KENNETH WAYNE CARRELL

CONTACT INFORMATION

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EDUCATION

TEXAS TECH UNIVERSITY, Lubbock, Texas USA
Ph.D., Physics, December 2009
- Dissertation Topic: *Red Clump Stars in the Sagittarius Tidal Streams*
- Advisor: Professor Ronald J. Wilhelm

M.S., Physics, Non-Thesis, May 2004
B.S.,Physics, *Cum Laude*, Minor in Mathematics, May 2002

EXPERIENCE

ANGELO STATE UNIVERSITY, San Angelo, Texas USA
Assistant Professor of Physics & Planetarium Director **August 2016 to Present**

IRION COUNTY ISD, Mertzon, Texas USA
Classroom Teacher **August 2015 to August 2016**

CH4 LABS, LLC, Mertzon, Texas USA
Lab Manager **February 2014 to August 2015**

MAX PLANCK INSTITUTE FOR ASTRONOMY, Heidelberg, Germany
Postdoc **July 2013**

NATIONAL ASTRONOMICAL OBSERVATORIES,
CHINESE ACADEMY OF SCIENCES, Beijing, China
LAMOST Postdoctoral Fellow **March 2011 to June 2013**

IRION COUNTY ISD, Mertzon, Texas USA
Classroom Teacher / Coach **August 2008 to December 2010**

TEXAS TECH UNIVERSITY Lubbock, Texas USA
Teaching Assistant / Graduate Part-time Instructor **August 2005 to May 2008**

Student Research Assistant / Research Assistant **January 2001 to May 2005**

OBSERVING PROPOSALS AND RUNS

MCDONALD OBSERVATORY Ft. Davis, Texas USA

- I have had multiple successful proposals submitted to McDonald Observatory. I have also been granted many unallocated nights to continue the projects from the proposals. I have used all three telescopes available at the observatory to outside astronomers: the 2.7m, the 2.1m, and the 0.8m.

Kitt Peak National Observatory Tucson, Arizona USA

- I was the PI for successful observing proposals two semesters in a row submitted to the National Optical Astronomy Observatory to use the Hydra instrument on WIYN for my dissertation work. I went on both of these observing runs to collect the data.

Cerro Tololo Inter-American Observatory La Serena, Chile

- I was a CoI on a successful observing proposal submitted to the National Optical Astronomy Observatory to use the Hydra instrument on the Blanco telescope at CTIO. I went on this observing run to spectroscopically observe nearly one hundred stars for my dissertation and a few hundred stars for another project.

The Anglo-Australian Telescope Siding Spring Observatory, Australia

- I was the PI for an accepted service time proposal for semester 2013A using AAOmega on AAT and the spectra were successfully obtained via queue observing.

The MMT Observatory Tucson, Arizona USA

- Through the Telescope Access Program, which provides access to large aperture telescopes to China-based astronomers, I was a CoI for an approved program in semester 2011B led by Dr. Martin Smith to spectroscopically observe stars using Hectospec on MMT. In semester 2012B and 2013A I was a CoI for a program led by Dr. Chao Liu using the same telescope and instrument. Both observing programs were successfully completed and results were published.

Student Research Projects

Yearlong Faculty-Mentored Undergraduate Research Grants:

- Brandon Santana & Taylor Spoo, 2017-2018
- Aaron Smith, 2017-2018
- Michaela Allen, 2018-2019
- Rebeca Soto Armendariz, 2019-2020 & 2020-2021
- Jackie Gray-Cherry, 2019-2020 & 2020-2021
- Garath Vetters & Alexandra Vishnevskaya, 2021-2022

One Semester Faculty-Mentored Undergraduate Research Grants:

- Youngsang (Eric) Ji, Spring 2022

Other Research Students:

- Adam DeLoach & Johnny Ross, 2018-2019
- Troy Long & Youngsang (Eric) Ji, Fall 2021
- Krischelle Rubner, Spring 2022
- Troy Long, Spring 2022

Invited Talks

Colloquium at the Texas Tech University Department of Physics and Astronomy, "Studying the Milky Way Disk in the Era of Large Optical Surveys", December 5, 2017

Building Astronomy in Texas Symposium, "Studying the Milky Way Disk in the Era of Large Optical Surveys", January 26, 2019

Funded Grants

Angelo State University Faculty Research Enhancement Program

- A Detailed Study of Shockwaves in RR Lyrae Stars (September 1, 2018 - August 31, 2019)
  - I took 3 trips to McDonald Observatory with 4 or 5 students each trip. In all, 13 nights were spent observing.
  - Results were presented by students at the ASU Undergraduate Research Symposium
- Varying Variables: Changes in RR Lyrae in TESS Data (September 1, 2020 - August 31, 2021)
  - Travel was not possible because of COVID-19 restrictions.
  - Software used for analysis of data by undergraduate students was submitted to the *Astrophysics Source Code Library* and is freely available and citable.
  - Published an article in *The Astrophysical Journal Letters* with 3 ASU undergraduate students as co-authors, a faculty member at the University of Kentucky as a co-author, and an undergraduate student at the University of Kentucky as a co-author.

