

Name: Erin Boettcher (she/her/hers)

Code: 662

Home institution: University of Maryland, College Park

Name of task: Observations of Circumgalactic Gas and Dust (662.004)

Role in task/What do you do for CRESST:

I use multi-wavelength observations to study how gas cycles into and out of galaxies and the implications for galaxy growth and evolution. As a CRESST scientist, I'm collaborating with Dr. Edmund Hodges-Kluck on studies of circumgalactic gas and dust in the local universe. I'm currently focused on characterizing circumgalactic dust in the halos of edge-on disk galaxies using archival UV imaging data.



What is your background:

I'm originally from the Chicago area, and I moved to southeastern Connecticut in high school. I obtained a B.S. in Astrophysics from Haverford College, where I first became excited about astronomy research. I then pursued a Ph.D. in Astronomy at the University of Wisconsin - Madison, where I collaborated with Profs. Ellen Zweibel and Jay Gallagher on dynamical studies of extraplanar gas in nearby galaxies. My first postdoc position was at the University of Chicago, where I worked with Prof. Hsiao-Wen Chen and the Cosmic Ultraviolet Baryon Survey team on a large Hubble program characterizing the intermediate-redshift circumgalactic medium. I recently joined CRESST-II in September of 2021, and I'm excited to build new collaborations and expand my research program on baryon cycling in the local universe.

Favorite part of being a CRESST Scientist:

I enjoy the opportunity to connect with a broad and diverse group of scientists at UMCP and GSFC and to gain insight into the nature of mission development and support at NASA. As an observational astronomer, I enjoy learning about the process that allows a mission concept to become data in the hands of the scientists. It's also given me a better appreciation of the diverse and talented teams that bring these projects to fruition and allow the field to advance.

Highlight of research as a CRESST Scientist:

I'm new to CRESST-II as of mid-September 2021, so I'm in the early stages of my research as a CRESST scientist. I'm currently working on a study of circumgalactic dust in nearby, edge-on disk galaxies that will characterize the presence and properties of dusty halos in galaxies with a range of morphologies and star-formation rates. I'm excited to explore what we can learn about

the circulation of gas between galaxy disks and halos by better understanding how dusty gas travels far from star-forming regions due to energetic feedback processes.

Selected recent publications:

Boettcher, E., Chen, H.-W., Zahedy, F. S., et al. 2021, ApJ, 913, 18

- *The Cosmic Ultraviolet Baryon Survey (CUBS). II. Discovery of an H₂-bearing DLA in the Vicinity of an Early-type Galaxy at z = 0.576*

Boettcher, E., Gallagher, J. S., III, Ohyama, Y., et al. 2020, A&A, 637, A17

- *VV 655 and NGC 4418: Implications of an interaction for the evolution of a LIRG*

Boettcher, E., Gallagher, J. S., III, & Zweibel, E. G. 2019, ApJ, 885, 160

- *A Dynamical Study of Extraplanar Diffuse Ionized Gas in NGC 5775*

List of awards won:

National Science Foundation Graduate Research Fellowship, 2014
Stebbins Award, University of Wisconsin Astronomy Dept., 2017

To Contact Erin to learn more about her work and collaboration, she can be reached at:
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