

LAURA D. VEGA

CURRICULUM VITAE

NASA Harriett G. Jenkins Predoctoral Fellow

NASA Goddard Space Flight Center
 Astrophysical Science Division
 Code 660, B34, Room W160
 8800 Greenbelt Rd
 Greenbelt, MD 20771

Email: laura.d.vega@vanderbilt.edu
 Citizenship: United States of America
<http://my.vanderbilt.edu/lauradvega>
<https://science.gsfc.nasa.gov/sed/bio/laura.d.vega>

Research Interests

I am an astrophysics Ph.D. candidate at Vanderbilt University stationed at NASA/GSFC. My research interests include late-stage stellar evolution, supergiant variable stars, circumbinary disks, Type II Cepheids, post-AGB, RV Tau variables, binary stars, and M-dwarf stars.

Education

Astrophysics Ph.D. Candidate, 2016 - Present – Vanderbilt University	<i>Advisor:</i> Keivan Stassun
Physics M.A., 2017 – Fisk University	<i>Advisor:</i> Keivan Stassun
Physics B.S., 2013 – The University of Texas at San Antonio (UTSA)	<i>Advisor:</i> Eric Schlegel

Publications

- Vega et al. In Prep.**; “*X-ray & Submillimeter Observations of the Pulsating RV Tau Variable U Monocerotis*”
- Vega, L.D.**; Stassun, K.G.; Montez, Jr., R.; Boyd, P.T.; Somers, G.; *Evidence for Binarity and Possible Disk Obscuration in Kepler Observations of the Pulsating RV Tau Variable DF Cygni*, 2017, The Astrophysical Journal, 839, 48
- Schlegel, E.M.; Jones, C.; Machacek, M.; and **Vega, L.D.**; *NGC5195 In M51: Feedback Burps After a Massive Meal?*, 2016, The Astrophysical Journal, 823, 75. [NASA News](#)

Honors and Awards

Most Outstanding Student Publication - Vanderbilt Physics & Astronomy Department	2018
NASA Office of Education - Minority University Research and Education Program	
- Harriett G. Jenkins Predoctoral Fellow	2015
Best Poster in Physics - Fisk University Science Symposium	2016
Toastmasters International - Competent Leader	2015
Toastmasters International - Competent Communicator	2015
The Sam Madrid Jr. Endowed Scholarship - UTSA	2012
The Dr. B. Thyagarajan Endowed Scholarship - UTSA	2009
Deans List - UTSA	2007, 2008
Honor Roll - UTSA	2009, 2010, 2011

Fellowships/Grants

NASA MUREP Harriett G. Jenkins Predoctoral Fellowship	2015 - Present
Smithsonian Latino Center - LIP (For Outreach at National Air & Space Museum)	2017
Vaughan Family Grant (For AAS Conference Travel)	2011, 2012, 2014
National Institute on Minority Health and Health Disparities Nanotechnology and Human Health Core Grant (For 2012 Summer Nanoparticles Research at UTSA)	2012
Bill & Alicia Hoover Grant (For 2010 Summer Research)	2010

Relevant Skills

Computer: Unix, Python, LaTeX, HEASARC: FTOOLS, XSELECT, XSPEC, SAOImage DS9
Languages: English (native fluency), Spanish (native fluency)

Proposals

1. ALMA - Cycle 7 - April 2019

Co-I: **SUBMITTED**; The Origin and Impact of Flares in M Dwarf Systems- Monitoring of Wolf 359; PI: Meredith MacGregor

2. Hubble Space Telescope Cycle 27 - April 2019

Co-I: **ACCEPTED**; Searching for Secondary Atmospheres in a System of Benchmark Worlds; PI: Thomas Barclay

3. NOAO - Center for High Angular Resolution Astronomy - April 2019

Co-I: **SUBMITTED**; Diving into the close stellar environment of the magnetic RV Tauri star U Mon; PI: Laurence Sabin

4. Chandra X-ray Observatory - Cycle 21 - March 2019

Co-I: **SUBMITTED**; A High-Resolution Image of NGC 5195 in M51; PI: Eric Schlegel
 Co-I: **SUBMITTED**; A High-spatial Resolution, High-time Resolution, Sensitive Broadband X-ray Spectral Study of the Neutron Stars and Supermassive Black Holes in M51; PI: Murray Brightman

5. SAO - Submillimeter Array - March 2019

PI: **ACCEPTED**; Hunting for Disks Around Pulsating RV Tau Stars

6. SAO - Submillimeter Array (Filler Program) - March 2019

Co-I: **ACCEPTED**; Disks around RV Tauri Variable Stars: U Mon in High Resolution; PI: Rodolfo Montez Jr.

7. SAO - Submillimeter Array (Filler Program) - October 2018

Co-I: **ACCEPTED**; Disks around RV Tauri Variable Stars: U Mon (0.8 mm); PI: Rodolfo Montez Jr.

8. SAO - Submillimeter Array (Filler Program) - October 2018

Co-I: **ACCEPTED**; Disks around RV Tauri Variable Stars: U Mon; PI: Rodolfo Montez Jr.

