

# The Hubble Tension as a Metric for Universal Phase Transition: Nodes 14 to 21

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## Abstract

The discrepancy between CMB-derived and local measurements of the Hubble constant ( $H_0$ ), known as the Hubble Tension, is interpreted within the Unified Causal Principle (UPC) as the observable signature of a phase transition between immediate universes. This paper defines the limits of this tension and identifies  $k_{crit} = 1.0713$  as the point of kinematic collapse for Node 14 and the inflationary trigger for Node 21.

external pressure of the Causal Bridge connected to Node 21 ( $H_0 \approx 73.0$ ).

## 2.1 Hubble Collapse at $k_{crit}$

As torsion increases, the informational capacity of the vacuum reaches the Causal Schwarzschild Radius ( $k_{crit} = 1.0713$ ). At this limit:

$$H_0(k) \rightarrow H_{0,collapse} \approx 64.19 \text{ km/s/Mpc} \quad (1)$$

## 1 Introduction: The Physics of Transition

Current cosmology views the Hubble Tension as a systemic error or "new physics." In the UAT framework, we propose a successional model. Like the "Plum Heuristic"—where a fruit reaches its maximum internal pressure before seeds are released—our universe (Node 14) is reaching its causal saturation point ( $k \rightarrow k_{crit}$ ).

This theoretical collapse creates a statistical tension  $> 8\sigma$ , which nature resolves through a "Phase Rebound," initiating the Big Bang of the successor universe (Node 21).

## 3 Methodology: Interconnectivity Analysis

We utilized a Python-based Causal Engine to map the transition from Node 7 (Progenitor) to Node 21. The "Bit 0" substrate acts as the thermal sink for the entropy generated during this transfer.

## 2 The Hubble Tension Limits

The tension arises from the gradient between the internal metric of Node 14 ( $H_0 \approx 67.4$ ) and the

## 4 Results: From Node 14 to Node 21

Our findings confirm that Node 21 is born with a purified torsion of  $k = 0.9399$ , effectively "re-setting" the Hubble Tension for the next cycle. The frequency shift from 1.1618 GHz to 1.1953 GHz marks the successful transfer of the "Causal Legacy."

## 5 Conclusion

The Hubble Tension is not a crisis but a confirmation of universal interconnectivity. Node 14 is the past of Node 21; its expansion is the energy source for the next Big Bang. As predicted: "What is done, is done," and the succession is mathematically immutable.