Name: Swara Ravindranath
Code: 665
Home institution: NASA Goddard Space Flight Center/Catholic University of America
Name of task: Cosmic Origins

Role in task/ what they do for CRESST:

As a Deputy Chief Scientist for Cosmic Origins program, my role is to coordinate the programmatic activities of the Cosmic Origins program office and to support the work of the Cosmic Origins Program Analysis Group (COPAG) which is a community-led forum constituted by the NASA Astrophysics Division. My task is to promote future NASA Astrophysics missions, and to support the astronomy community engaged in Cosmic Origins research. I manage and offer leadership to the science analysis, technology prioritizations, and COPAG activities that enable to achieve NASA's objectives. I communicate to the astronomical community about opportunities, events, and news items relevant to NASA astrophysics, and support the Cosmic Origins program office at various conferences and meetings.

Background/ Autobiography?
I obtained my Ph.D degree on the topic of Star Formation in Starburst Galaxies from the Indian Institute of Astrophysics in Bangalore, India. I came to the US as a postdoctoral researcher at the Carnegie Observatories in Pasadena, California, and then moved to Space Telescope Science Institute, Baltimore, Maryland. During my postdoctoral research, I worked on various topics related to galaxy formation and evolution, including the coevolution of supermassive black holes and their host galaxies, and the evolution of galaxy morphology and sizes over cosmic time. I returned to India as an assistant professor at the Inter-University Center for Astronomy and Astrophysics in Pune for a few years. During 2013 to 2023, I worked at Space Telescope Science Institute in various roles during the years leading up to the launch and commissioning of the James Webb Space Telescope. I was an instrument scientist for one of the Webb telescope instruments, the Lead for the Webb exposure time calculator, and Deputy Lead for the Webb Instruments Calibration group. I joined CRESST II at the Catholic University of America in Spring 2023 to serve as the Deputy Chief Scientist for the Cosmic Origins Program at NASA GSFC.

Favorite part of being a CRESST Scientist?
CRESST II has given me the opportunity to work with NASA, and that is without doubt, a dream come true for me. I work with the best scientists and engineers and can participate closely with various NASA missions. My current role gives me a platform to inspire and mentor young researchers who want to pursue a career in astronomy and dream of being part of NASA astrophysics. My affiliation with CRESST II through Catholic University of America offers me a chance to work with their students on research projects, and I have found that to be a rewarding experience.

Highlight of research as a CRESST Scientist?
My current research focuses on understanding the process of reionization of the Universe. I use observations from the Webb Telescope to study the nature of compact star clusters and young galaxies that produce copious amounts of ionizing radiation. The big picture questions I try to answer

through my research are: What are the sources of reionization of the Universe? and how did the ionizing radiation escape the galaxies to ionize the intergalactic medium? Answering these questions require a detailed understanding of the ionizing photon production and the various mechanisms for escape of the ionizing photons. Local analogs which are nearby star-forming galaxies with extreme properties (low metallicity and high ionization) serve as laboratories where we can study and calibrate the observables in greater detail. For this purpose, I use the Ultraviolet spectrum of local star-forming galaxies to help us interpret the observations of distant, young galaxies and understand the reionization process. I also work on various projects related to galaxy formation and evolution. I am a collaborator on various Webb Telescope science projects including CEERS, CANUCS, NGDEEP, and Cosmic Spring. I am also a collaborator on the Hubble Space Telescope projects UVCANDELS, CLASSY, and LzLCS.

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

Selected Publications

1. **S. Ravindranath** *et al* 2020 *ApJ* 896 170, The semi-forbidden CIII]1909 emission in the rest-ultraviolet spectra of green pea galaxies.
2. A. E. Jaskot and **S. Ravindranath** 2016 *ApJ* 833 136, Photoionization models for semi-forbidden CIII]1909 emission in star-forming galaxies.
3. S. Withers, A. Muzzin, **S. Ravindranath** *et al* 2023 *ApJL* 958 L14, Spectroscopy from photometry: A population of extreme emission line galaxies at 1.7<z<6.7selected with JWST medium band filters.
4. Y. I. Izotov, D. Schaerer, G. Worseck, D. Berg, J. Chisholm, **S. Ravindranath**, T. X. Thuan, 2023 MNRAS 522 1228, Abundances of CNO elements in $z \sim 0.3$–0.4 Lyman continuum leaking galaxies.

Selected Presentations

1. Space Telescopes – Talk given at the San Antonio Teacher Training Astronomy Academy (SATTAA 2024), University of Texas at San Antonio on July 18, 2024
2. Uncovering the drivers of galaxy growth science cases – Talk given at Habitable Worlds Observatory Face-to-Face meeting, Baltimore, June 2024
3. New insights into the reionization epoch as revealed by the Webb Telescope – Indian Institute of Science Education and Research, Mohali, on November 21, 2023

List of awards won:

1. 2024 - NASA Silver Group Achievement Award as part of the JWST Instrument Commissioning Team
2. 2023 – AURA Outstanding Achievement Award as part of the JWST Commissioning Team
3. 2022 – STScI Achievement Award as part of the Early Release Observations Team
4. 2021 – AURA Outstanding Achievement Award as part of the JWST Cycle 1 User Support Team

Three fun facts:

1. I was part of the JWST commissioning team and the JWST Early Release Observations team and got to see some of the very first JWST images before they were released to the public. The experience of being part of the JWST team for 10 years was very rewarding and I am thankful that I had that opportunity.
2. I was lucky to see the total Solar Eclipse twice and both times in locations with clear viewing.

3. I love to travel to new places, meet new people and learn about different cultures. For me, travel offers a sense of freedom and provides fresh perspectives on life.