

Title: Discussion: Do cosmic tensions point to novel physics?

Speakers: Lena Funcke

Collection: Cosmological Frontiers in Fundamental Physics 2019

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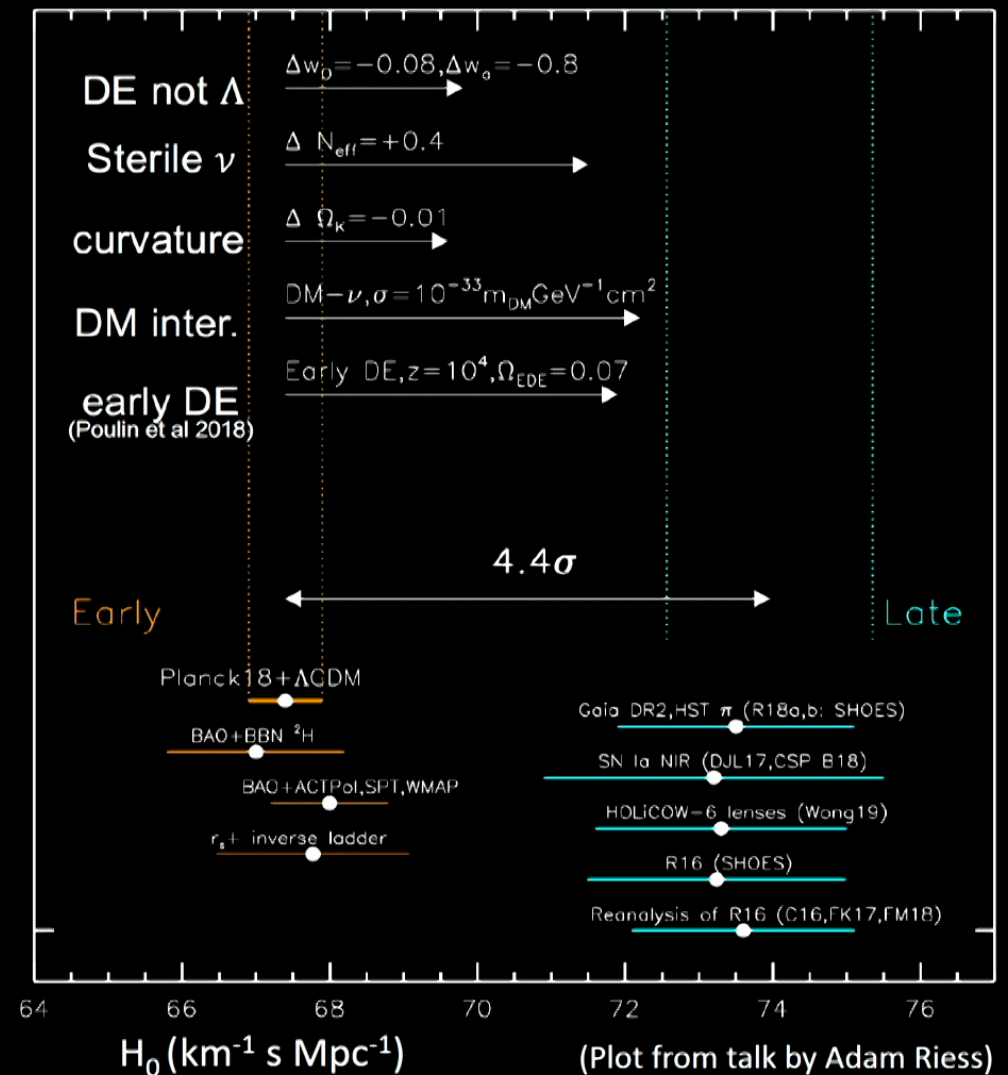
Discussion session: Do cosmic tensions point to novel physics?

Chaired by Lena Funcke (Perimeter Institute)

Hubble tension:
4-6 σ discrepancies of H_0
from early and late Universe

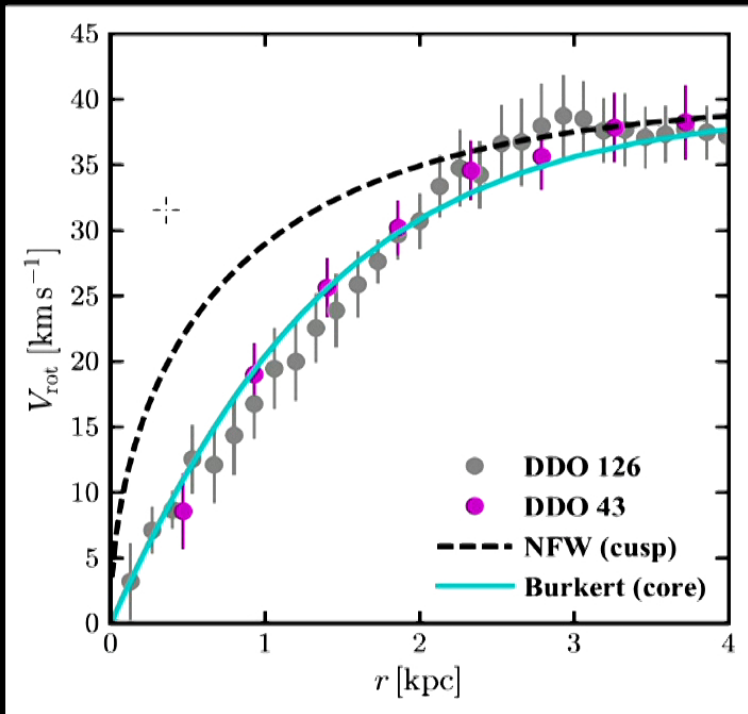


New-physics explanations:
Modification of Hubble rate
in early Universe



Discussion session:

Do cosmic tensions point to novel physics?



(Bullock and Boylan-Kolchin, 2017)

Beyond Hubble tension:

Small-scale dark matter problems:

- cusp-core problem
- missing satellites
- too big to fail

2-3 σ CMB anomalies:

- hemispherical power asymmetry
- lack of large-angle correlations
- ...

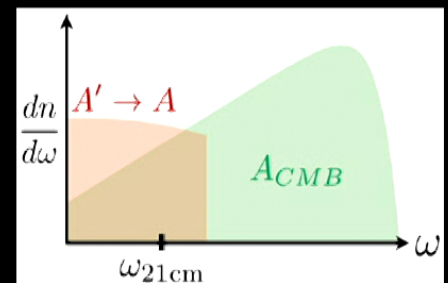
Further discrepancies:

- 21cm absorption signal (EDGES)
- missing pulsars in galactic center
- missing baryons (solved)
- ...

New-physics example:

Dark matter could be

- warm
- fuzzy
- self-interacting
- superfluid
- ...



(Plot from talk by Maxim Pospelov)