

R17a Structural Properties of Type 2 AGN Host Galaxies with JWST/NIRCam

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Understanding how star-forming galaxies quench into quiescent systems remains a central question in galaxy evolution. Since quenching is strongly linked to bulge growth and central concentration, clarifying how AGN activity relates to structural change is essential. Type 2 AGNs allow direct host-morphology measurements because their dust-obscured nuclei do not hide the galaxy as in Type 1 AGN. The structural properties of Type 2 hosts were poorly constrained at $z > 1$ before JWST. We can now resolve these galaxies on kiloparsec scales and test if Type 2 phases represent evolutionary stages associated with morphological transformation.

We analyze 53 Type 2 AGN drawn from deep JWST/NIRCam imaging, spanning two redshift ranges ($z \sim 0.7-1.0$ and $z \sim 1.4-1.8$) and stellar masses of $\log(M_*/M_\odot) \sim 8.0-11.5$. The sample is selected through Chandra X-ray detection and narrow Balmer emission lines from Subaru/FMOS spectroscopy, ensuring reliable Type 2 classification. Using Galight, we perform 2D AGN-host decomposition in 4 NIRCam bands with band-matched PSFs, deriving structural parameters and residual images to verify the robustness of the model fits.

Type 2 AGN host galaxies show systematically lower Sersic indices than Type 1 hosts across all stellar masses and redshifts, with only weak evolution between the two redshift groups. Their effective radii are also smaller than those of Type 1 hosts at fixed mass and redshift, and exhibit mild size evolution, with the lower- z group being larger by about 0.5 kpc compared to the higher- z group.