Junehyoung Jeon

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Research Interests

I am interested in how the early Universe and its components such as galaxies and black holes evolved. I am further interested in creating/using theoretical models and hydrodynamical simulations to study early structure formation.

Education

Doctor of Philosophy in Astronomy Expected completion 2026
Astronomy Department, University of Texas at Austin, Austin, Texas

Bachelor of Science in Astrophysics, Minor in Physics May 2021
Barrett Honors College, Arizona State University, Tempe, Arizona
Average unweighted GPA: 4.0/4.0

Publication

Jeon, J. et al. (2023). *Observability of Low-Luminosity AGN in the Early Universe with JWST*. `https://arxiv.org/abs/2304.07369`. Published in MNRAS

Jeon, J. et al. (2022). *Maximal X-ray feedback in the pre-reionization Universe.* `https://ui.adsabs.harvard.edu/abs/2022MNRAS.515.5568J/abstract`. Published in MNRAS

Teaching

Practical Introduction to Research 2021

- Guided students through in-class activities such as coding, writing resume, and making posters, providing them with introductory skills in academia.
- Prepared coding and lecture modules for the students, leading the students to understand the concepts.

Cosmology 2022

- Explained course topics to students after class, helping them individually to grasp lecture concepts that they might not have fully understood.
- Guided students through their homeworks, assisting them in understanding questions and steps to solve various cosmology problems.

Research Experiences

Studying galaxies at z∼6 2019 - 2021
Arizona State University
Dr. Rogier Windhorst

- Modeled 53 galaxies using the CIGALE code for SED modeling and determined 47 with valid models with data from previous papers and also extracted data from SDF K-band to add flux data points to the models
- Worked as the primary author in the paper detailing the creation and analysis of the models
- Analyzed the models to determine the fraction of high escape fraction galaxies around $z = 6$ and concluded on their significance on reionization

JWST Cycle-1 Proposed Program: NIRSpec/IFU Observations of Luminous Galaxies at $5.7 < z < 6.6$ 2020

University of Arizona
Dr. Eiichi Egami

- Worked as a co-investigator and performed realistic simulations of Near Infrared Spectrograph (NIRspec) with the Exposure Time Calculator (ETC) to predict JWST observations of extremely blue galaxies that couldn't be modeled accurately so far
- Compared SED models from Jeon, J. et al. (2020) to the predicted spectra of the galaxies to determine where most data was needed
- Created figures showing the model and simulated spectra of the galaxies along with their images to be put in the proposal and improve the case for observing these galaxies