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Cracks in the Standard Cosmological Model: Anomalies, Tensions, and Hints of New Physics

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The ΛCDM model has long served as the standard paradigm in cosmology, offering a remarkably successful description of the Universe's evolution. Yet, as observational precision continues to improve, persistent tensions have emerged across a range of probes, including the well-known Hubble constant discrepancy. While individual datasets may each align with ΛCDM, their collective interpretation reveals significant discordances that challenge the model's internal consistency. In this talk, I will review the most prominent tensions in modern cosmology and assess their implications. I will present recent results pointing to hints of dynamical dark energy and interactions within the dark sector. I will also reflect on the growing influence of methodological choices, such as dataset selection and model assumptions, in shaping our cosmological conclusions.

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