Oral Presentations

1. Observations of Disks Around RV Tauri Variable Stars with the Submillimeter Array; SACNAS Conference, the Henry B. González Convention Center, San Antonio, TX, Oct. 2018.
2. Evidence for Disk Obscuration in Kepler Observations of the RV Tau Star DF Cyg; 5th Annual Astrophysics Conference - DC, The George Washington University, Washington DC, Jul. 2017.
3. Kepler's Unprecedented High Temporal Precision Observations of the RV Tauri variable DF Cygni, Astronomy Journal Club, Vanderbilt University, Nashville, TN, Sep. 2016.
4. M51 and the Effect of the Arm Resonance and Interaction on Diffuse X-ray Emission; American Astronomical Society, AAS 225th Meeting. Seattle, WA, Jan. 2015.
5. Cosmic Background Radiation and the Evolution of the Universe; UTSA's Friday Nights, Celestial Lights Series. San Antonio, TX, April 18, 2014.
6. Diffuse X-ray & Multi-wavelength Emission in Nearby, Face-on Spiral Galaxies; San Antonio, Texas Astrophysics Researchers Meeting. San Antonio, TX, Mar. 22, 2013.
7. Diffuse X-ray & Multi-wavelength Emission in Nearby, Face-on Spiral Galaxies and poster presentation Diffuse X-ray Emission and Star Clusters in Nearby, Face-on Spiral; UTSA College of Science, COS, Research Conference. San Antonio, TX, Oct. 5, 2012.

Poster Presentations

1. X-ray & Submillimeter Observations of the Pulsating RV Tau Variable U Mon; 2019 Spring Symposium - The Deaths and Afterlives of Stars; Space Telescope Science Institute; April 2019.
2. Submillimeter Array Observations of the Large Disk Around RV Tau Star U Mon; 7th National Capital Area Disks Meeting; Johns Hopkins University / Space Telescope Science Institute; 26 Sep., 2018.
3. Observations of Disks Around RV Tau Variables with the Submillimeter Array; Cool Stars Conference; Boston University, Boston, MA, July 2018.
4. Evidence for Disk Obscuration in Kepler Observations of the Pulsating RV Tau Variable DF Cyg; Kepler-K2 Science Conference; NASA Ames, Mountain View, CA, Jun. 2017.
5. Evidence for Binariness in Kepler Observations of the Pulsating RV Tau Variable DF Cygni; American Astronomical Society, AAS 229th Meeting. Grapevine, TX, Jan. 2017.
6. Stellar Evolution at the Crossroads: A Closer Look at the RV Tauri Variable Star DF Cygni; 4th Annual DC/MD/VA Astrophysics Meeting, The George Washington University, Washington DC, Jun. 2016.
7. Stellar Evolution at the Crossroads: A Closer Look at the RV Tauri Variable Star DF Cygni; Fisk University Symposium, Nashville, TN, Aug. 2015.
8. Stellar Evolution at the Crossroads: A Closer Look at the RV Tauri Variable Star DF Cygni; Fisk-Vanderbilt Masters-to-PhD Bridge Program, Research Celebration Day. Nashville, TN, Aug. 2015.
9. Diffuse Hot Gas in M51; Chandras X-ray View of Galaxy Ecosystems; Schlegel, Eric M.; Vega, L. D.; Moore, M.; Boston, MA. Jul. 2014.

10. [Diffuse Emission in Nearby, Face-on Spiral Galaxies](#); AAS 223rd Meeting; Schlegel, Eric M.; **Vega, L. D.**; Moore, M.; Washington, DC, Jan. 5-9, 2014.
11. [Diffuse X-ray Emission and Star Clusters in Nearby, Face-on Spiral Galaxies](#); AAS 219th Meeting. Austin, TX, Jan. 7-12 2012.
12. [X-ray Eclipses in the 2010 Outburst of the Recurrent Nova U Sco? & Observations of the 2010 January Outburst of the Recurrent Nova U Sco using NASA's Swift](#); AAS 117th Meeting; McMaster, Laura; **Vega, L.**; Moore, M.; Engelhardt, S.; Schlegel E.; Pagnotta, A.; Seattle, WA, Jan. 9-13 2011.
13. [X-ray Eclipses in the 2010 Outburst of the Recurrent Nova U Sco? & Observations of the 2010 January Outburst of the Recurrent Nova U Scoprius using NASA's Swift](#); **Vega, L.**; McMaster, Laura; Moore, M.; Engelhardt, S.; Schlegel E.; Pagnotta, A.; Joint Fall 2010 Meeting of the Texas Sections of the APS, AAPT, Zone 13 of SPS and the National Society of Hispanic Physicists, San Antonio, TX, October 21-23, 2010.

Leadership & Outreach

Smithsonian National Air & Space Museum Volunteer Astronomer; Oct. 2017 - Present

- [Astronomy Chat](#): Once a month museum-goers can video-chat or chat with me in person to ask questions about my research, what it is like to be an astronomer.

