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Insight on the Hubble Tension: Evidence from Fast Radio Bursts

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Fast Radio Bursts (FRBs) are bright, millisecond-duration radio transients, a subset of which have been precisely localized to their host galaxies. Due to their high dispersion measures, FRBs offer unique insights into the ionized plasma along their sightlines, enabling their use as cosmological probes. One critical challenge in modern cosmology is the Hubble tension – a persistent discrepancy between early- and late-Universe determinations of the Hubble constant. In this study, we analyze a sample of 64 localized extragalactic FRBs observed by multiple telescopes, employing Bayesian techniques with distinct likelihood functions. Our findings demonstrate that FRBs can serve as effective tracers of the Hubble constant in the late-time Universe. Importantly, the derived values exhibit smaller uncertainties compared to prior studies, with 1σ error bars that no longer overlap with early-Universe estimates. These results reinforce the ongoing tension between early- and late-time measurements of the Hubble constant and highlight the potential of FRBs as cosmological tools.

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