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Probing Dark Matter Interactions in the Light of CMBR

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In the standard cosmology, Dark Matter (DM) is generally assumed to be non-interacting. However, in several well-motivated particle physics models, which include a DM candidate, it participates in various interactions. In particular, we have considered interactions of DM with neutrinos and electrons. Such interactions, if present in the early Universe, can leave imprints in the anisotropies observed in the Cosmic Microwave Background Radiation (CMBR). We have investigated such scenarios in light of CMBR data from the Planck collaboration. Considering specific forms of interactions, we further obtain the constraints on the relevant lagrangian parameters.

Reference publication/preprint

Designation

Faculty

Institution

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