- Hispanic Heritage Month Outreach: Innovators in Air and Space Family Day, Wash. DC, Oct 2017

Barrera Veterans Elementary School - Career Day, Von Ormy, TX, May 2019.

- Chat with children about science, my research, and what it's like to be a scientist.

Bancroft Elementary Saturday Academy - Astronomy Chat, Wash. DC, January 2019

- Visited 2nd and 3rd grade Latinx bilingual students at Bancroft Elementary to talk about astronomy and science. Presentation facilitated by the Smithsonian Air & Space Museum and sponsored by the Smithsonian Latino Center.

Smithsonian Astrophysical Observatory - Rising Stars Camp, St. Katharine Drexel, Roxbury Crossing, MA, July 2018

- Facilitated a number of activities such as the use of the Micro Observatory Robotic Telescopes and software to introduce the children to the life cycle of stars, and other astronomy topics. I also gave a short talk about my research.

Fisk-Vanderbilt Bridge Program Recruitment at SACNAS, Long Beach, CA, Oct 2016

- Booth at SACNAS to recruit for the Fisk-Vanderbilt Bridge Program

- Attended the National Society for Hispanic Physicists

DCA Stars at The University of Maryland, Summer 2016

- Students and mentors met weekly and discussed our research, goals, setbacks, and successes.

Inclusive Astronomy Conference at Vanderbilt, Nashville, TN, June 17-19, 2015

- Host for the inaugural meeting of this revolutionary conference on diversity and inclusion.

Astronomy Torus 2012 Workshop at UTSA, San Antonio, TX, December 5-7, 2012

- International workshop focused on active galactic nuclei

- Local Organizing Committee Member: Logistics planning; Registration desk

Toastmasters International, 10/2013- Present

- Vanderbilt Toastmasters Vice President of Public Relations (05/2015-Present)
- UTSA Roadrunner Toastmasters Treasurer (01/2014-07/2014)
- Deliver prepared and extemporaneous speeches as well as evaluating other speakers.

Society for Advancement of Chicanos & Native Americans in Science (SACNAS)

- **Founding officer** (Treasurer) for the *first* SACNAS chapter in the state of Tennessee
- Hosted an abstract workshop for the 2015 SACNAS Conference. Gave tips and advice on how to make a good scientific abstract.

The Physics Honor Society | Sigma Pi Sigma at UTSA President, 04/2013–01/2014

- Organized student study sessions for the Physics GRE
- Tutored students in physics and Mathematics
- Supplemental officer for Society of Physics Students: Public Relations & Secretary

Society of Physics Students at UTSA

Outreach:

- Various on-campus STEM outreach events for high school students like Nano Day with Partnership for Education & Research in Materials UTSA & Hispanic Chamber of Commerces CORE4 STEM Familia Day Expo UTSA
- Space Day for elementary school children at Forest Hills Public Library
- Student Panelist for Engineering-Day UTSA
- On-campus liquid-nitrogen ice cream sales with physics demonstrations

Public Relations Officer:

- Made posters and flyers of meetings, fundraisers, talks, and events
- Managed social media accounts such as SPS Facebook page
- UTSA Physics & Astronomys Friday Nights, Celestial Lights monthly outreach event

Professional Memberships/Affiliations

Sigma Xi The Scientific Research Society ($\Sigma\Xi$)	2015 - Present
National Society of Hispanic Physicists (NSHP)	2013 - Present
Toastmasters International - Chapters: NASA-Goddard, Vanderbilt, and UTSA	2013 - Present
Society for Advancement of Chicanos & Native Americans in Science (SACNAS)	2013 - Present
American Physical Society (APS)	2011 - Present
American Astronomical Society (AAS)	2011 - Present
Sigma Pi Sigma The Physics Honor Society ($\Sigma\Pi\Sigma$)	2011 - Present
LeaderShape Institute Alumna & Pebble Club	2011 - Present
UTSA Alumni Association	2013 - 2014
San Antonio Astronomical Association	2013 - 2014
UTSA San Antonio Texas Astrophysics Researchers (STAR)	2011 - 2014
Society of Physics Students (SPS)	2010 - 2013
National Society of Collegiate Scholars (NSCS)	2008 - 2013

References

Keivan G. Stassun, Stevenson Professor of Physics and Astronomy
Vanderbilt University, Nashville, TN
(615) 322-2828
keivan.stassun@vanderbilt.edu
Dissertation Advisor

Rodolfo Montez, Jr., Astrophysicist
Smithsonian Astronomical Observatory, Cambridge, MA
(617) 496-7565
rodolfo.montez@cfa.harvard.edu
Research Mentor, Dissertation Committee Member

Patricia T. Boyd, Chief, Exoplanets and Stellar Astrophysics Laboratory
NASA Goddard Space Flight Center, Greenbelt, MD
(301) 286-2550
patricia.t.boyd@nasa.gov
NASA Mentor, Dissertation Committee Member

Eric M. Schlegel, Vaughan Family Professor of Astronomy
The University of Texas at San Antonio, San Antonio, TX
(210) 458-6425
eric.schlegel@utsa.edu
Dissertation Committee Member, Former Undergraduate Research Advisor