

Aper-V - The Apertif Circular Polarisation Survey

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The circularly polarised radio sky is a big unknown in astronomy due to the scarcity of sources. It has been shown that objects such as pulsars, brown dwarfs, exoplanets, transient events and AGN can be circularly polarised. The fractions of circular polarisation for most of the detected sources reach some percent at most. Therefore, to examine the composition and characteristics of these sources untargeted large area widefield surveys performed with telescopes where the instrumental characteristics are well known are needed.

Recent analysis of survey data from the LOFAR and MWA telescopes covered 5634 deg^2 and 30900 deg^2 at 144 MHz and 200 MHz detecting 68 and 35 sources, respectively. Here we present the first results of an untargeted Stokes V survey at 1.4 GHz covering approximately 2000 deg^2 using the Apertif data. We will illustrate how to characterise the circular polarisation leakage behaviour of the Apertif phased array feeds and mitigate their influence for source identification. We will compare our results to the lower frequency surveys allowing us to investigate the spectral behaviour of the detected sources. In addition, the repeating observational setup of the Apertif surveys allows us to investigate a possible time evolution.

keywords

survey overview, source finding, calibration, polarisation

In-person or online?

in-person

Career level

ECR

Primary author: ADEBAHR, Björn (AIRUB)

Presenter: ADEBAHR, Björn (AIRUB)

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