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H₀ measurement from time-delay cosmography

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The Hubble constant (H_0) is one of the most important parameters in cosmology. Its value directly sets the age, the size, and the critical density of the Universe. Despite the success of the flat Λ CDM model, the derived Hubble constant from Planck data under the assumption of a flat Λ CDM model has $4.4\text{-}\sigma$ tension with the direct measurements. If this tension is not due to the systematics, it may indicate the new physics beyond the standard cosmological model. H_0 from time-delay lensing is a powerful independent tool for addressing the H_0 tension since it is independent of both Planck and the distance ladder. One way to do this is to increase the number of high-quality lens systems since this allows us to look for correlations and other effects due to systematics, and to do hierarchical approaches to assess known systematic effects.

Keck AO data is not only the key component to increase the precision of H_0 measurement but also provides systematic checks with the H_0 results based on HST imaging. In this talk, I will present the view of the current H_0 measurement, the systematic checks, and the future prospects of TDCOSMO collaboration.

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