

# Probing the Genesis of Supermassive Black Holes: Emerging Perspectives from JWST and Expectation toward New Wide-Field Survey Observations

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## The Extreme Local Environments of High- $z$ Quasars

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The environments of high-redshift quasars are a key probe of the formation and growth of supermassive black holes in the early Universe. With JWST, we can study their local kpc-scale environments in great detail. Here I will present our latest work using the NIRSpec IFU to study high- $z$  quasars and their host galaxies. In the GANIFS program, we have discovered a large number of interacting companion galaxies around our sample of quasars, undergoing significant mergers with the quasar hosts. We have also discovered a quasar undergoing a trainwreck merger with multiple galaxies and a tidal stream as part of the PEARLS program. I will show these latest results, and discuss how we can use these new observations to help understand the growth of the first black holes.

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