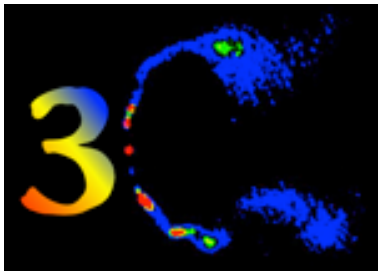

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A low frequency view on the restarted radio galaxy 3C388

Thursday, 19 September 2019 16:40 (20 minutes)

Radio loud Active Galactic Nuclei are episodic in nature, cycling through periods of activity and quiescence. The study of this duty cycle is essential for quantifying the feedback of radio jets on the host galaxy, which is a key parameter in galaxy evolution models. Evidence of this recurrence is observed in restarted radio galaxies, where large-scale old plasma is seen together with a pair of new-born jets. These sources provide a unique opportunity to get constraints on the timescale of the jet activity.

In this talk I present recent results on the well-known restarted radio galaxy 3C388. While most of the known restarted sources have been identified from their morphology, 3C388 represents a unique case where multi-epoch activity has been pointed out from a sharp discontinuity in the radio spectral index distribution of its lobes at GHz frequencies. Thanks to new generation instruments we have been able to expand the investigation of this source in the MHz regime for the first time. In particular, we have complemented the published data at GHz frequencies with new dedicated LOFAR observations at 150 MHz, JVLA observations at 350 MHz and archival GMRT data at 610 MHz.

I will show how the new broad radio spectral coverage allows us to probe the radiative age of the lobes and make a step forward in the understanding of the nature of this well-known radio galaxy. Moreover, I will show the incredible prospects of combining new generation radio data at different frequencies to perform systematic studies of the spatially resolved spectral properties of restarted radio galaxies, and radio galaxies in general.

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Session Classification: Extragalactic jets at all scales: from the central supermassive black hole to their interaction with the large scale environments