Contribution ID: **25** Type: **not specified**

Two out of Three Ain't Bad A SH0ES Two Rung Distance Ladder

Saturday 9 September 2023 10:00 (1 hour)

In light of the Hubble tension, it is important to test the individual components of the distance ladder. For this purpose, we report a measurement of the Hubble constant from 35 extragalactic Cepheid hosts measured by the SH0ES team, using their distances and redshifts at cz âÏ¤ 3300 km s-1, instead of any more distant SNe Ia, to measure the Hubble flow. The Cepheid distances are calibrated geometrically in the Milky Way, NGC 4258, and the Large Magellanic Cloud. Peculiar velocities are a significant source of systematic uncertainty at z ˜ 0.01, and we present a formalism for both mitigating and quantifying their effects, making use of external reconstructions of the density and velocity fields in the nearby universe. Accounting for all systematic uncertainties, we find H0 = 72.9 (+2.4/-2.2) as a fiducial result, at 2.4ÏÏ tension with Planck. While SNe Ia are essential for a precise measurement of H0, unknown systematics in these supernovae are unlikely to be the source of the Hubble tension.

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