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Modeling of the galactic and extragalactic diffuse radio emission.

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The observed radio sky at frequencies below few GHz is the sum of the isotropic extragalactic background and the Galactic emission. The latter includes the diffuse synchrotron radiation produced by cosmic-rays electrons spiraling in the Galactic magnetic field. Therefore radio maps are an useful tool to constrain the interstellar electrons spectrum and magnetic fields. We present a detailed model of the Galactic emission, employing state-of-the-art models of cosmic-ray propagation and magnetic fields. Comparing galactic templates with radio surveys we obtain a new determination of the extragalactic radio background. The intensity lies significantly above the contribution from observed extragalactic sources. We compare our findings with previous estimates and we discuss the main sources of uncertainties entering in the calculations.

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