



DARK ENERGY SPECTROSCOPIC INSTRUMENT

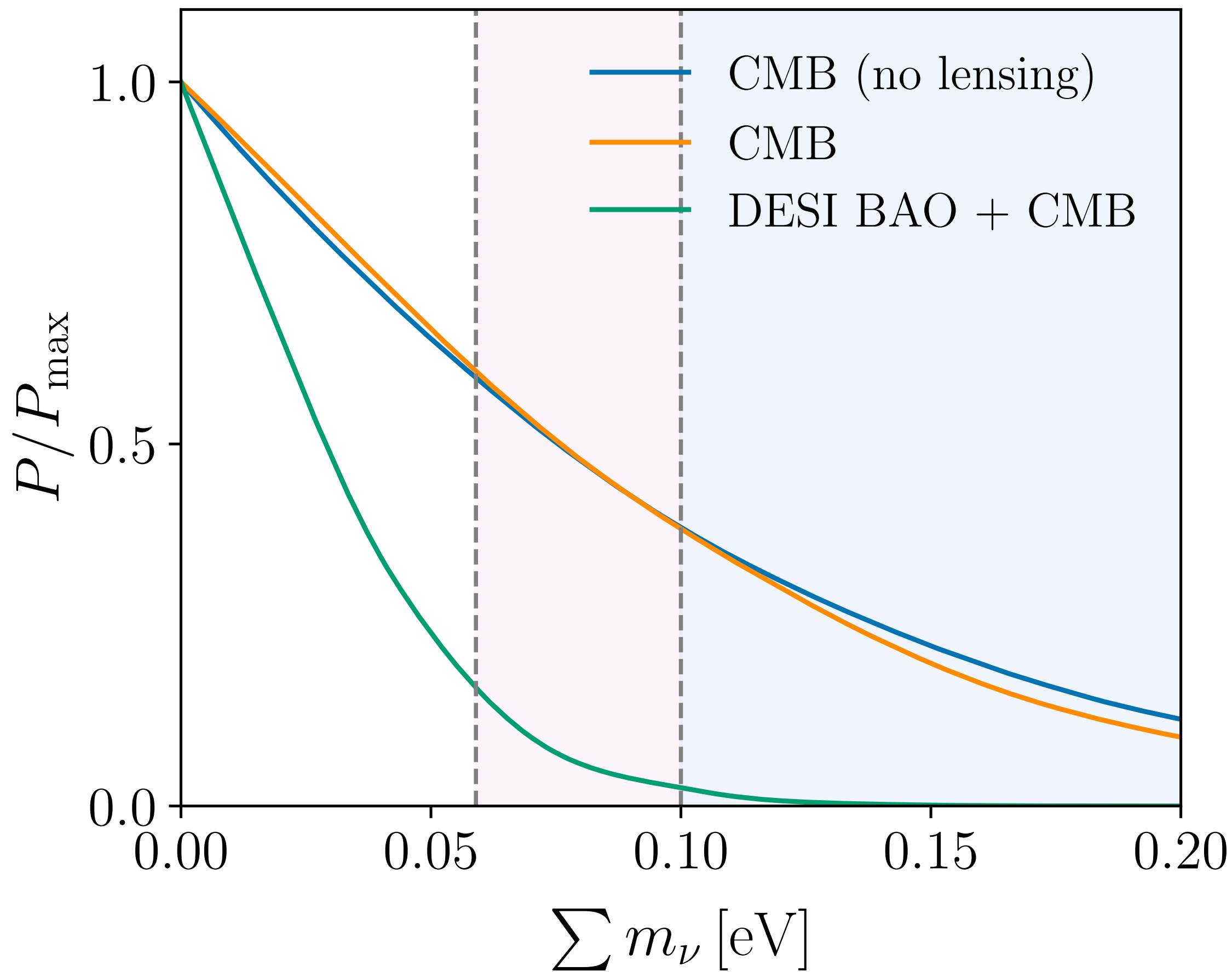
U.S. Department of Energy Office of Science

