**Investigating black hole-galaxy coevolution with JWST: The first study of AGN ionization in High-z Radio Galaxies**

High-z Radio Galaxies (HzRGs, z=2-4) are among the most massive, luminous, and extreme objects in the universe. Their central supermassive black holes drive powerful relativistic jets that can influence the galaxy’s environment by shocking/heating or removing the cold gas needed for star formation. Yet, HzRGs do not appear to be quenching like their low-z counterparts. Instead, these systems are rampant with the intense star formation and evolutionary activity, suggesting that our interpretation of “radio-mode” feedback as a quenching mechanism is incomplete. Gaining a complete picture of how the jet regulates the galactic environment requires probing the jet-ISM interaction in multiple gas phases. However, challenges in resolving AGN/jet ionization lines at high redshift has limited our view of radio-mode feedback in HzRGs to the molecular gas phase. For the first time, JWST offers the high resolving power needed to peer into the ionized gas phase in high-z galaxies, allowing us to probe the jet’s interaction with the local, ionized ISM. We propose to conduct observations of key AGN/jet ionization lines ([OIII], [NII], [SII], Halpha, and Hbeta) in 5 HzRGs using NIRCam narrow and medium-band filters. These observations, in conjunction with archival radio observations of cold, molecular gas, will enable us to probe the jet-ISM interaction through spatial and kinematic mapping of the multiphasic gas. This will reveal insight as to how the jet regulates the galactic environment during the peak epoch of massive galaxy formation and will have far-reaching implications for the role of radio-mode feedback in driving a galaxy’s evolution.