gillian Bonin</u> (Clarkson)	F23 – F24
<u>Reagan Stanton</u> (Clarkson)	F23 – S24
<u>Sophia Kiernan</u> (Clarkson)	F23 – S24
<u>Sandy Astone</u> (Clarkson)	F23 – S24
<u>Evan Portnoi</u> (Caltech)	Caltech SURF Student 2023
<u>Naunet Leonhardes-Barboza</u> (Wellesley College)	SAO Intern 2023
<u>Afra Ashraf</u> (Barnard College)	SAO Summer Intern 2022
<u>Wasiim Ouro-sama</u> (University Of Massachusetts Lowell)	SAO Latino Initiative Program Intern 2021
<u>Sierra Dodd</u> (University of Washington)	SAO REU 2018

## Awards & Honors

Clarkson University Outstanding New Teacher Award (University wide single award)	May 2025
SDSS Travel Grant – <i>SDSS 2019 Collaboration Meeting, Ensenada, Mexico</i>	June 2019
Clarkson University Physics Department Outstanding Senior Award	May 2016

## Awarded Grants – PI \$125k | Co-I \$254k

2023, Cycle 31, <i>Hubble Space Telescope Telescope</i> : \$50k	[PI, HST-GO-17574]
2023, Cycle 25, <i>Chandra X-ray Telescope</i> : \$75k	[PI, Program 25200011]
2021, Cycle 23, <i>Chandra X-ray Telescope</i> : \$99k	[Co-I, Program 23200076]
2020, Cycle 22, <i>Chandra X-ray Telescope</i> : \$61k	[Co-I, Program 22200008]
2019, Cycle 21, <i>Chandra X-ray Telescope</i> : \$94k	[Co-I, Program 21200072]

## Awarded Telescope Proposals

2023, 99ks, Cycle 25, <i>Chandra X-ray Telescope</i> : ACIS-S	[PI, Program 25200011]
2023, 2.0 nights 10.0m Keck, ESI	[PI 2023B]
2023, 3.0 nights 5.0m Palomar, DBSP	[PI 2023B]
2023, 3.0 nights 6.5m MMT, Binospec	[Co-I 2023B]
2023, 3.0 nights 6.5m Magellan Baade, MagE	[Co-I 2023B]
2023, 3.0 nights FLWO 1.5m, FAST	[Co-I 2023B]
2023, 3.0 nights 5.0m Palomar, DBSP/CHIMERA	[PI 2023A]
2022, 3.7 nights 6.5m MMT, Binospec	[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, Binospec	[PI 2021C]
2021, 2.5 nights 6.5m MMT, Binospec	[PI 2021B]
2021, 1.0 nights 6.5m MMT, Binospec	[PI 2021A]
2021, 1.0 nights 6.5m Magellan Baade, MagE	[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, Binospec	[PI 2020B]
2020, 3.5 nights 6.5m Magellan Baade, MagE	[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, Binospec	[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, Binospec	[PI 2019C]
2019, 1.5 nights 6.5m Magellan Baade, MagE	[PI 2019B]
2019, 1.5 nights 6.5m MMT, Binospec	[PI 2019B]
2019, 0.5 nights 6.5m MMT, Binospec	[PI 2019A]

---

**Publications** (style represents mentored undergraduate student, *graduate student*)

**First-author Refereed Publications:**

5. **Roulston, Benjamin R.**; Leonhardes-Barboza, Naunet; Green, Paul J.; Portnoi, Evan 2025, ApJ, [Carbon Stars from Gaia Data Release 3 and the Space Density of Dwarf Carbon Stars](#)
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:**

