

Radio Ring Galaxies

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A new generation of radio telescopes such as ASKAP, MeerKAT and LOFAR are bringing new discoveries because of their high sensitivity to low surface brightness objects and the wide field coverage. Odd radio circles (ORC), intergalactic SNR and various other features connected with the shapes of AGN jets such as the re-collimator NGC 2663 and Dancing Ghosts are the most recent examples of such new and intriguing findings.

While searching for ORC in ASKAP and MeerKAT radio continuum images, we discovered eight radio rings (diameter $< 2'$) associated with face-on spiral galaxies but without the central core. We named these Radio Ring Galaxies (RaRiGx). In some cases, we find that the radio emission follows the optical spiral arms which could potentially indicate either thermal or non-thermal structure connected to the HII regions or SNR activity. However, in the others we find the opposite as we can see anticorrelation which might be a product of intergalactic medium accretion or some massive central explosion. Finally, we note that the size (8-38-kpc) of our eight RaRiGx is significantly larger than the circumnuclear rings of NGC 1326 and NGC 7552 which may indicate different physical processes.

Therefore, we have an excellent sample of eight RaRiGx where at least four need different explanations from the “starburst” as their radio emission is in between galaxy optical spiral arms.

keywords

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In-person or online?

online

Career level

Student

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