



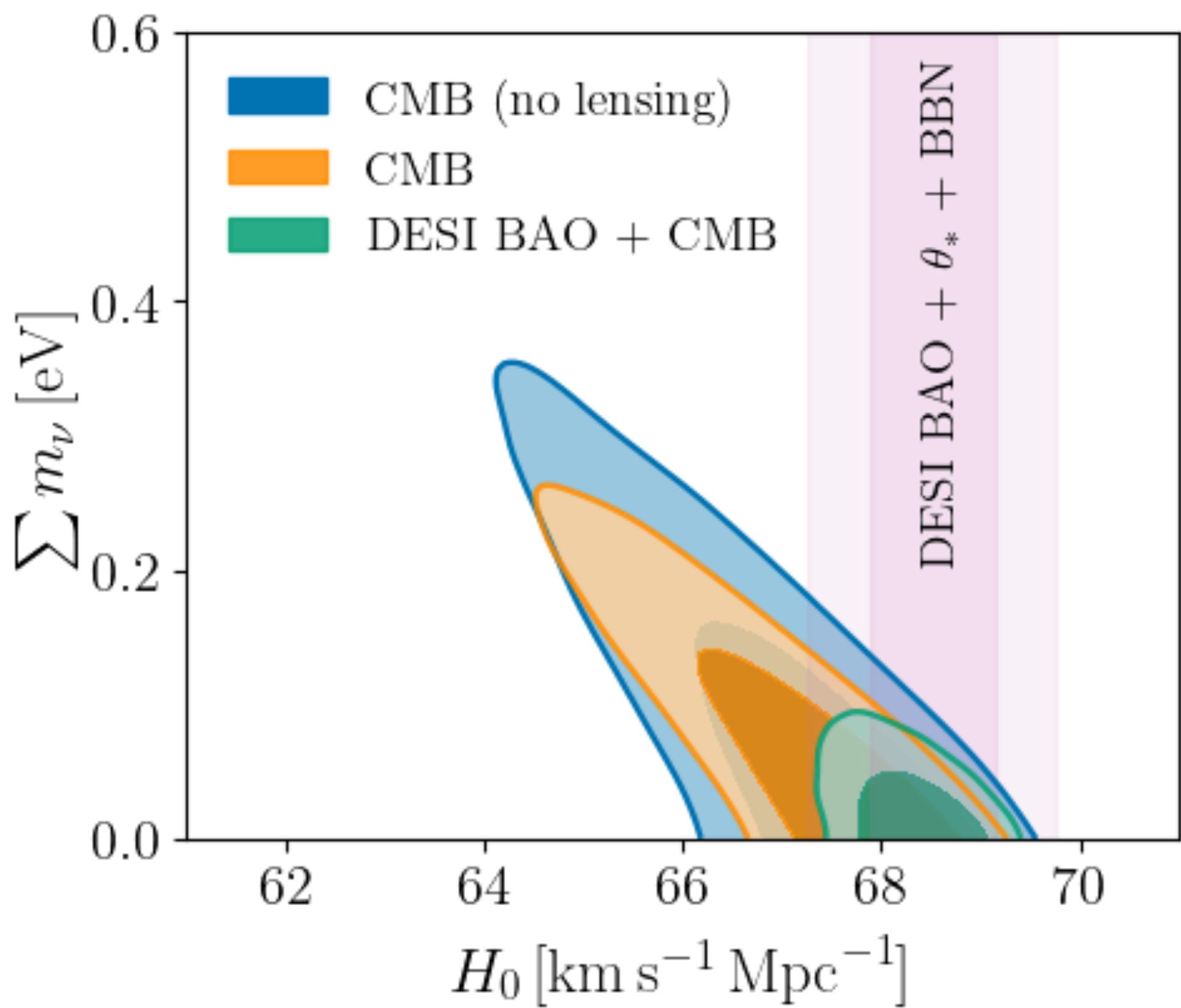
DARK ENERGY SPECTROSCOPIC INSTRUMENT