Sloan Digital Sky Survey Faculty and Student Team Initiative

- Calibrating Metal Abundances of RR Lyrae Using APOGEE and TESS Data (May 15, 2021 - June 30, 2022)
  - Work from this project was presented at the Summer 2022 National Meeting of the American Astronomical Society

National Science Foundation LEAPS-MPS Program, Award #2137787

- LEAPS-MPS: A Systematic Investigation of Transient Behavior in RR Lyrae Variable Stars (January 1, 2022 - December 31, 2023)

Astronomy Publications

Carrell, K., Gray Cherry, J., & Gillespie, C. "The Discovery of New Binary Systems Using Value-Added Catalogs and TESS Data" 2022, *accepted to AJ pending revision*

Carrell, K., et al. "The Changing Lightcurve of the Double-mode RR Lyrae Variable Star V338 Boo" 2021, *The Astrophysical Journal Letters*, 916, L12

Carrell, K. "ATARRI: A TESS Archive RR Lyrae Classifier" 2021, *Astrophysics Source Code Library*, ascl:2105.003

Carrell, K., Chen, Y.Q., & Zhao, G. "Metallicity Gradients of Disk Dwarf Stars" 2012, *The Astronomical Journal*, 144, 185

Carrell, K., Wilhelm, R., & Chen, Y.Q. "Red Clump Stars in the Sagittarius Tidal Streams" 2012, *The Astronomical Journal*, 144, 18

Naegeli, K.M., Lehto, H.L., & **Carrell, K.W.** "The Gravitational Effects on the Volcanism of Io" 2019, *50th Lunar and Planetary Science Conference*, 2132, 2800

Zhang, X., **et al.** "The properties of red giant stars along the Sagittarius tidal tails" 2017, *Astronomy & Astrophysics*, 597, 54

Rahimi, A., **Carrell, K.**, & Kawata, D. "Numerical simulation of a possible origin of the positive radial metallicity gradient of the thick disk" 2014, *Research in Astronomy and Astrophysics*, 14, 11

Chen, Y.Q., **et al.** "Red Giant Stars from Sloan Digital Sky Survey. I. The General Field" 2014, *The Astrophysical Journal*, 795, 52

Tan, K., Chen, Y.Q., **Carrell, K.**, Zhao, J.K., & Zhao, G. "Red Giant Stars from the Sloan Digital Sky Survey. II. Distances" 2014, *The Astrophysical Journal*, 794, 60

Yang, F., **et al.** "Hydrogen lines in LAMOST low resolution spectra of RR Lyrae stars" 2014, *New Astronomy*, 26, 72

Chen, Y.Q., Zhao, G., **Carrell, K.**, Zhao, J.K., & Tan, K.F. "The CH(G) Index as a New Criterion for Selecting Red Giant Stars" 2013, *The Astrophysical Journal*, 765, 156

Zhang, Y.Y., **et al.** "DA White Dwarfs Observed in the LAMOST Pilot Survey" 2013, *The Astronomical Journal*, 146, 34

Shi, W.B., Chen, Y.Q., **Carrell, K.**, & Zhao, G. "The Kinematics and Chemistry of Red Horizontal Branch Stars in the Sagittarius Streams" 2012, *The Astrophysical Journal*, 751, 130

Liu, C., **et al.** "A resonant feature near the Perseus arm revealed by red clump stars" 2012, *Astrophysical Journal Letters*, 753, L24

Chen, Y.Q., Zhao, G., **Carrell, K.**, & Zhao, J.K. "The Metallicity Gradient of the Thick Disk Based on Red Horizontal-branch Stars from SDSS DR8" 2011, *The Astronomical Journal*, 142, 184

Powell, W.L., Wilhelm, R.J., & **Carrell, K.** "An Investigation of the Canis Major Over-density" 2008, *New Horizons in Astronomy: Frank N. Bash Symposium 2007 ASP Conference Series*, 393, 251

High Energy Physics Publications

Abdullin, S., **et al.** "The CMS barrel calorimeter response to particle beams from 2 to 350 GeV/c" 2009, *The European Physical Journal C*, 60, 359

Abdullin, S., **et al.** "Design, performance, and calibration of the CMS hadron-outer calorimeter" 2008, *The European Physical Journal C*, 57, 653

Chatrchyan, S., **et al.** "The CMS experiment at the CERN LHC" 2008, *Journal of Instrumentation*, 3, S08004

Abdullin, S., **et al.** "Design, performance, and calibration of CMS hadron-barrel calorimeter wedges" 2008, *The European Physical Journal C*, 55, 159

Akchurin, N., **et al.** "Comparison of high-energy hadronic shower profiles measured with scintillation and Cherenkov light" 2008, *Nuclear Instruments and Methods in Physics Research Section A*, 584, 304

Abdullin, S., **et al.** "Design, performance, and calibration of CMS forward calorimeter wedges" 2008, *The European Physical Journal C*, 53, 139

Akchurin, N., **et al.** "Separation of scintillation and Cherenkov light in an optical calorimeter" 2005, *Nuclear Instruments and Methods in Physics Research Section A*, 550, 185

Akchurin, N., **et al.** "Comparison of high-energy electromagnetic shower profiles measured with scintillation and Cherenkov light" 2005, *Nuclear Instruments and Methods in Physics Research Section A*, 548, 336

Akchurin, N., **et al.** "Hadron and jet detection with a dual-readout calorimeter" 2005, *Nuclear Instruments and Methods in Physics Research Section A*, 537, 537

Akchurin, N., **et al.** "Electron detection with a dual-readout calorimeter" 2005, *Nuclear Instruments and Methods in Physics Research Section A*, 536, 29

Akchurin, N., **et al.** "Muon detection with a dual-readout calorimeter" 2004, *Nuclear Instruments and Methods in Physics Research Section A*, 533, 305

Acosta, D., **et al.** "Measurement of the mass difference m(D_s^+)-m(D^+) at CDF II" 2003, *Physical Review D*, 68, 072004