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The Hubble Struggle

One of the great mysteries of contemporary cosmology is the growing tension between the Hubble constant as inferred from the cosmic microwave background and that measured from the local distance ladder. Now that the formal significance of this discrepancy has reached a level of 5 sigma, it is crucial to thoroughly re-examine both the experimental efforts as well as the theoretical models used to analyze the data. Given the large wealth of proposed alternatives to Λ CDM, in this talk I focus on various recent advancements in critically assessing the validity of the proposed models in light of current data.

For this purpose, I will also introduce and critically examine the different mechanisms of reducing the Hubble tension that are at play in these models.

Finally, in order to give a different perspective on the Hubble tension, I will introduce the combination of light element abundances and large scale structure data as a promising new tool for further constraining these solutions.

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