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SKA continuum observations to study star formation in nearby galaxies

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One of the challenges in star formation studies is to link the intra-cloud understanding of the processes, obtained in the Milky Way, to the picture of kpc-scale relations usually studied in external galaxies.
Nearby galaxies are the ideal laboratory for this investigation since they allow the study of star formation processes on large-scale, while still being close enough to reveal the local details, if high resolution and sensitivity are achieved.
Images of the molecular emission at tenths of pc scales from nearby galaxies are now routinely produced thanks to ALMA's unprecedented capabilities. The SKA, with its high sensitivity and sub-arcsec resolution, will be as well a transformational instrument in the study of star formation and accretion activity in nearby galaxies, through radio continuum observations.
SKA will allow to decompose nearby galaxies in their compact radio source population, including accretion dominated AGN as well as tracers of early stages of star formation, like HII regions, super star clusters, supernova remnants. The comparison of their radio continuum emission, both thermal and non-thermal, with the molecular counterpart will give useful information on the role of the different interstellar medium components in the star formation processes.

Reasearch area

Extragalactic Continuum (galaxies/AGN, galaxy clusters)

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