

A (DOUBLE) TAKE ON THE γ_L INDEX

Sunday 10 September 2023 18:30 (30 minutes)

The search for a solution to the tensions in the Standard Model in the shape of a single, all-describing model is both extremely needed and extremely hard to carry out. This is partly because we lack the knowledge of some of the fundamental aspects that a new theory should include in order to match our observations of the universe. Even in the case of the Λ CDM model itself, which we take as our most general description of the universe at large scales, it is not clear what components such as Λ and CDM (!) are supposed to be consisting of.

As an alternative, we can consider phenomenological extensions or modifications to the standard theory, which aim at detecting a deviation from the standard framework rather than explaining their fundamental nature.

I will be presenting the results of an analysis carried on the growth index - ' γ_L ', a highly precise parametrisation that modifies the growth of linear, sub-horizon matter perturbations in the Standard Model, but not its expansion history. Through the lens of a variety of CMB datasets, we have studied how the ad-hoc inclusion of the fixed parameter γ_L behaves when confronted with the problematic H_0 and S_8 tensions, while also searching for the presence of deviations from its Λ CDM value: $\gamma_L \approx 0.55$.

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