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Cosmic Tensions and Cracks in the Standard Model of Cosmology

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The standard Λ Cold Dark Matter cosmological model amazingly fits a wide range of astrophysical and astronomical data. However, the increase of the experimental sensitivity emerges some cracks in the standard scenario due to tensions between different independent cosmological datasets. The Planck mission estimation of Hubble constant H_0 is at $4\text{--}6\sigma$ tension with its measured value by SH0ES and H0LiCOW collaborations. Also, the tension between Planck data and weak lensing measurements and redshift surveys about the value of the matter energy density Ω_m , and the amplitude or rate of growth of structure (σ_8 , $f\sigma_8$) becomes significant. New physics could be in action to resolve these cosmic tensions. We give an outline of the different approaches to solve these tensions with some interesting models.

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