Curriculum Vitae of Isa Cox

Education

Ph.D. Astrophysical Sciences and Technology — Aug. 2020 – present
Rochester Institute of Technology (RIT) — (expected Summer 2026)

M.S. Astrophysical Sciences and Technology — August 2022
Rochester Institute of Technology

B.S. Physics (Astronomy Minor, Honors program) — Aug. 2016 – May 2020
Rochester Institute of Technology

Research Projects

Production of photometric catalogue for CEERS — 2023 – ongoing
Mentor: Dr. Jeyhan Kartaltepe (RIT)
I am producing a photometric catalogue for the CEERS collaboration, that will be used for my mass map project (see below) and by collaberators.

Analysis of mass maps constructed with JWST data — 2021 – ongoing
Mentor: Dr. Jeyhan Kartaltepe (RIT)
I have constructed maps from JWST data that show the distribution of mass in galaxies at $0.5 \leq z \leq 4$. I use these mass maps to study the mass assembly of this population, including quantifying the merger rate and the size-mass relation. I will use data from Cycle 1 JWST programs CEERS (PID: ERS-1345), NGDEEP (PID: GO-2079), and PRIMER (PID: GO-1837).

Pipeline to Reduce Spectroscopic Data and Analysis — 2016 – 2022
Mentor: Dr. Jeyhan Kartaltepe (RIT)
I reduced spectroscopic data from the Gemini telescopes that were not compatible with existing pipeline. This research was part of an NSF Research Experience for Undergraduates (REU) Summer 2018. Further analysis of emission lines in the spectra was the content of my Master's thesis defended in Summer of 2022.

Comparing Scaling Relations between Simulations — Summer 2019
Mentors: Drs. Kate Whitaker, Kristian Finlator, Nina Bonaventura (DAWN Institute)
I was awarded an NSF REU to work with scientists at the DAWN Institute in Copenhagen, to compare the scaling relations of simulated high redshift galaxies from three cosmological simulations (IllustrisTNG, EAGLE, FirstLight).

Finding Clumps in Galaxies with Resolved Property Maps — 2019 - 2020
Mentor: Dr. Jeyhan Kartaltepe (RIT)
I constructed resolved property maps to identify clumpy regions of star formation within a sample of star-forming galaxies. This work was my senior capstone project for my undergraduate studies.

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.

Honors

Steven Wear Endowed Fund Recipient - $5,000 (RIT)	2022
Andy Langner Endowed Fund Recipient - $1,000 (RIT)	2020
College of Science Research Scholar (RIT)	2020
Goldwater Nominee	2019
Physics Achievement Award (RIT)	2018
Computational Medal (RIT)	2015

Co-authorship Publications

The Next Generation Deep Extragalactic Exploratory Public Near-Infrared Slitless Survey Epoch 1 (NGDEEP-NISS1): Extra-Galactic Star-formation and Active Galactic Nuclei at $0.5 < z < 3.6$ Pirzkal, N., Rothberg B., Papovich C., et al. (and 53 additional authors including **Cox, I. G.**), 2024, ApJ. https://arxiv.org/abs/2312.09972

A CEERS Discovery of an Accreting Supermassive Black Hole 570 Myr after the Big Bang: Identifying a Progenitor of Massive $z > 6$ *Quasars* Larson, Rebecca L., Finkelstein, Steven F., Kocevski, Dale D., et al. (and 48 additional authors including **Cox, I. G.**), 2023, ApJL. https://arxiv.org/abs/2303.08918

The Next Generation Deep Extragalactic Exploratory Public Near-Infrared Slitless Survey Epoch 1 (NGDEEP-NISS1): Extra-Galactic Star-formation and Active Galactic Nuclei at $0.5 < z < 3.6$ Pirzcal Nor, Rothberg, Barry, Papovich, Casey, et al. (and 49 additional authors including **Cox, I. G.**), 2023, Submitted to arXiV. https://arxiv.org/abs/2312.09972

The Next Generation Deep Extragalactic Exploratory Public (NGDEEP) Survey Bagley, Micaela B., Pirzkal, Nor, Finkelstein, Steven F., et al. (and 44 additional authors including **Cox, I. G.**), 2023, ApJL. https://arxiv.org/abs/2302.05466

CEERS Key Paper III: The Diversity of Galaxy Structure and Morphology at z=3-9 with JWST Kartaltepe, J. S., Rose, C., Vanderhoof, B. N., et al. (**Cox, I. G.**, 6th of 60 authors), 2023, ApJL. https://arxiv.org/abs/2210.14713

COSMOS-Web: An Overview of the JWST Cosmic Origins Survey Casey, C. M., Kartaltepe, J. S., Drakos, N. E., et al. (**Cox, I. G.**, 7th of 79 authors), 2022, ApJ. https://arxiv.org/abs/2211.07865

A Dusty Starburst Masquerading as an Ultra-High Redshift Galaxy in JWST CEERS Observations Zavala, J. A., Buat, V., Casey, C. M., et al. (and 117 additional authors including **Cox, I. G.**), 2022, ApJL. https://arxiv.org/abs/2207.12474

A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 12$ *Galaxy in Early JWST CEERS Imaging* Finklestein, S. L., Bagley, M. B., Haro, P. A., et al. (and 116 additional authors including **Cox, I. G.**), 2022, ApJL. https://arxiv.org/abs/2207.12474

Investigating the Effect of Galaxy Interactions on Star Formation at $0.5<z<3.0$. Shah, E. A., Kartaltepe, J. S., Magagnoli, C. T., **Cox, I. G.**, et. al. 2022, ApJ. https://arxiv.org/abs/2209.15587

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. https://arxiv.org/abs/2010.02710

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. https://arxiv.org/abs/1610.05310

Presentations

Stellar Property Maps at Cosmic Noon using CEERS JWST Imaging. 241th American Astronomical Meeting in Seattle, WA (Virtual presentation; January 2023).

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

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

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. RIT Undergraduate Research Symposium (August 2018).

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

Service

Experienced responder and training facilitator for crisis hotline led by individuals in STEM (*THRIVE Lifeline*; 1 year).

Volunteer letter writer for *Letters for a Pre-Scientist* program that pairs scientists to be pen pals with middle school students (1 year).

Member of AAS Working Group for Astronomers with Disabilities.

Presenter for featured exhibit at Imagine RIT festival (Spring 2021).

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

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