R07a Pc-scale observations of the circumnuclear molecular disk of Centaurus A

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We reveal the distribution and kinematics of the warm and dense molecular gas in the circumnuclear disk (inner $400\,\mathrm{pc} \times 200\,\mathrm{pc}$) of Centaurus A (NGC 5128) with resolutions of $5\,\mathrm{pc}$ (0.3) and shed light onto the mechanism feeding the powerful active galactic nucleus residing in this elliptical galaxy from hundred parsecs down to the nuclear disk. We present CO(3–2), HCO+(4–3), HCN(4–3), and CO(6–5) emission line maps with $5\,\mathrm{pc}$ resolution obtained with the Atacama Large Millimeter Array. A large complexity is found in the distribution and kinematics of the molecular gas in the circumnuclear disk, including multiple streamers of tens or hundred of parsec scale, a ring-like structure with a diameter of $160\,\mathrm{pc}$ and two nearly parallel filamentary structures centered at the AGN with lengths of about $30\,\mathrm{pc}$.