

KENNETH WAYNE CARRELL

CONTACT INFORMATION	ASU Station #10904 San Angelo, TX 76909	<i>Phone:</i> (325) 942-2136 ext. 6889 <i>E-mail:</i> kenneth.carrell@angelo.edu
EDUCATION	TEXAS TECH UNIVERSITY, Lubbock, Texas USA Ph.D., Physics, December 2009 <ul style="list-style-type: none">• Dissertation Topic: <i>Red Clump Stars in the Sagittarius Tidal Streams</i>• Advisor: Professor Ronald J. Wilhelm M.S., Physics, Non-Thesis, May 2004 B.S., Physics, <i>Cum Laude</i> , Minor in Mathematics, May 2002	
EXPERIENCE	ANGELO STATE UNIVERSITY, San Angelo, Texas USA <i>Associate Professor of Physics & Planetarium Director</i> <i>Assistant Professor of Physics & Planetarium Director</i>	August 2022 to Present August 2016 to July 2022
	IRION COUNTY ISD, Mertzon, Texas USA <i>Classroom Teacher</i> <i>Classroom Teacher / Coach</i>	August 2015 to July 2016 August 2008 to December 2010
	CH4 LABS, LLC, Mertzon, Texas USA <i>Lab Manager</i>	February 2014 to August 2015
	MAX PLANCK INSTITUTE FOR ASTRONOMY, Heidelberg, Germany <i>Postdoc</i>	July 2013
	NATIONAL ASTRONOMICAL OBSERVATORIES, CHINESE ACADEMY OF SCIENCES, Beijing, China <i>LAMOST Postdoctoral Fellow</i>	March 2011 to June 2013
	TEXAS TECH UNIVERSITY Lubbock, Texas USA <i>Teaching Assistant / Graduate Part-time Instructor</i> <i>Student Research Assistant / Research Assistant</i>	August 2005 to May 2008 January 2001 to May 2005
OBSERVING PROPOSALS AND RUNS	MCDONALD OBSERVATORY Ft. Davis, Texas USA <ul style="list-style-type: none">• 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. OLDER THAN 5 YEARS I have had several successful proposals and observing runs to observatories spread across the entire Earth, including: <ul style="list-style-type: none">• KITT PEAK NATIONAL OBSERVATORY Tucson, Arizona USA• CERRO TOLOLO INTER-AMERICAN OBSERVATORY La Serena, Chile• THE ANGLO-AUSTRALIAN TELESCOPE Siding Spring Observatory, Australia• THE MMT OBSERVATORY Tucson, Arizona USA	

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 Vettters & Alexandra Vishnevskaya, 2021-2022
- Andrew Tom & Garath Vettters, 2022-2023
- Yoojin Choi, 2023-2024

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
- Yoojin Choi, Fall 2022
- Stasha Youngquist, Fall 2023

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**

- MEASUREMENTS OF THE GRAVITATIONAL DEFLECTIONS OF STARS DURING THE 2024 TOTAL SOLAR ECLIPSE (September 1, 2023 - August 31, 2024)
- VARYING VARIABLES: CHANGES IN RR LYRAE IN TESS DATA (September 1, 2020 - August 31, 2021)
- A DETAILED STUDY OF SHOCKWAVES IN RR LYRAE STARS (September 1, 2018 - August 31, 2019)

Sloan Digital Sky Survey Faculty and Student Team Initiative

- DO ALL GLOBULAR CLUSTERS HAVE MULTIPLE STELLAR POPULATIONS? (July 1, 2023 - June 30, 2024)
- ELEMENTAL ABUNDANCE CHARACTERISTICS OF DISTINCT STELLAR POPULATIONS IN NGC3201 (July 1, 2022 - June 30, 2023)
- CALIBRATING METAL ABUNDANCES OF RR LYRAE USING APOGEE AND TESS DATA (May 15, 2021 - June 30, 2022)

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)

Preparing for Astrophysics with LSST

- BUILDING A DIVERSE GENERATION OF RUBIN SCIENTISTS KICKSTARTER GRANT (April 1, 2022 - August 1, 2022)

