

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



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Large-scale magnetic fields unveiled by LOFAR

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Background Faraday-rotation studies have proven to be excellent tools for the detection and the study of large-scale magnetic fields. As an SKA pathfinder, LOFAR is exploring the low-frequency regime, where polarization observations are crucial to unveil the weak magnetic field outside galaxy clusters. As a uniform grid of Faraday-rotation measures (i.e., radio galaxies) is becoming a reality, the study of large-scale magnetic fields is able to obtain more stringent constraints on the magnetization of the cosmic web. In this talk I will present the results of two background Faraday-rotation studies: the first is based on the detection of polarized emission from the lobes of giant radio galaxies, while the other is based on a statistical study of the Faraday-rotation in the background of optically identified cosmic web filaments.

Research area

Magnetism

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