

Name: Teresa Monsue

Code: 667, Exoplanets and Stellar Astrophysics Laboratory

Home institution: The Catholic University of America

Name of task: 667.021, Oscillations in flaring stars with TESS and Swift data.

What do you do for CRESST: I am a postdoctoral researcher in the Institute of Astrophysics & Computational Sciences at the Catholic University of America. I study quasi-periodic oscillations in stellar flares. The goal of my research is understanding the processes of these oscillations on Solar-type stars and forming an understanding of the processes of oscillations in flares on our Sun.



Background: I was born in Jamaica and came to the US when I was 10. My childhood years in Jamaica made an indelible impression on my life when it came to my eventual scientific path. I grew up on a large farm ran by my mother. Being around different animals as a child, I thought my path would be in veterinary sciences because of my love and interest in animals. However, it was the very vast and dark night sky with the myriad of stars that called to me at such a young age. Even as a child, being exposed to a sky in the Jamaican countryside that was devoid of light pollution and where you could see the band of the Milky Way, I viewed the nighttime sky in awe. My mother moved both my brother and I from Jamaica; she dreamed to take her children to a place for better and safer opportunities for their lives and chose to move her family to the US. My life in the US took some adjusting to without access to all the space I used to roam on the farm, and I missed the animals and not much of a night sky in south Florida. But as time moved on, I connected with those stars again through voluntary astronomy activities in college in Florida. I spent a few years after my undergraduate education in corporate America working in the Information Technology field and other jobs. I then finally decided to pursue my dream of earning my PhD in physics. I attend both Fisk University and Vanderbilt University through the Fisk-Vanderbilt Master's-to-PhD Bridge Program in Nashville, Tennessee. The program connected me opportunities in solar physics and working with flare data on our Sun through an internship at the National Solar Observatory and a prestigious graduate fellowship, the Harriet G. Jenkins Predoctoral Program (through MUREP-Minority University Research and Education Project) to work with mentors and advisors at NASA to guide me through my PhD path. I studied the behaviors of acoustic oscillations around solar flares in the chromosphere and defended my dissertation at the end of 2018. After my PhD I applied to the National Postdoctoral Program, and in 2019 had the great opportunity to work with stellar data observations to detect oscillations in flares in both Swift and TESS data. I then continued my work through CRESST in 2022.

Favorite part of being a CRESST Scientist? My favorite part of being a CRESST scientist is just the experience of being a scientist. Being able to formulate ideas and testing them, while working to collaborate with colleagues to evolve my research and disseminate to the scientific community. Another favorite part of being a part of CRESST is being able to be a mentor to other peer scientists in training and learning how to be a better teacher and mentor.

Highlight of research as a CRESST Scientist? I am always open to evolving my research knowledge. My research working in stellar astrophysics connects me in understanding how flaring processes on our Sun occur on other solar-type stars, and then taking that knowledge to understand the solar flaring processes on the Sun. Therefore, I work in the intersection between solar and stellar physics in understanding the processes of oscillations in flares.

Possibly **a list of publications**, presentations, conferences they have spoken at etc.

Wittrock, J. *et al.*, including T.A. Monsue (2022). Transit Timing Variations or AU Microscopii b and a, *The Astronomical Journal*, Volume 164, Issue 1, id.27, 30 pp.

Paudel, R. *et al.*, including T.A. Monsue (2021). Simultaneous Multiwavelength Flare Observations of EV Lacertae. *The Astrophysical Journal*, Volume 922, Issue 1, id.31, 20 pp.

Gilbert, E.A. *et al.*, including T.A. Monsue (2020). The First Habitable-zone Earth-sized Planet from TESS. I. Validation of the TOI-700 System. *The Astronomical Journal*, Volume 160, Issue 3, id.116

List of awards won:

-TESS Guest Investigator Program – Cycle 5 (G05150, 2022) – Multiwavelength TESS-Swift-NICER Observations of Pulsations in Flares on Solar-type Stars

-TESS Guest Investigator Program – Cycle 4 (G04222, 2021) – “And Now for Something Completely Different:” Flares and Oscillations”

-Sigma-Xi Grants-in-Aid of Research (\$3000 for graduate research), 2016-2017

-NASA Harriet G. Jenkins Predoctoral Fellowship (MUREP, 2013-2017)

Three fun facts: 1) Scrabble enthusiast. 2) Classical solo flute. 3) I love fishing and being out in nature with my doggie Snow.