Early Gravity Transitions & the Hubble Tension

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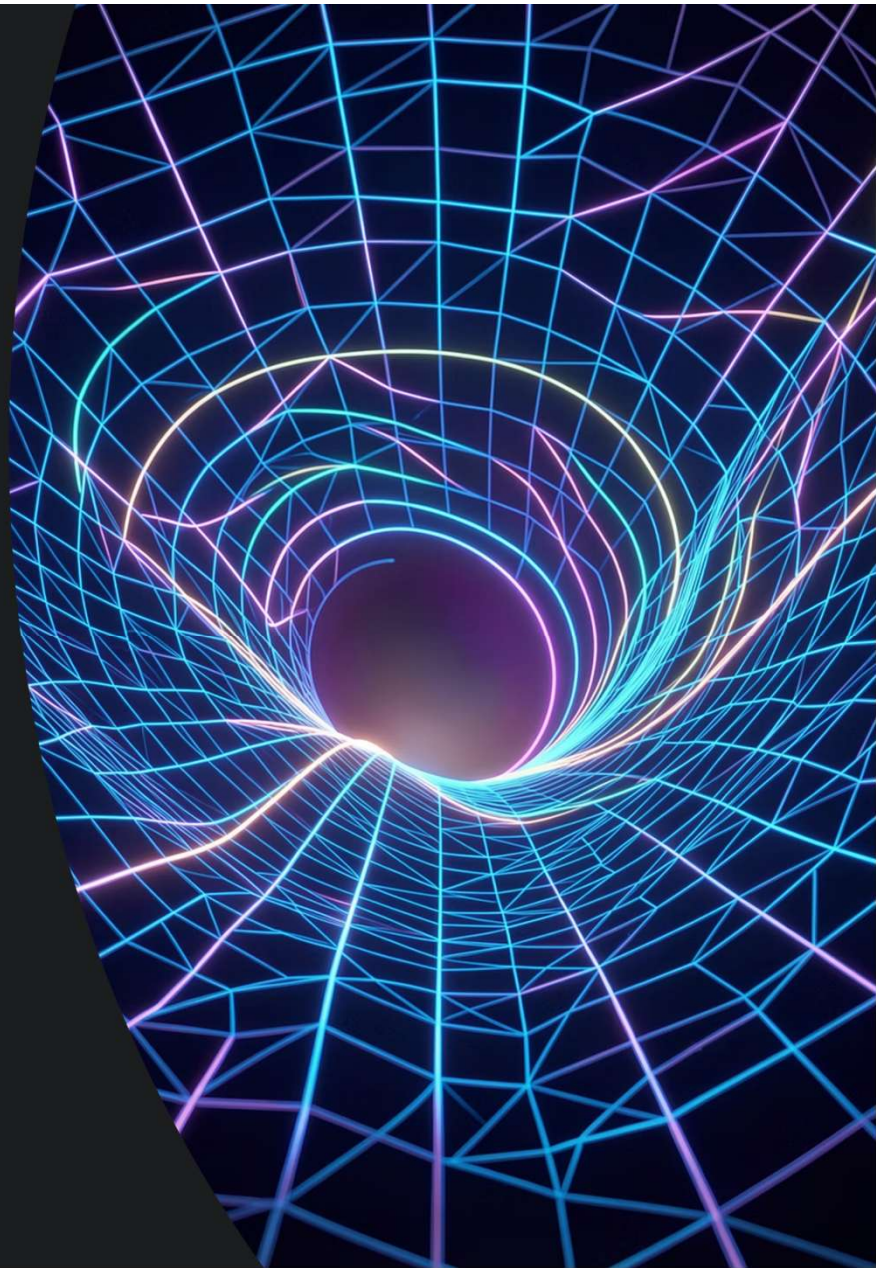
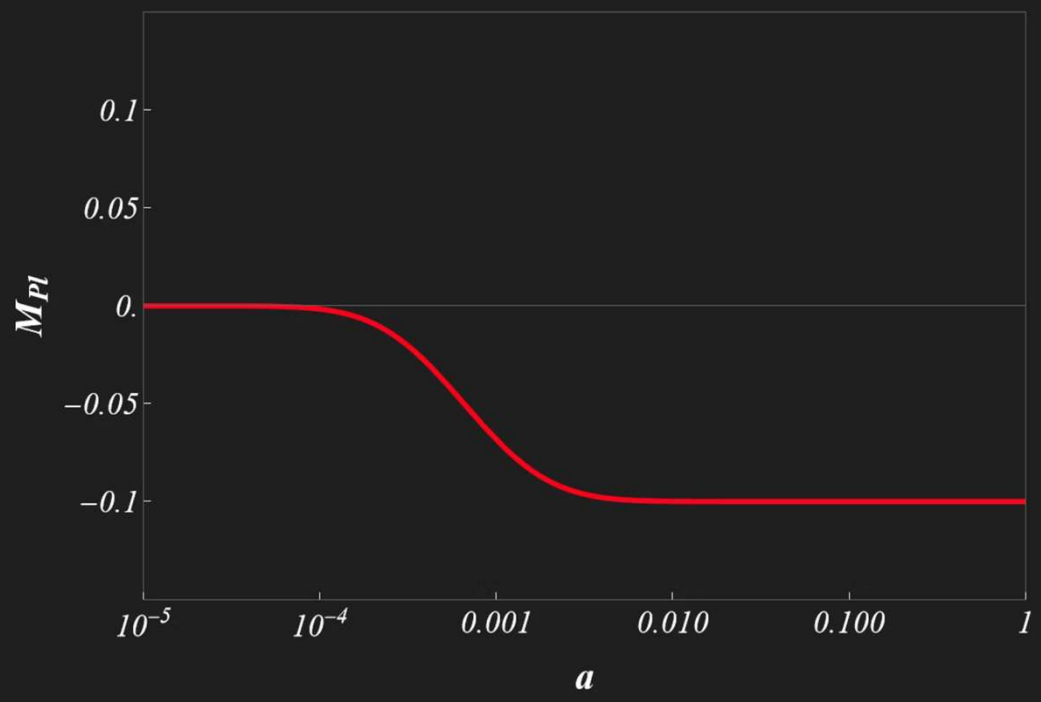


