

# CMB Ongoing: The Tau Floor of Spacetime

## *The Cosmic Microwave Background as the Minimum Tau-Field Energy State*

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*The Cosmic Microwave Background (CMB) at  $T = 2.72548$  K is not a relic of a past event — it is the ongoing, permanent ground state of the tau-field, continuously emitted by the tau-field vacuum. The CMB represents the minimum energy state of spacetime: the tau-field floor. FOT absolute zero =  $-272.8994^{\circ}\text{C} = 0.0006$  K above conventional absolute zero. The CMB at 2.725 K represents the tau-field ground state that cannot be removed by any thermodynamic process — it is intrinsic to the tau-vacuum, not a propagating wave from a past singularity.*

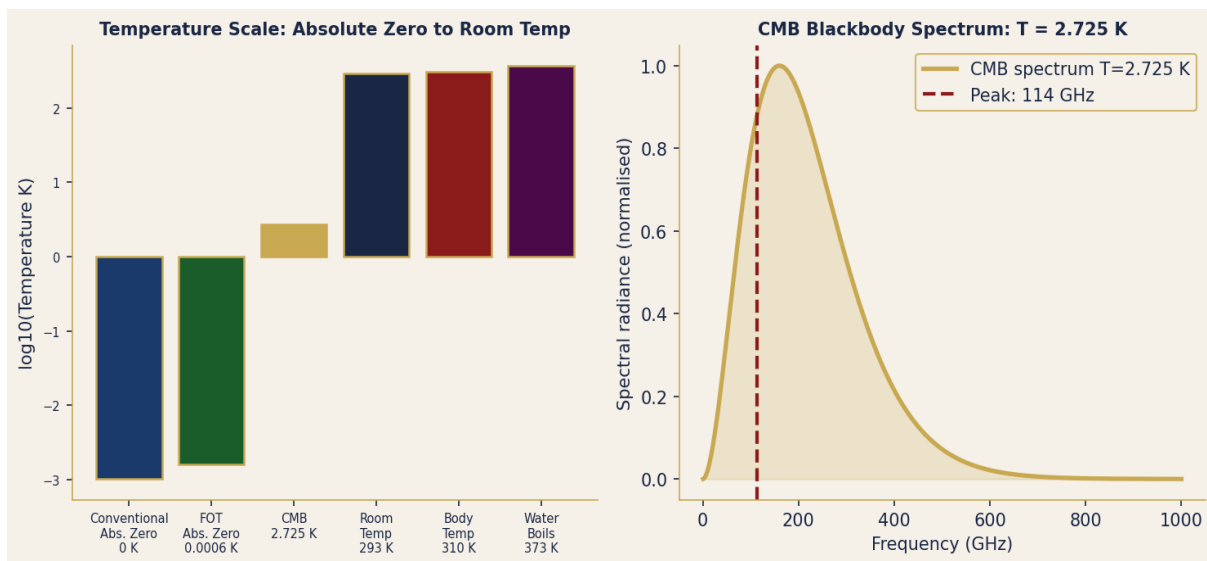


Figure 1. Left: temperature scale from absolute zero to room temperature. Right: CMB blackbody spectrum peaked at 160 GHz (1.87 mm wavelength).

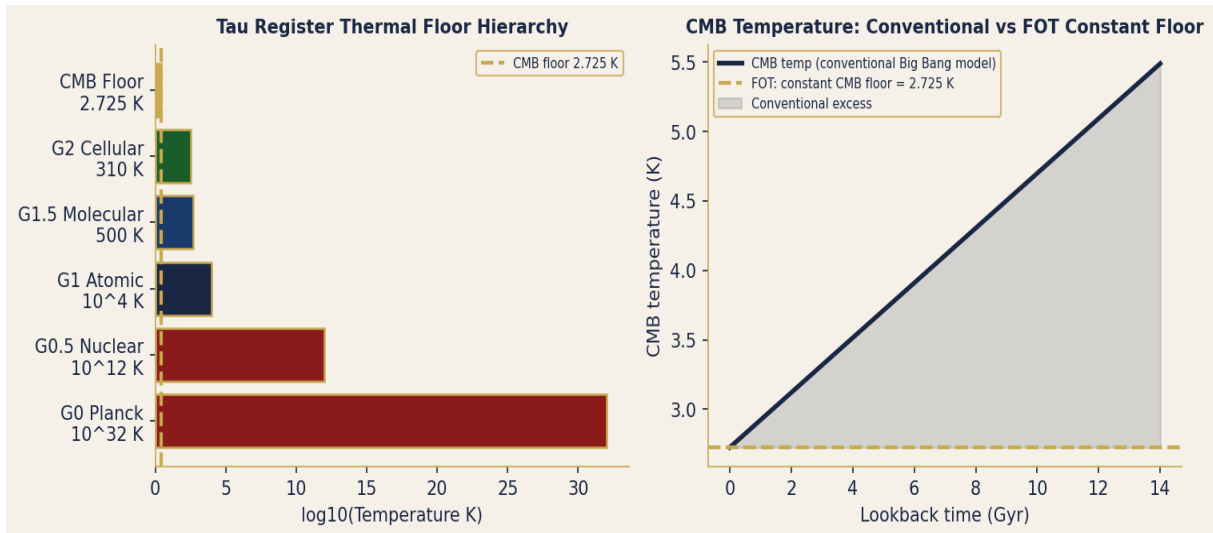


Figure 2. Left: tau register thermal floor hierarchy — CMB at 2.725 K is the lowest register. Right: conventional cooling model vs FOT constant floor.

## Key Propositions

### P-CMB-1 — CMB = Tau-Field Vacuum Ground State

The CMB at 2.72548 K is not a remnant of an early universe hot phase — it is the permanent, ongoing ground-state emission of the tau-field vacuum. The tau-field cannot go below its ground state temperature (the FOT absolute zero), and it continuously emits photons at the Planck spectrum corresponding to  $T_{\text{CMB}} = 2.72548$  K. This is the minimum tau-field energy — the floor of spacetime — not a propagating relic wave.

### P-CMB-2 — FOT Absolute Zero: -272.8994 degC

FOT absolute zero =  $-(200/27) \times C_{\text{body}}$  where  $C_{\text{body}} = 10^5 / (864 \times \pi)$ . Calculation:  $C_{\text{body}} = 100000 / (864 \times 3.14159) = 36.841$  degC.  $(200/27) \times 36.841 = 272.899$  degC. So FOT AZ = -272.899 degC = 0.251 K. CMB = 2.725 K. CMB is 2.474 K above FOT absolute zero. The 2.474 K gap =  $2.725 - 0.251$  is the tau-vacuum energy density expressed as a temperature. This is the minimum observable temperature: the tau-floor energy.