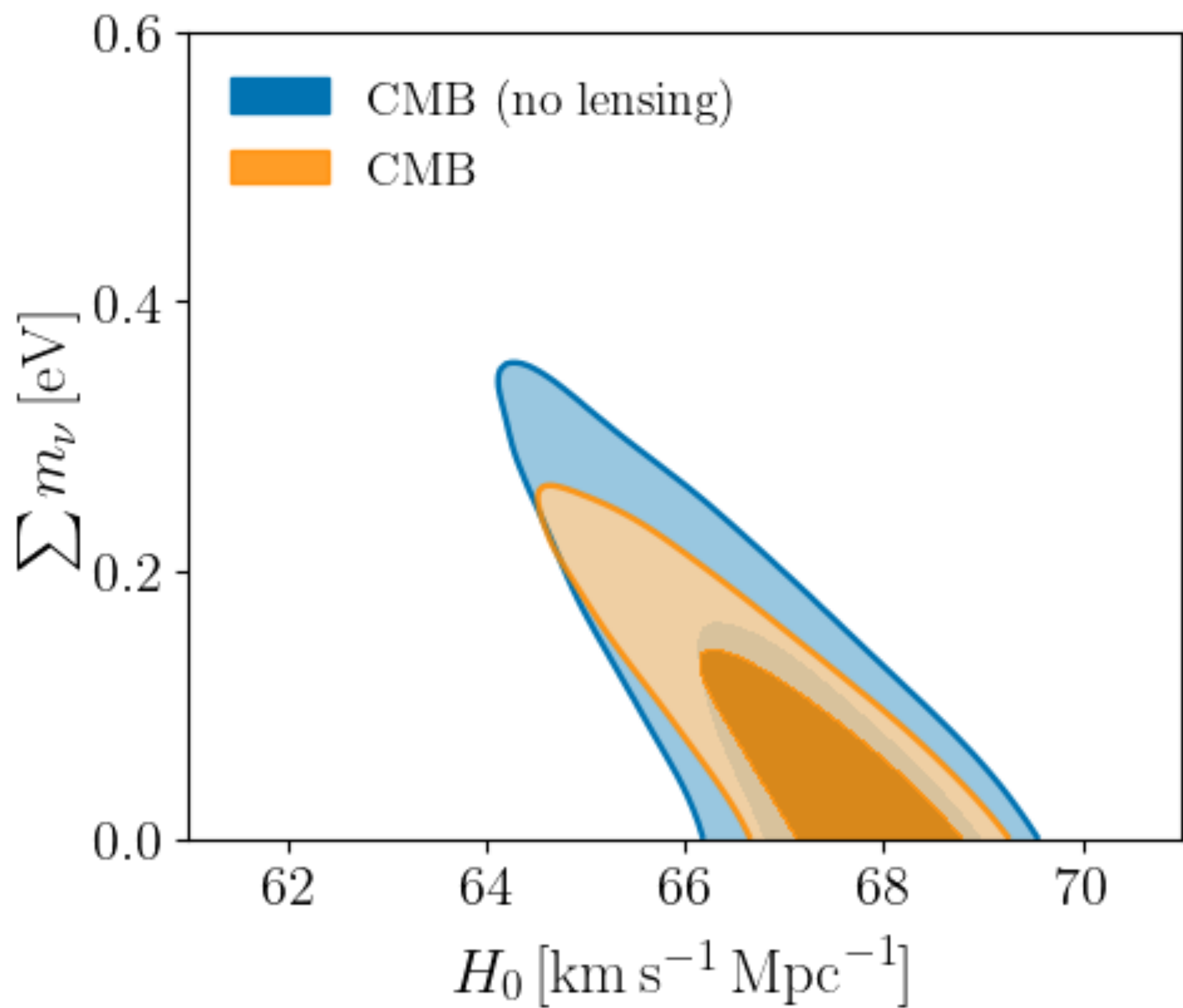
U.S. Department of Energy Office of Science