The Transitional Planck Mass (TPM) Model



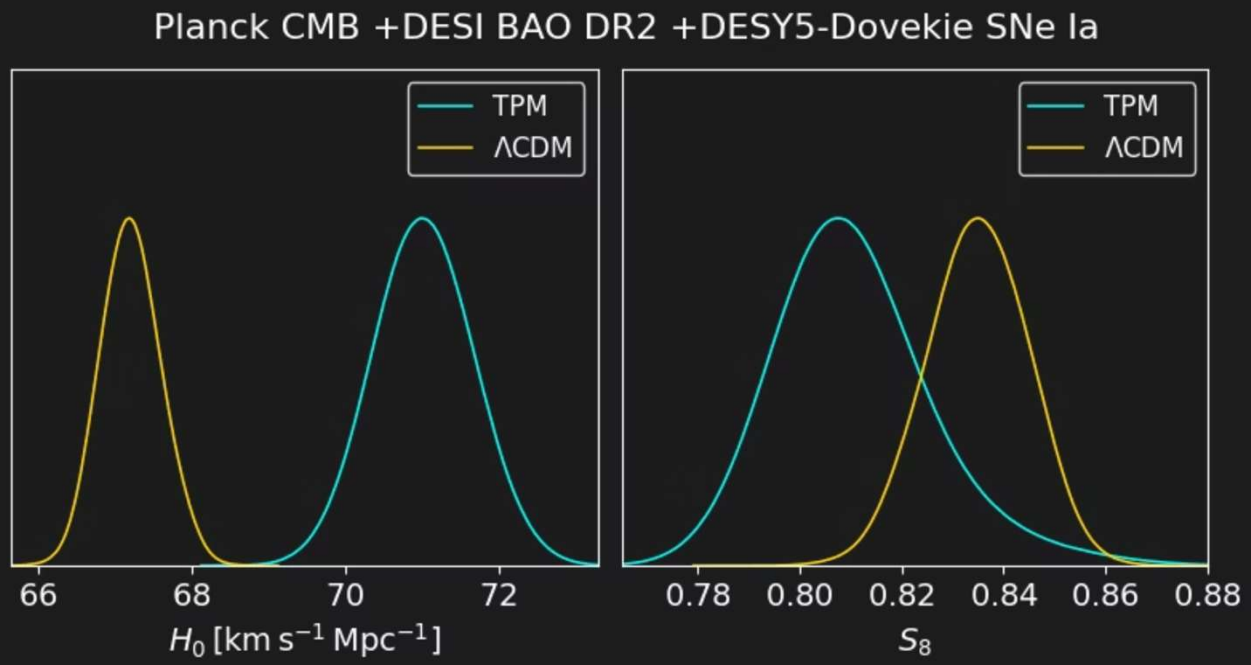
Core Idea

A **step-like transition** in the effective Planck mass prior to recombination, modeled via the EFT of dark energy. The transition lowers the sound horizon at last scattering, raising H_0.

The TPM transition is free to occur over multiple decades in scale factor prior to recombination — no coincidence problem.

Current Update & Outlook

Extending the TPM constraints with the **recalibrated DESY5-Dovekie dataset**, updated BAO and CMB data to sharpen parameter constraints and test model robustness.



Why TPM?

→ **No cosmological constant needed**

Dark energy emerges from the scalar field.

→ **Tension mitigation**

TPM also allows $H_0 > 70$ and $S_8 < 0.80$ simultaneously — addressing both tensions at once.

→ **Future tests**

ISW and tSZ cross-correlations to discriminate between models