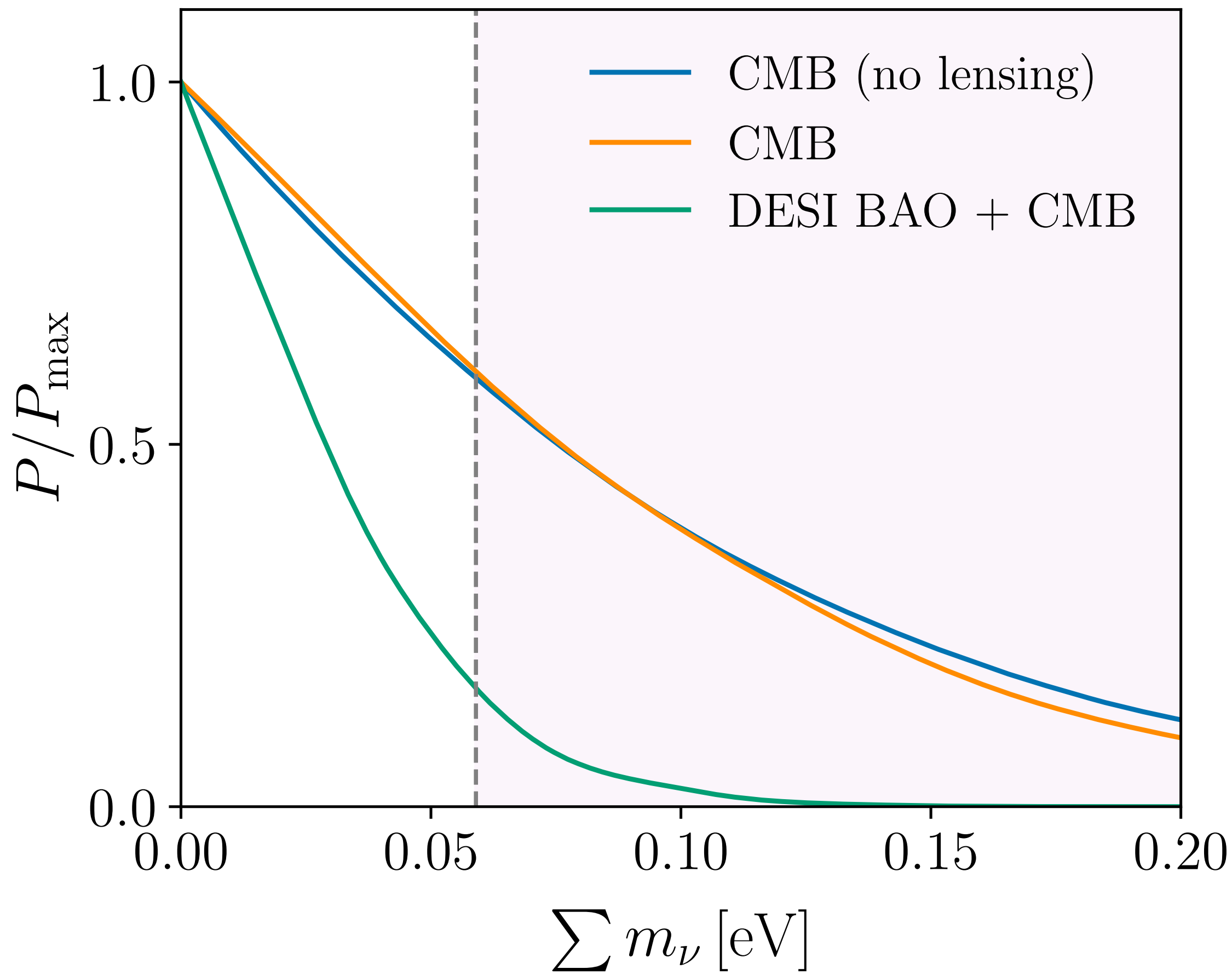
DESIGN LOGICAL CONSTRAINTS - Aug 2024 X11 CNFP @ Crete, Greece, 2024

UdendentAndrade (UMichian)

