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Tipo: **Theoretical Models: Halo classification and mechanisms**

Radio synchrotron halos around pulsars: candidate selection and classification

The interpretation of large gamma-ray halos around middle-aged pulsars as electron/positron pairs emitting from inverse-Compton scattering of ambient photon fields naturally leads one to think about the necessary counterpart of such a system: radio synchrotron halos.

In this contribution, we introduce some first investigations of the detectability of such radio sources in the Milky Way. We developed a halo population model using as pair sources the pulsars listed in the ATNF database, and assuming as transport process a simple diffusion-loss propagation in models for the interstellar and radiation fields of the Galaxy. The predicted halo synchrotron emission for each halo candidate is compared to a model for the thermal and non-thermal interstellar diffuse radiation of the Milky Way. From this, we discuss criteria for selecting and ranking the best targets for the detection of radio halos around pulsars, especially in view of the capabilities of the MeerKAT instrument.

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