Speaker: Saeed Pourojaghi

Title: Emerging Challenges to ΛCDM: DESI BAO & Multi-Probe Constraints

Abstract:
The Dark Energy Spectroscopic Instrument (DESI) 2024 Baryon Acoustic Oscillation (BAO) results have sparked renewed discussions about deviations from the standard ΛCDM cosmology, particularly in the context of dynamical dark energy. In this talk, I will present a critical analysis of whether these deviations are sensitive to the choice of parametrization. By combining DESI BAO 2024 data with Planck 2018 CMB and the latest SNIa compilations, we test three alternatives to the CPL model. Our results show that the preference for $w_0 > -1$ at low redshifts and $w_a < 0$ at higher redshifts persists across all parametrizations, mirroring DESI's findings with CPL. This consistency suggests that the reported ΛCDM tensions are not artifacts of the CPL parametrization's limitations, reinforcing the case for a potential departure from the standard model.