DESIGN LOGICAL CONSTRAINTS - Aug 24 XIICNFP@Crete, Greece, 2024

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DESI + CMB

Sum of neutrino masses: DESI constrains

Internal CMB degeneracies limiting precision on the sum of neutrino masses

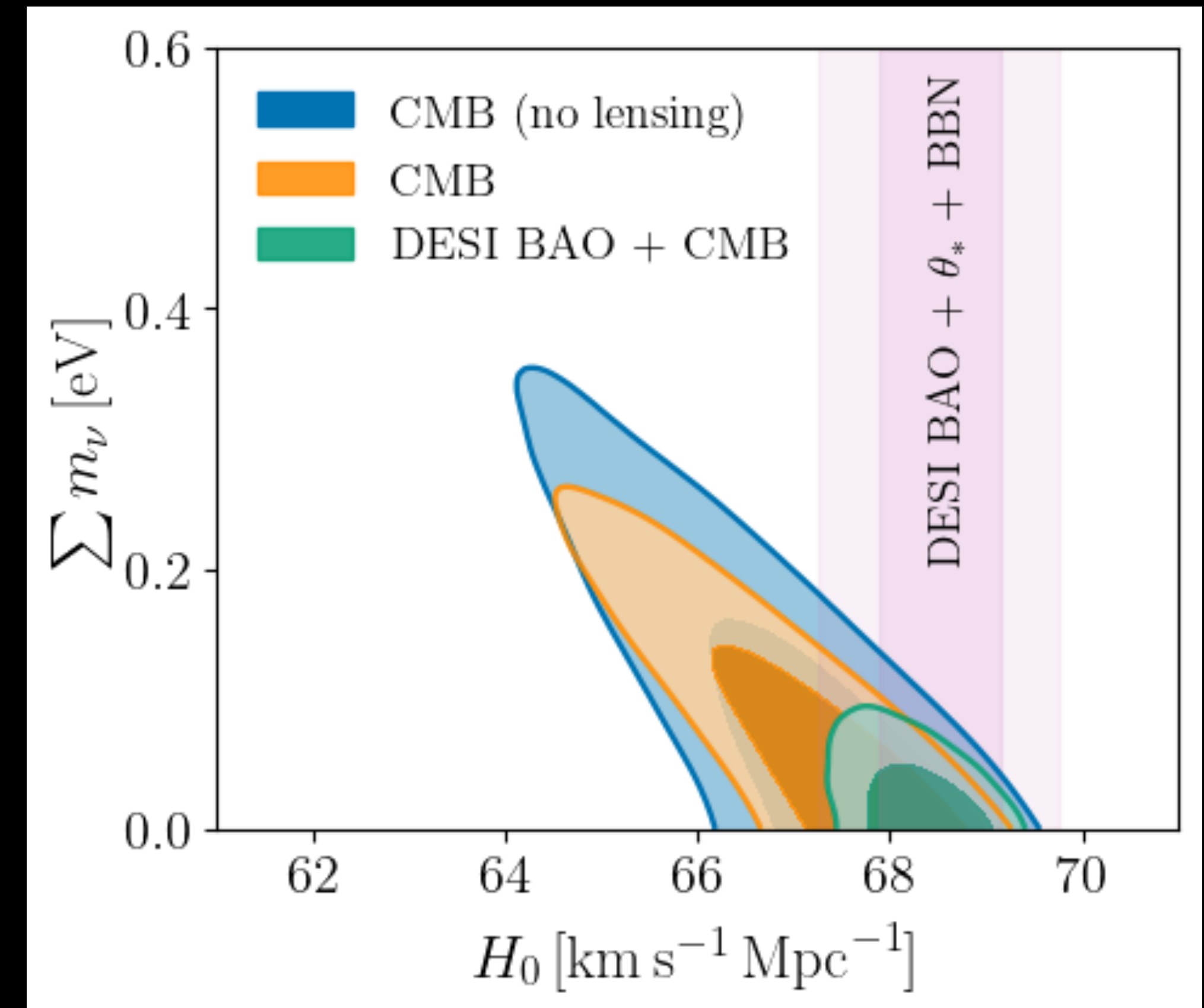
Broken by BAO, especially through H_0

Low preferred value of H_0 yields

$$\sum m_\nu < 0.072 \text{ eV} \text{ (95\%, **DESI + CMB**)}$$

Limit relaxed for extensions to Λ CDM

$$\sum m_\nu < 0.195 \text{ eV for } w_0 w_a \text{CDM}$$



Neutrino mass hierarchies

With > 0.059 eV prior (NH)

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