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DESI + CMB

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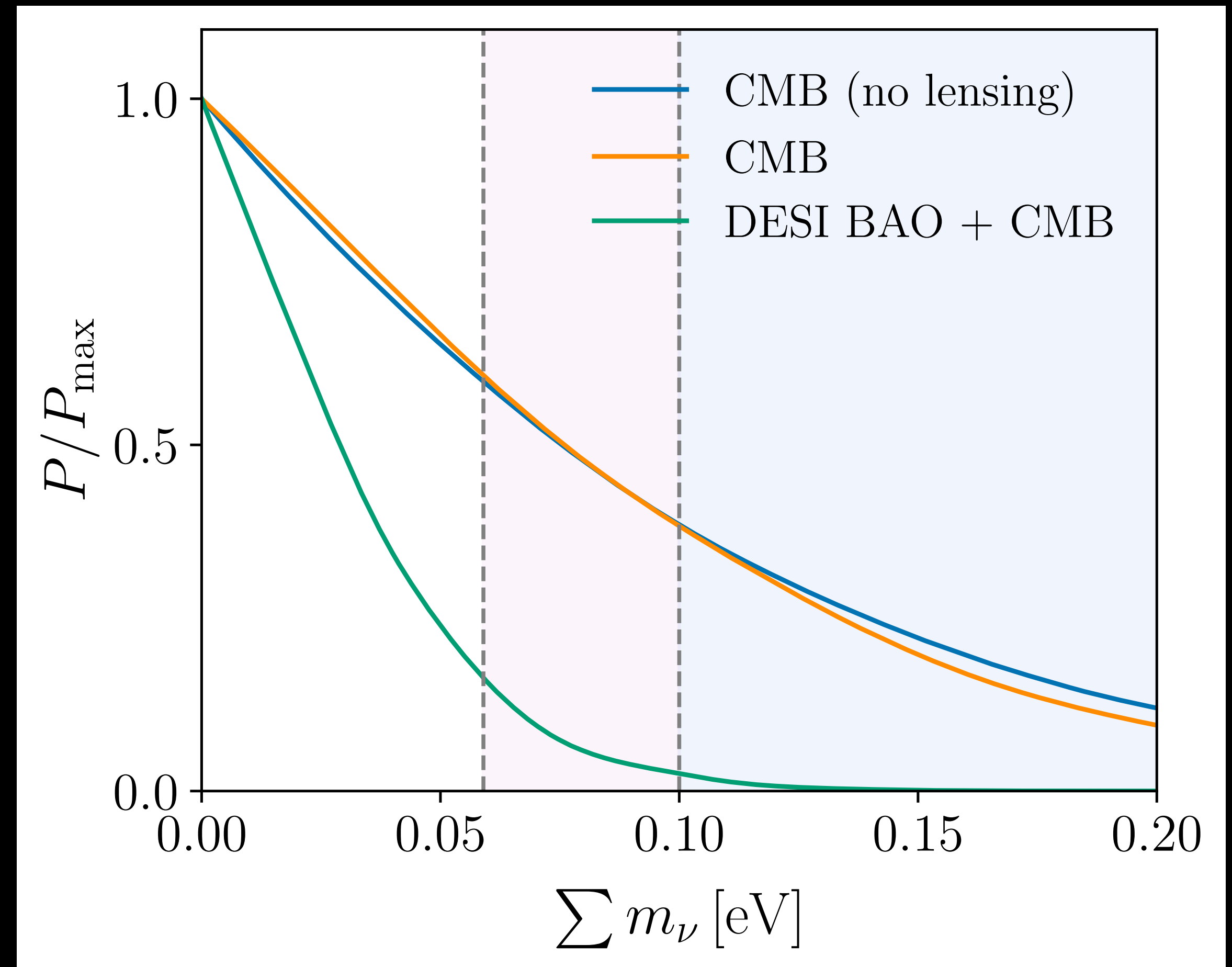
Neutrino mass hierarchies

With > 0.059 eV prior (NH)

$$\sum m_\nu < 0.113 \text{ eV (95\%, DESI + CMB)}$$

With > 0.10 eV prior (IH)

$$\sum m_\nu < 0.145 \text{ eV (95\%, DESI + CMB)}$$



Current constraints do not strongly favor normal over inverted hierarchy ($\approx 2\sigma$)

Hubble tension?

- Extension models: modify the background geometry or late-time expansion history
- The calibration of the sound horizon using BBN relies on assumptions about the physics at the time of BBN: effective number of relativistic degrees of freedom, N_{eff}