

Benjamin R. Roulston

CONTACT INFORMATION	Benjamin R. Roulston 123 Elm St. Apt. C6 Quincy, Massachusetts 02169 <i>E-mail:</i> roulstbr@bu.edu <i>Phone:</i> 1-(518)-928-0062	Boston University Department of Astronomy 725 Commonwealth Ave Boston, Massachusetts 02215 <i>Phone:</i> 1-(617)-353-2625
RESEARCH AREAS	My current research interests are studying dwarf Carbon stars using large time domain spectroscopy from the SDSS IV. With the particular goal of characterizing variability and searching for mass transfer in binary star systems.	
EDUCATION	Boston University , Boston, Massachusetts, United States of America Ph.D., Astronomy, (In Progress) September 2017 - Present Clarkson University , Potsdam, New York, United States of America B.S. with University Honors, with Great Distinction, Physics, September 2013 - May 2016 <ul style="list-style-type: none">• Honors Thesis: <i>Spectroscopic and Photometric Analysis of the Hypergiant Binary R81</i>• Adviser: Assistant Professor Joshua D. Thomas• GPA: 3.976 in major, 3.753 overall	
TEACHING EXPERIENCE	Boston University Department of Astronomy Teaching Fellow Fall 2016, Spring 2017 <ul style="list-style-type: none">• Taught lab section for undergraduate astronomy courses (AS202, AS101)• Introduced students to basic concepts in laboratory setting• Held office hours for students who needed help• Graded homework, labs, exams, and final exams Clarkson University Department of Physics Teaching Assistant Spring 2015, Fall 2015, Spring 2016 <ul style="list-style-type: none">• Taught lab and recitation section for Physics I (PH131)• Held office hours for students who needed help• Graded homework, labs, exams, and final exams	
ACADEMIC HONORS AND SERVICE	<ul style="list-style-type: none">• Clarkson University Dean's List: Fall 2013, Spring 2014, Spring 2016• Clarkson University Presidential Scholars Award: Fall 2014, Spring 2015, Fall 2015• Member of the Society of Physics Students• Volunteer for Clarkson University Science Olympiad• Reynolds Observatory Public Outreach	
IN PROGRESS PUBLICATIONS	Roulston, B. R. , Thomas, J. D., & Richardson, N. D. " <i>Spectral and Photometric Analysis of the Binary Hypergiant R81</i> " Expected submission to <i>MNRAS</i> , March 2017.	
CONFERENCE PRESENTATIONS	Clarkson University SURE Conference July 31, 2015 <ul style="list-style-type: none">• "Spectral and Photometric Analysis of the Binary Hypergiant R81 in the Large Magellanic Cloud" Syracuse University Undergraduate Research Day November 15, 2014 <ul style="list-style-type: none">• "Design and Implementation of a Flat-field Device for Astronomical Observation Calibration" Clarkson University SURE Conference July 31, 2014 <ul style="list-style-type: none">• "Design and Implementation of a Flat-field Device for Astronomical Observation Calibration"• Second place in Biometrics and Imaging Section	

RESEARCH PROJECTS **Undergraduate Research** Clarkson University, Potsdam, NY April 2015 - present

- “Spectral and Photometric Analysis of the Binary Hypergiant R81 in the Large Magellanic Cloud”
- Measured line center shifts of R81’s spectrum and calculated radial velocities
- Analyzed photometric data to create light curve
- Used Period04 to find a period of the orbit in order to fit new orbital parameters
- Used equivalent-widths and P-Cygni profiles to determine mass transfer

Undergraduate Research Clarkson University, Potsdam, NY May 2014 - April 2015

- Design and Implementation of Flat-Fielding Device for Astronomical Observation Calibration
- Designed and built calibration device
- Tested device in lab and on telescope
- Implemented device into Clarkson Universitys Reynolds Observatory

Undergraduate Research Clarkson University, Potsdam, NY July 2013

- Variations between the Krapivsky-Redner Growing Network Model
- Developed a mathematical model for a new growing network
- Coded network system and mathematical system equation in Matlab
- Analyzed data for variations between models from the known data

WORK EXPERIENCE **Office of Information Technology** Clarkson University, Potsdam, NY August 2015-May 2016

- Assisted Media Specialist for in-campus events
- Set up audio-visual equipment for events
- Installed wiring and electronic equipment across campus

Clarkson University IMPETUS Roller Coaster Camp Potsdam, NY July 2014/2015

- Served as counselor for camp
- Designed and ran science competitions for campers
- Helped campers with challenging material
- Aided with data acquisition of rides at Six Flags Great Escape

OBSERVING EXPERIENCE • **Ground-based observing programs**

- Mont Mégantic Observatory: 2 nights in observer mode (07/08/2015-07/10/2015)
- Clarkson University Reynolds Observatory: Observed multiple objects over the course of 2 years for use in research projects.

HARDWARE/SOFTWARE SKILLS **Astronomy Analysis Software:**

- IRAF, DS9, SAOimage, Period04

Computer Programming:

- Python, C++, MATLAB, IDL, HTML

Productivity Applications:

- \TeX (\LaTeX , \BibTeX), Vim, Microsoft Office (Word, Powerpoint, Excel, Outlook), Tight VNC

Operating Systems:

- Apple OS X, Linux, Microsoft Windows

REFERENCES AVAILABLE TO CONTACT **Dr. Joshua D. Thomas** (e-mail: jthomas@clarkson.edu; Phone: 1-(315)-268-2349

- Assistant Professor at Department of Physics
- Clarkson University, 8 Clarkson Ave., Potsdam, New York 13699, United States

Dr. Noel D. Richardson (e-mail: noel.richardson@utoledo.edu; Phone: 1-(419)-530-4646

- Post-Doc at Department of Physics and Astronomy

- University of Toledo, 2801 W. Bancroft, Toledo, Ohio 43606, United States

Dr. Dipankar Roy (e-mail: droy@clarkson.edu; Phone: 1-(315)-268-6676

- Department Chair and Professor at Department of Physics
- Clarkson University, 8 Clarkson Ave., Potsdam, New York 13699, United States