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Anomalous HI gas around MHONGOOSE galaxy NGC 5068

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How galaxies replenish their gas supply in order to sustain star formation, is a research topic of many of the new and upcoming neutral atomic hydrogen (HI) surveys on the SKA precursor instruments.
I present recent deep HI observations of NGC 5068, an isolated nearby star-forming galaxy observed by MeerKAT as part of the MHONGOOSE survey. This survey is the deepest HI survey of nearby galaxies until the advent of the SKA and is reaching column densities of NHI (3sigma) ~3x10^19 cm^-2 at 11”to ~7x10^17 cm^-2 at 90”resolution. These deep observations show that the galaxy comprises of three components: a settled, regularly rotating inner disk that is coincident with the star-forming disk, a more chaotic warped outer disk, and a third component that comprises of a number of clouds to the north west of the galaxy that appear to be linked to “fingers” of HI seen stretching out from the inner HI disk. While the origin of these features remains a mystery for now, the dynamics of the main galaxy disk and the warped outer disk, as well as the morphology of the fingers and clouds, do not seem to suggest a previous merger event. It is possible that we are observing accretion of HI onto the disk of NGC 5068

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