- Carrell, K.**, Gray Cherry, J., & Gillespie, C. “The Discovery of New Binary Systems Using Value-Added Catalogs and TESS Data” 2022, *The Astronomical Journal*, 164, 77
- Carrell, K.**, et al. “The Changing Lightcurve of the Double-mode RR Lyrae Variable Star V338 Boo” 2021, *The Astrophysical Journal Letters*, 916, L12 *Erratum: ApJL 954, 34*
- 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
- Spalding, E., **et al.** “rrlfe: Software for Generating and Applying Metallicity Calibrations for RR Lyrae Variable Stars Across a Wide Range of Phases and Temperatures” 2023, *Monthly Notices of the Royal Astronomical Society*, *accepted*
- Wilhelm, R., **Carrell, K.**, et al. “Modulation of the Blazhko Cycle in LS Her” 2023, *The Astronomical Journal*, 165, 194
- Di Criscienzo, M., **et al.** “Light-curve Recovery with the Vera Rubin Observatory’s LSST. I. Pulsating Stars in Local Group Dwarf Galaxies” 2023, *The Astrophysical Journal Supplement Series*, 265, 41
- Vetters, G., Vishnevskaya, A., Ji, E.Y., & **Carrell, K.** “The Cosmic Ray Rate in Earth’s Atmosphere” 2023, *accepted to JURPA*
- Zhang, Z., Shi, W.B., Chen, Y.Q., Zhao, G., **Carrell, K.**, & Zhang, H.P. “The Substructures in the Anticenter Region of the Milky Way” 2022, *The Astrophysical Journal*, 933, 151
- 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

- Shi, W., Chen, Y., **Carrell, K.**, & Zhao, G. “The kinematics and chemistry of the Sagittarius streams” 2013, *Proceedings of the International Astronomical Union*, 289, 422
- Chao, L., **et al.** “The Galactic rotation curve from red clump stars” 2013, *Proceedings of the International Astronomical Union*, 9, 424
- Chao, L., **et al.** “The 3-D extinction law in the 2nd quadrant of the Galactic disk” 2013, *Proceedings of the International Astronomical Union*, 9, 423
- Powell Jr., W.L., Wilhelm, R., **Carrell, K.**, & Westfall, A. “New Findings for the Blue Plume Stars in the Canis Major Over-Density” 2008, *arXiv: astro-ph*, 0803.1509
- Wilhelm, R., **et al.** “Identification of RR Lyrae Variables in SDSS from Single-Epoch Photometric and Spectroscopic Observations” 2007, *arXiv: astro-ph*, 0712.0776
- CMS HCAL Collaboration.** “Design, Performance, and Calibration of CMS Hadron Endcap Calorimeters” 2008, *CMS Note*, 2008, 010
- CMS HCAL Collaboration.** “Energy Response and Longitudinal Shower Profiles Measured in CMS HCAL and Comparison With Geant4” 2007, *CMS Note*, 2006, 143
- Baiatian, G., **et al.** “Synchronization and Timing in CMS HCAL” 2007, *CMS Note*, 2006, 139

PRESENTATIONS

- Choi, Y., **et al.** “Searching for Multiple Stellar Populations in Globular Clusters in APOGEE” 2023, *Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, J01.00013
- Ryu, S., **et al.** “Double-mode RR Lyrae Variables in TESS Selected by GAIA” 2023, *Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, J01.00025
- Carrell, K.**, et al. “Transient Changes in TESS Lightcurves of RR Lyrae” 2023, *American Astronomical Society Meeting #241*, 303.05
- Taylor, J., Ryu, S., **Carrell, K.**, & Beaton, R. “Elemental Abundance Characteristics of Distinct Stellar Populations in NGC3201” 2023, *American Astronomical Society Meeting #241*, 401.23
- Diaz Hernandez, A., Olsen, F., **Carrell, K.**, Beaton, R., & Brownstein, J. “Metallicity Determinations of RR Lyrae on the APOGEE2 Scale Using TESS Lightcurves” 2022, *American Astronomical Society Meeting #240*, 204.15
- Soto Armendariz, R. & **Carrell, K.** “The Precise Orbital Period of HAT-P-36-b” 2021, *Joint Spring Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, C13.00010
- Vetters, G., Hennig, W., Olsen, F., Tom, A., & **Carrell, K.** “Analyzing RR Lyrae Stars Using TESS Data” 2021, *Joint Spring Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, C13.00006
- Gray-Cherry, J. & **Carrell, K.** “Finding Variable Sources in Large Data Sets” 2021, *Joint Spring Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, C13.00008
- Santana-Nolan, B., Spoo, T., **Carrell, K.**, & Bankert, J. “Identifying Milky Way Stellar Populations Through Kinematics Derived from Catalog Data” 2018, *Joint Spring Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, D1.00007
- Carrell, K.** & Wilhelm, R. “Horizontal Branch and Red Clump Stars in the Southern Arm of the Sagittarius Stream” 2007, *American Astronomical Society Meeting #211*, 39, 926
- Carrell, K.** & Wilhelm, R. “Substructure in the Galactic Halo” 2006, *Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, AP1.002
- Carrell, K.** “DREAM (Dual-REAdout Module) calorimeter module” 2003, *Joint Fall Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, D3.004
- Carrell, K.** “Reconstruction of the B⁺ meson with Recent CDF Data” 2002, *Joint Spring Meeting of the Texas Sections of APS, AAPT and Zone 13 of the SPS*, CA.002