

Cosmology with the Atacama Cosmology Telescope

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Full-sky Cosmic Microwave Background (CMB) temperature data from the Planck satellite tightly constrains the six Λ CDM parameters, reinforcing the success of the current model in describing the CMB sky. However, more precise cosmological measurements show tensions between the high-redshift and low-redshift probes, with a discrepancy in the value of the Hubble constant, H_0 , at a significance higher than 3σ . Although these results could suggest a failure of the present model, the accuracy of the current measurements has been questioned.

The Atacama Cosmology Telescope (ACT) is currently mapping forty percent of the CMB sky at high resolution.

In this talk, I will show how such a unique dataset will allow us to investigate the current tensions. I will highlight the complementarity of a high-resolution experiment also capable to extract high-fidelity information from the polarization of the CMB. I will conclude with future prospects for the next generation CMB experiments.

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