CONSISTENCY OF CONCORDANCE COSMOLOGY

Mikko Lavinto

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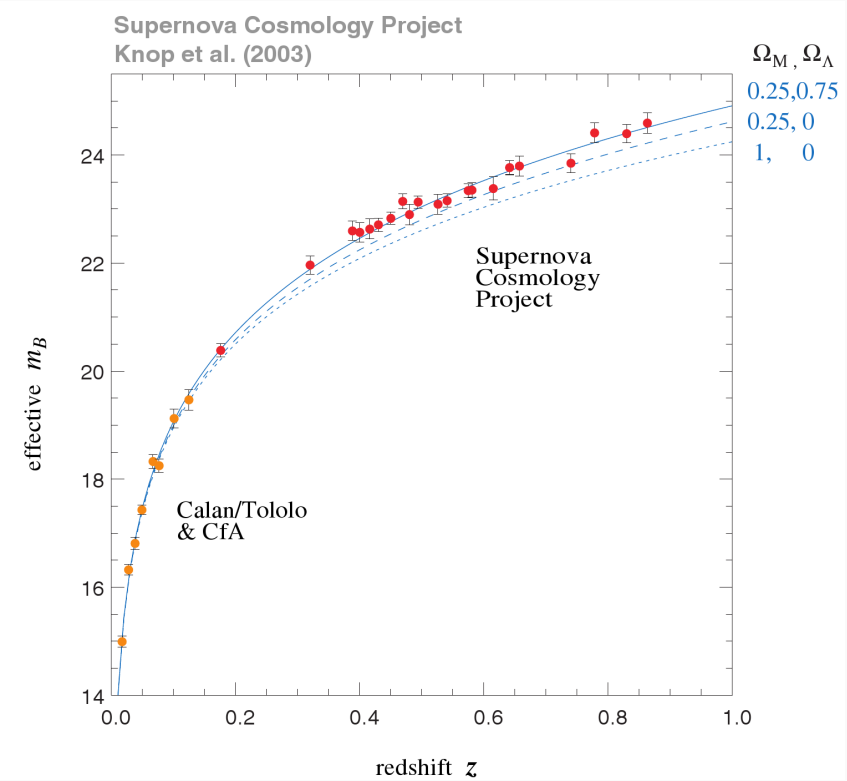
PAPU meeting

BACKGROUND

- The distance-redshift relation is a fundamental cosmological observable
- The ΛCDM model predicts the shape for $D_A(z)$, which depends on the cosmological parameters



Attempts have been made to construct alternative models where the distance-redshift relation is on average different than in ΛCDM

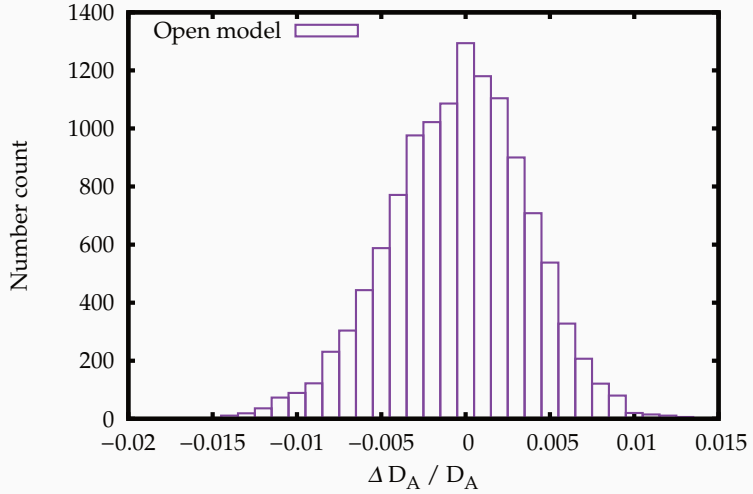
Example: Peel et al. (2014): $\langle \Delta m \rangle = 4 \times 10^{-3}$ at $z = 1$

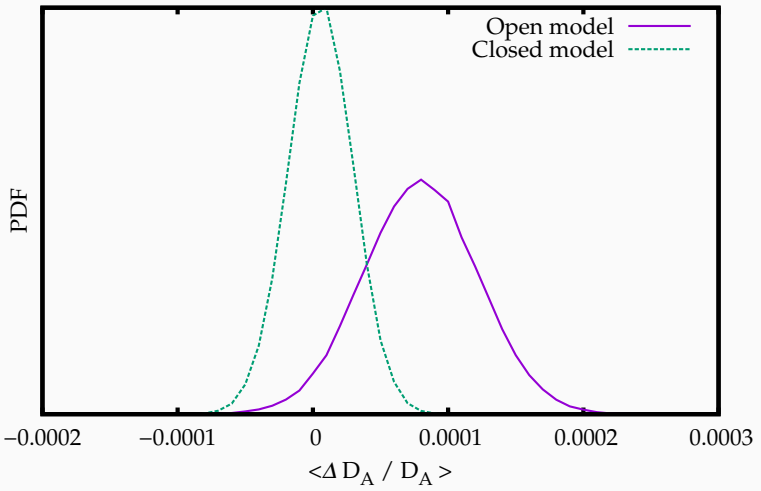
This would give only a marginal shift in cosmological parameter estimation

(un?)-breaking the concordance model

Minimal assumption: Area of a constant-redshift surface is independent of inhomogeneities

$$\langle \Delta D_A / \bar{D}_A \rangle = -\frac{1}{2} \langle \Delta D_A^2 / \bar{D}_A^2 \rangle$$





FINALE

Thanks for listening!