

Sign-switching dark energy:

Smooth transitions constrained with recent *DESI DR2* data

Based on:

ArXiv: 2602.12347, accepted for publication in Phys. Dark Univ.



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Work done in collaboration with M. Bouhmadi-López

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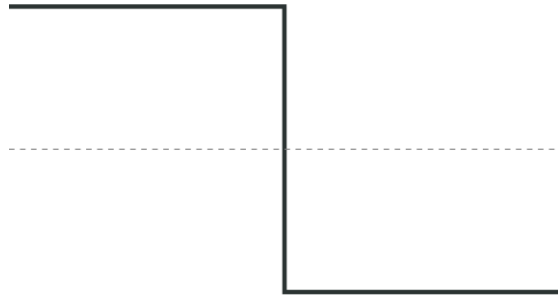


From Ads to dS

M. Bouhmadi-López and B. Ibarra-Uriondo, *Cosmographic analysis of sign-switching dark energy*, Phys. Rev. D 112, 063559 (2025)

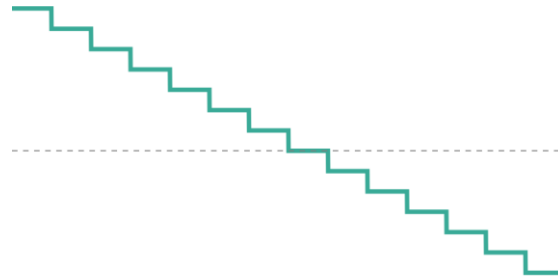


1. Λ sCDM (abrupt)



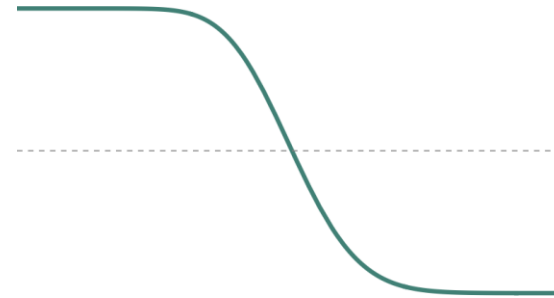
Signum function
 $sgn(z_{\dagger,s} - z)$.

2. Λ ACDM (Ladder)



Heaviside step functions
 $[1 - \frac{2}{N} \sum_{n=1}^N \mathcal{H}(z_n - z)]$.

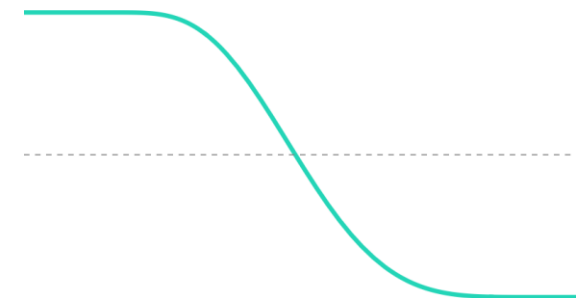
3. SSCDM (Smooth Step)



9th order interpolating
polynomial

$$\begin{cases} -1, & x \leq x_{i,ss} \\ f(t), & x_{i,ss} < x < x_{f,ss} \\ 1, & x \geq x_{f,ss}. \end{cases}$$

4. ECDM (Error function)



Error function
 $Erf(\eta(x - x_{\dagger,e}))$.



Ö. Akarsu, S. Kumar, E. Özlüker, and J. A. Vazquez, *Relaxing cosmological tensions with a sign switching cosmological constant*, Phys. Rev. D 104, 123512 (2021)

Observational data

Data sets:

- CMB: compressed Planck 2018
- BAO: DESI DR2
- SN: PantheonPlus & SHOES

