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Title of the “invited talk” for the MG17 Meeting → “CM-1 Session”

**“Extragalactic sources background from radio to sub-millimetre wavelengths”**

We review the contribution of undetected extragalactic sources to the cosmic microwave background (CMB) radiation, from radio to sub-millimetre wavelengths. As demonstrated by very recent analyses, Active Galactic Nuclei (AGN) is the dominant population in this frequency range, at least down to the  $\lesssim$  mJy flux density level in source number counts. As for this, number counts of extragalactic sources are well determined at cm wavelengths down to very faint flux levels thanks to many very recent deep and large-area surveys. On the other hand, at mm wavelengths, observations of number counts of extragalactic sources are mainly provided by CMB experiments, capable to detect only very bright sources, down to many tens of mJy, at best. Therefore, an accurate modeling of number counts of extragalactic sources is needed to correctly predict the extragalactic background light (EBL) and the contaminant signal produced by extragalactic sources in CMB anisotropy (all-sky) maps. We discuss here how to model AGN number counts and, at the same time, we present the results obtained by a recent successful cosmological evolution model of AGNs at radio/microwave frequencies.