

Curriculum Vitae for  
**Charles Ray Garner, III**

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### Education

PH.D. IN ASTRONOMY, Case Western Reserve University, Cleveland, OH, August 2018–present.  
B.S. IN PHYSICS, Furman University, Greenville, SC, August 2014–May 2018. Summa Cum Laude.

### Employment

CASE WESTERN RESERVE UNIVERSITY ASTRONOMY DEPARTMENT, Cleveland, OH, August 2018–present.

FURMAN UNIVERSITY ADMISSION DEPARTMENT, Greenville, SC, August 2017–May 2018.

FURMAN UNIVERSITY PHYSICS DEPARTMENT, Greenville, SC, August 2015–May 2018.

ART OF PROBLEM SOLVING, on-line mathematics grader, August 2015–February 2016.

VARSITY TUTORS, Atlanta, GA, May 2015–December 2016.

### Teaching Experience

CASE WESTERN RESERVE UNIVERSITY ASTRONOMY DEPARTMENT: Teaching Assistant hired by the Astronomy Department to assist in the instruction and grading of various astronomy classes, including ASTR-101 *The Sun & Its Planets*, ASTR-105 *Introduction to Einstein's Universe*, ASTR-221 *Stars & Planets*. August 2018–present. Supervisors: Dr. Jeff Kriessler, Dr. Stacy McGaugh, and Dr. Bill Janesh.

FURMAN UNIVERSITY PHYSICS DEPARTMENT: Tutor hired by the Physics Department to lead weekly group tutoring sessions for PHY-111 *General Physics I* and PHY-112 *General Physics II*, covering introductory mechanics and electromagnetism. August 2015–May 2018. Supervisor: Dr. John Conrad.

ART OF PROBLEM SOLVING: Grader hired to read solutions of proof-based mathematics problems in Introduction to Geometry, Pre-Algebra, Intermediate Algebra, Precalculus, Calculus, Introduction to Number Theory, AMC10, AMC12, Introduction to Counting & Probability, and Olympiad Geometry. Graded on correctness, style, and L<sup>A</sup>T<sub>E</sub>X ability. August 2015–February 2016.

VARSITY TUTORS: Tutor hired to teach Astronomy, Physics, mathematics ranging from Pre-Algebra to Multivariable Calculus, Biology, and Chemistry, all either on-line or in person. May 2015–December 2016.

## Publications

3. *A Deep Census of Outlying Star Formation in the M101 Group*, **Ray Garner**, J. Christopher Mihos, Paul Harding, and Aaron E. Watkins, *The Astrophysical Journal*, 915, 57, 2021
2. *Searching for Extragalactic Star Formation in the M101 Group*, **Ray Garner**, J. Christopher Mihos, Paul Harding, and Aaron E. Watkins, *Research Notes of the AAS*, 5, 63, 2021
1. *Ionized Gas Kinematics of Nearby Low-Mass Galaxies*, **Ray Garner**, Liese van Zee, Kristen McQuinn, and Evan Skillman, *Proceedings of the AAS*, #231, 312.03, 2018

## Statistical and Computer Experience

**PYTHON**: Intermediate knowledge. Used in the Indiana University research, Furman University's class CSC-121 *Introduction to Computer Programming*, all astronomy classes taken at Case Western Reserve University, and all research conducted at Case Western Reserve University. Made the Coding Assistant for the Spring 2021 Case Western Reserve University class ASTR-222 *Galaxies & Cosmology*.

**FORTRAN**: Basic knowledge. Used in the Case Western Reserve University class ASTR-411 *Stellar Physics* to write and run code with real stellar data.

**IRAF**: Image Reduction and Analysis Facility. Basic knowledge. Used to analyze spectra of galaxies taken from the SparsePak spectrometer attached to the WIYN 3.5 meter telescope at Kitt Peak, AZ.

**IDL**: Interactive Data Language. Basic knowledge. Used to analyze spectra of galaxies taken from the SparsePak spectrometer attached to the WIYN 3.5 meter telescope at Kitt Peak, AZ. Specifically used Peak ANalysis (PAN) as well as Supermondo.

**L<sup>A</sup>T<sub>E</sub>X**: Intermediate knowledge.

## Organization Memberships

**PHI BETA KAPPA SOCIETY**: Inducted into the Gamma Chapter of South Carolina. Aims to promote and advocate excellence in the liberal arts and sciences and to induct the most outstanding students of arts and sciences at American colleges and universities. March 2018–present. Chapter President: Dr. Elizabeth Bouzarth.

**ADMISSION CONCIERGE**: Represented Furman University to prospective students. Worked at the desk in the Hartness Welcome Center, welcoming prospective students to campus. Involved managerial tasks such as assigning tour groups, maintaining the Welcome Center, and other office tasks. August 2017–May 2018. Supervisor: Mrs. Kelly Kemp.

**SOCIETY OF PHYSICS STUDENTS**: Academic organization for the Physics Department majors. Regular member August 2014–May 2017. Vice President August 2017–May 2018. Personally organized a speaker, Dr. Tim Christensen of East Carolina University, on astrophotography as Vice President. Supervisor: Dr. David Moffett.

**SIGMA PI SIGMA**: National honor society for physics majors. Inducted as one of three juniors. April 2017–present. Chapter Sponsor: Dr. David Moffett.

