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Large-scale structure and new physics at the eV scale

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Ongoing and future spectroscopic surveys have prime sensitivities to comoving scales that became causal when the temperature of the Universe was in the ~1-100 eV regime. As such, these data are key to probing part of the so-called LambdaCDM 'desert'between e+e- annihilation and matter-radiation equality. This apparent desert has recently received renewed attention in light of possible cosmological tensions within the LambdaCDM model. Many proposed solutions point, in part, to this 1-100 eV window for new physics to appear. Although we naively expect eV-scale physics to be tightly constrained by laboratory experiments, we will discuss here examples of such physics that could affect galaxy clustering while evading laboratory constraints. Even without considering tensions, we point out several hints for physics at the eV scale in cosmological data and discuss their potential impact on upcoming large-scale structure observations.

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