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Constraining dark energy with neutrino physics

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Abstract content

We consider the impact on the properties of the dark energy component, which dominates the current expansion of the universe, due to the effects of neutrino physics. By including a large mass of the neutrinos of the order of

$\sum m_i \simeq 1.8\text{eV}$, as claimed by members of the Heidelberg-Moscow double beta decay experiment, we find that a cosmological constant is ruled out at more than 95% c.l. and that models with $w < -1$ are preferred. While future data is certainly needed to confirm the Heidelberg-Moscow claim, our result shows that future laboratory searches for neutrino masses may play a crucial role for the determination of the dark energy component.

Summary

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