6. El-Badry, Kareem; Shen, Ken J.; Chandra, Vedant; Bauer, Evan; Fuller, Jim; Strader, Jay; Chomiuk, Laura; Naidu, Rohan; Caiazzo, Ilaria; Rodriguez, Antonio C.; Nagarajan, Pranav; Yamaguchi, Natsuko; Vanderbosch, Zachary P.; **Roulston, Benjamin R.**; van Roestel, Jan; Gänsicke, Boris; Han, Jiwon Jesse; Burdge, Kevin B.; Filippenko, Alexei V.; Brink, Thomas G. ; Zheng, WeiKang 2023, OJoA, [The fastest stars in the Galaxy](#)
5. Yamaguchi, Natsuko; El-Badry, Kareem; Rodriguez, Antonio C.; Gull, Maude; **Roulston, Benjamin R.**; Vanderbosch, Zachary P.; 2023, MNRAS, [Sodium enhancement in evolved CVs](#)
4. Nagarajan, Pranav; El-Badry, Kareem; Rodriguez, Antonio C.; van Roestel, Jan; **Roulston, Benjamin R.**; 2023, MNRAS, [Spectroscopic follow-up of black hole and neutron star candidates in ellipsoidal variables from Gaia DR3](#)
3. The Astropy Collaboration; including **Roulston, Benjamin R.** 2022, ApJ, [The Astropy Project: Sustaining and Growing a Community-oriented Open-source Project and the Latest Major Release \(v5.0\) of the Core Package](#)
2. Green, Paul J.; Pulgarin-Duque, Lina; Anderson, Scott F.; MacLeod, Chelsea L.; Eracleous, Michael; Ruan, John J.; Runnoe, Jessie; Graham, Matthew; **Roulston, Benjamin R.**; Schneider, Donald P.; Ahlf, Austin; Bizyaev, Dmitry; Brownstein, Joel R.; Joesephine del Casal, Sonia; Dodd, Sierra A.; Hoover, Daniel; Matt, Cayenne; Merloni, Andrea; Pan, Kaike; Ramirez, Arnulfo; Ridder, Margaret 2022, ApJ, [The Time Domain Spectroscopic Survey: Changing-Look Quasar Candidates from Multi-Epoch Spectroscopy in SDSS-IV](#)

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

3. “Forged by Giants: Understanding the Dwarf Carbon Stars” 11/2023  
2023 ASNY Meeting, Loudonville, NY, USA
2. “The Chemically Peculiar Dwarf Carbon Stars: Insights from Spectroscopy” 11/2021  
Keynote, 2021 AAVSO Spectroscopy Workshop, Boston, MA, USA
1. “The Time-Domain Spectroscopic Survey” 06/2019  
2019 SDSS Collaboration Meeting, Ensenada, Mexico

---

## Contributed Talks & Workshops

14. MESA Down Under School — University of Sydney June 17–21, 2024
13. AAS 243 — “The X-ray Characteristics of Dwarf Carbon Stars” 01/2024
12. Gaia XPloration: Discovery and measurement with low-resolution spectroscopy May 15–19, 2023  
Cambridge University
11. ZTF Collaboration Meeting — Humboldt-Universität zu Berlin May 10–12, 2024
10. AAS HEAD 20 — “Probing Accretion Spin-Up in Binary Main-Sequence Carbon Stars” 03/2023
9. AAS 241 — “Probing Stellar Variables with the Time-Domain Spectroscopic Survey” 01/2023
8. AAS 240 — “Forged by Giants: Understanding the Dwarf Carbon Stars” 06/2022
7. AAS 238 — “Short Period Dwarf Carbon Stars” 06/2021
6. AAS 237 — “Stellar Variables in The Time-Domain Spectroscopic Survey” 01/2021
5. SDSS 2020 Collaboration Meeting — “Variable Stars in the TDSS” 06/2020
4. AAS 235 — “Detection and Spectral Typing of Binaries with PyHammer SB2” 01/2020
3. SDSS 2019 Collaboration Meeting — “Stellar Variables in the Time-Domain Spectroscopic Survey” 06/2019
2. AAS 233 — “The Time-Domain Spectroscopic Survey: Orbital Separations of Dwarf Carbon Stars” 01/2019
1. Cool Stars 20 — “The Time-Domain Spectroscopic Survey: Radial Velocity Variability in Dwarf Carbon Stars” 08/2018

---

## Professional Service

- |  |             |
|--|-------------|
| <i>Chandra</i> Peer Review Member (Cycle 25) | 2023        |
| Organizer, Astronomy Tea Talk, Caltech       | 2023 - 2024 |
| <i>Chandra</i> Peer Review Facilitator       | 2021, 2022  |
| AAS Congressional Visit Day Participant      | 2020        |

**Outreach**

Star Party — Indian Creek Nature Center	October 2025
Observatory Tour — Nature Up North Community Group	August 2024
Astro on Tap Los Angeles Speaker	03/2023
Carnegie Observatories Public Open House (Spectroscopy Demo)	10/2023
Sonifying the Digital Universe	05/2020 – 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	11/2020
Boston University Astronomical Society, Invited Speaker	12/2019
Boston University Center for Space Physics Science for Kids Day	06/2018
Boston University Observatory Public Nights	Fall 2016 – Present
Science Olympiad Event Supervisor, Clarkson University	Spring 2014, 2015, 2016