

The Third National Workshop on the SKA Project - The Italian Route to the SKAO Revolution



Contribution ID: 13

Type: **not specified**

Galaxy clusters in the LOFAR Two-meter Sky Survey

Wednesday, 6 October 2021 10:10 (20 minutes)

The LOFAR Two-meter Sky Survey (LoTSS) is an on-going survey aimed at imaging the entire northern sky at 120-168 MHz with unprecedented resolution and sensitivity in this frequency range. It had its first data release in 2019 and a new, second data release is forthcoming. LoTSS-DR2 will comprise images for 5700 square degrees of the northern sky, where more than 4 million radio sources have been detected. One of the main goals of this survey is to study diffuse synchrotron sources in galaxy clusters, such as radio halos, mini-halos, relics, and AGN with extended emission. In this talk, I will present the results from the analysis of all the 309 galaxy clusters detected by the Planck satellite that reside in the LoTSS-DR2 area. I will discuss the challenges faced during the analysis of this large sample and summarize the properties of the sources observed, showing how LoTSS observations are allowing us to expand the parameter space of galaxy cluster studies. This project represents the largest search for diffuse synchrotron sources in the intra-cluster medium performed to date and the first statistical study dealing with hundreds of clusters covered by deep low-frequency radio observations.

Research area

Extragalactic Continuum (galaxies/AGN, galaxy clusters)

Primary author: BOTTEON, Andrea (Leiden Observatory)

Presenter: BOTTEON, Andrea (Leiden Observatory)

Session Classification: Non-Thermal Processes in Galaxy Clusters