

Vulcano Workshop 2022 - Frontier Objects in Astrophysics and Particle Physics



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Searching for New Physics with Local Measurements of the Hubble Constant

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Apparent tension in the Hubble constant (H_0) between the local distance ladder and the cosmic microwave background points toward a significant problem in the Λ CDM cosmological model. To better understand this tension, the SH0ES team (Supernovae and H_0 for the Equation of State of dark energy) has recently improved the local measurement of H_0 by 1) increasing the precision of geometric anchor distances used to calibrate the luminosity of Cepheid variables, 2) doubling the sample of galaxies with both Cepheids and SNe Ia that are used to calibrate the SN Ia luminosity, and 3) improving the fidelity of the low-redshift SN Ia sample used to measure H_0 through new surveys and revised selection criteria. I will review the recent SH0ES analysis, which reduces nearly every current systematic uncertainty in the local measurement of H_0 .

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