Curriculum Vitae of Isabella Cox

Education

Rochester Institute of Technology (RIT) — Rochester, NY
PhD in Astrophysical Sciences and Technology — Aug. 2020 – May 2025

Rochester Institute of Technology — Rochester, NY
B.S. Physics; Astronomy Minor — Aug. 2016 – May 2020
Honors Program

Research Experience

Multi-wavelength Analysis of Brightest Cluster Galaxies 2014 – 2016
Mentors: Drs. Stefi Baum, Chris O'Dea, Kevin Cooke (RIT)
I worked with spectroscopic and photometric data to compute star formation rates for a sample of Brightest Cluster Galaxies.

Pipeline to Reduce Spectroscopic Data 2016 – present
Mentors: Dr. Jeyhan Kartaltepe (RIT)
I independently designed a pipeline to reduce spectroscopic data from the twin Gemini telescopes that were taken in nod and shuffle mode. Currently, I am measuring redshifts and fluxes from the spectra.

Pipeline to Reduce Spectroscopic Data Summer 2018
Mentors: Dr. Jeyhan Kartaltepe (RIT)
I was awarded a research opportunity from NSF Research Experience for Undergrads (REU) to continue on my pipeline to reduce spectroscopic data.

Comparing Scaling Relations between Simulations Summer 2019
Mentors: Drs. Kate Whitaker, Kristian Finlator, Nina Bonaventura (DAWN Institute)
I was awarded a research opportunity from NSF Research Experience for Undergrads (REU) to work with scientists at the DAWN Institute based in Copenhagen, Denmark to compare the scaling relations of simulated high redshift galaxies from three different simulations (IllustrisTNG, EAGLE, FirstLight).

Finding Clumps in Galaxies with Resolved Property Maps 2019 - 2020
Mentors: Dr. Jeyhan Kartaltepe (RIT)
I performed pixel-by-pixel SED fitting on a sample of star-forming galaxies and first identified clumps, and then analyzed the contribution from clumps to the global properties.

Honors

Computational Medal (RIT)	2015
Physics Achievement Award (RIT)	2018
Goldwater Nominee	2019
College of Science Research Scholar (RIT)	2020

Publications

Star Formation in Intermediate Redshift 0.2 $<$ z $<$ 0.7 Brightest Cluster Galaxies. Cooke, K. C., O'Dea, C. P., Baum, S. A., Tremblay, G. R., **Cox, I. G.**, Gladders, M. D., 2016, ApJ, 833, 224-234.

Investigating the Effect of Galaxy Interactions on AGN Enhancement at 0.5 $<$ z $<$ 3.0. Shah, E. A., Kartaltepe, J. S., Magagnoli, C. T., **Cox, I. G.**, et. al. 2020, ApJ, 904.

Presentations

Brightest Cluster Galaxies Identified as Possibly Undergoing Star Formation. RIT Undergraduate Research Symposium (August 2014).

Reduction and Analysis of GMOS Spectroscopy. RIT Undergraduate Research Symposium (August 2018).

Reduction and Analysis of GMOS Spectroscopy for Herschel Sources in CANDELS. The Universe by the Light of CANDELS: Past and Future at UMASS Amherst (October 2018).

Reduction and Analysis of GMOS Spectroscopy for Herschel Sources in CANDELS. 233rd American Astronomical Meeting in Seattle, WA (January 2019).

Comparing the SFR- and Halo-Stellar Mass Relations of Three Cosmological Simulations at z $>$ 6. 235th American Astronomical Meeting in Honolulu, HI (January 2020).

Computer Skills

Python (including object oriented programming), IRAF, IDL, bash, git, LaTeX.

Service

Member of Local Organizing Committee for RIT Hosted Conference for Undergraduate Women In Physics (August 2017 - January 2018).

Panelist on REU Bootcamp presentation hosted by Women in Science at RIT (November 2018).

Member of AAS Working Group for Astronomers with Disabilities.