

X15a **JWST and ALMA discern the assembly of structural and obscured components in a high-redshift starburst galaxy**

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We present observations of the starburst PACS-819 at $z = 1.45$ ($M_* = 10^{10.7} M_\odot$), using high-resolution ($0''.1$) ALMA and JWST images from COSMOS-Web. Contrary to HST images in the rest-frame UV, NIR-Cam and MIRI images show a central mass concentration and spiral features, unusual for intense starbursts. Dynamical modeling of the CO (5–4) emission with ALMA suggests PACS-819 is rotation-dominated, with a disk-like nature. However, kinematic anomalies in CO and asymmetric features in bluer bands hint at a disturbed nature, likely from interactions. JWST imaging allows mapping of stellar mass and dust attenuation, clarifying the relationships between structural components, not discernible in HST images. The CO (5–4) and FIR dust continuum emissions coincide with a heavily-obscured starbursting core (~ 1 kpc), encircled by less obscured star-forming structures, including an arc and a clump, indicative of disk instability or a recent satellite accretion. These observations shed light on the complex nature of distant universe starbursts, demonstrating the value of high-resolution observations with ALMA and JWST.