Title : Radio galaxies in remnant phase

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Abstract :
The multi-frequency radio observations have demonstrated that the AGN activity in galaxies is only a phase (‘active phase’) lasting for a few tens of million years. After the cessation of AGN activity, the outflowing jets are no longer sustained, which results in the stoppage of plasma supply to radio lobes. Therefore, the cessation of AGN activity in radio galaxies leads to a dying or remnant phase during which radio lobes can still be detected for a relatively short period of time before they fade away due to energy losses via radiative and dynamical processes. Due to frequency dependent radiative losses radio lobes often exhibit steep spectrum low-surface brightness diffuse emission. Previous generation radio surveys with limited sensitivity detected only a small population of such sources. With upgraded GMRT and LOFAR surveys we detect more number of remnant radio galaxies. Multiwavelength observations suggest that the population of remnant sources could constitute a significant fraction of small-size sources (< 200 kpc). The deep radio surveys at low-frequencies are suggesting that remnant sources can be more abundant that than believed earlier. In this presentation, I shall highlight the need for wide-field deep radio surveys to comprehend the evolution of radio galaxies in their remnant phase.