**QUATERNION CLUB**: Highest honor society for men at Furman University. Only four juniors and four seniors are inducted every year. Students exhibit character, scholarship, leadership,

- loyalty, and service to Furman University regularly. Served as Quartermaster. February 2017–May 2018. Supervisor: Dr. Brandon Inabinet.
- SOLAR SYSTEM AMBASSADOR:** Volunteer program with NASA/JPL. Designed to communicate the science of NASA’s space exploration program with the public. Take part in telecoms with leading scientists on recent NASA news. January 2017–present. Supervisor: Mrs. Kay Ferrari.
- ADMISSION AMBASSADORS:** Represents Furman University to prospective students. Led walking and golf cart tours of campus, as well as special tours of school groups and VIP guests of the university. August 2016–May 2018. Supervisor: Mrs. Laura Sanders.
- ASTRONOMY CLUB:** Promotes study of astronomy at Furman University. Regular member August 2014–May 2015. Treasurer August 2015–May 2016. As Treasurer, organized an off-site trip to Charleston, SC for dark sky observing. President August 2016–May 2018. As President, led monthly meetings in the Timmons Planetarium, on topics of interest to the club; organized a speaker, Dr. Pamela Gay of the Astronomical Society of the Pacific, to speak on citizen astronomy; maintained the off-campus observatory with assistance from the supervisor of the club. Supervisor: Dr. David Moffett.
- PHI ETA SIGMA:** National honor society. August 2015–present. Chapter Sponsor: Dr. Jason Cassidy.
- TEDXFURMANU:** Organized the 2015 TEDx talk on the theme “Shatter.” Member of the Curation Team. Picked speakers for the conference, and was the personal liaison for Mrs. Cheryl Stowe. August 2014–March 2015.
- ROCKDALE COUNTY HISTORICAL SOCIETY:** Dedicated to preserving the rich history of Rockdale County. Led Olde Jail Museum tours. Worked the Conyers Fall Festival booth as well as the Santa’s Secret Shop market. Board of Trustees member May 2009–May 2014. Youngest member in the history of the Society. Regular member May 2006–May 2009, May 2014–present. Supervisor: Mrs. Judy Bond.

### **Volunteer Service**

- ROCKDALE REGIONAL SCIENCE AND ENGINEERING FAIR:** Volunteered to be a judge for the 2021 virtual science fair. Judged four high school science projects as part of the normal competition and judged projects as part of the special awards competition. February 2021. Supervisor: Mr. Scott Bolen.
- ADOPT-A-PHYSICIST:** Volunteered to communicate in an online forum with high school students in physics classes around the country to foster an appreciation and understanding of what physicists do “in real life.” Service provided by Sigma Pi Sigma, in collaboration with the American Physical Society, the American Association of Physics Teachers, and ComPADRE. October 2018–present. Supervisor: Ms. Kerry Kidwell.
- ROCKDALE MAGNET SCHOOL FOR SCIENCE AND TECHNOLOGY:** Volunteered to return for Alumni Week and talk to current students about life after high school. Returned as part of Furman University’s “Back Where We Started” program to advertise Furman University to high school students. August 2014–August 2018. Supervisor: Mrs. Amanda Baskett.
- ROCKDALE MATHEMATICS COMPETITION:** Organized by the Rockdale Magnet School for Science and Technology. Helped organize food for the student break; proctored the Relay, Team, and Power Rounds; led the scoring room for middle school, junior varsity, and varsity scores; primary assistant to the tournament organizer; wrote tournament problems. October 2010–October 2016. Supervisor: Dr. Chuck Garner.

GEORGIA COUNCIL OF TEACHERS OF MATHEMATICS: Helped run the GCTM Middle School Tournament: graded problems; monitored the individual test, individual ciphering, pair ciphering, and power rounds; assisted in the bonus round; proctored the tournament; helped set up and take down. Helped run the American Regions Math League University of Georgia location: managed teams from Georgia and Kentucky. April 2011–June 2018. Supervisor: Mrs. Deborah Poss and Dr. Chuck Garner.

### Presentations and Conferences

- *International Observe the Moon Night 2021*. Presented at Andover Public Library, Andover, OH, October 2021.
- *As Organism*. Documentary by BrainDagger Films, July 2021.
- *Comets: The Dark Omen*. Presented at Andover Public Library, Andover, OH, June 2021.
- *Searching for Extragalactic Star Formation in the M101 Group*. Presented via iPoster at the 237th Meeting of the American Astronomical Society, “virtually everywhere,” January 2021.
- Public Astronomy Talk series. Presented online to the general public during the COVID-19 pandemic, March 2020–September 2021.
- *International Observe the Moon Night 2019*. Presented at Andover Public Library, Andover, OH, October 2019.
- *Women in Space*. Presented at Andover Public Library, Andover, OH, August 2019.
- *Apollo 11 Mission & Space Travel*. Presented at Andover Public Library, Andover, OH, July 2019.
- *Imaging of Messier and Deep Sky Objects*. Presented at Furman Engaged in April 2018.
- *Ionized Gas Kinematics of Nearby, Low-Mass Galaxies*. Presented at the SoCon Undergraduate Research Forum at Wofford College, Spartanburg, SC, October 2017. Presented at 231st Meeting of the American Astronomical Society in Washington, D.C., January 2018. Presented at Furman Engaged in April 2018.
- *Space and Culture: Inextricably Linked*. TEDXFURMANU, February 2016.