

New Results from de Sitter Equilibrium Cosmology

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UC Davis/KICP

Return of de Sitter
Stockholm, March 2011

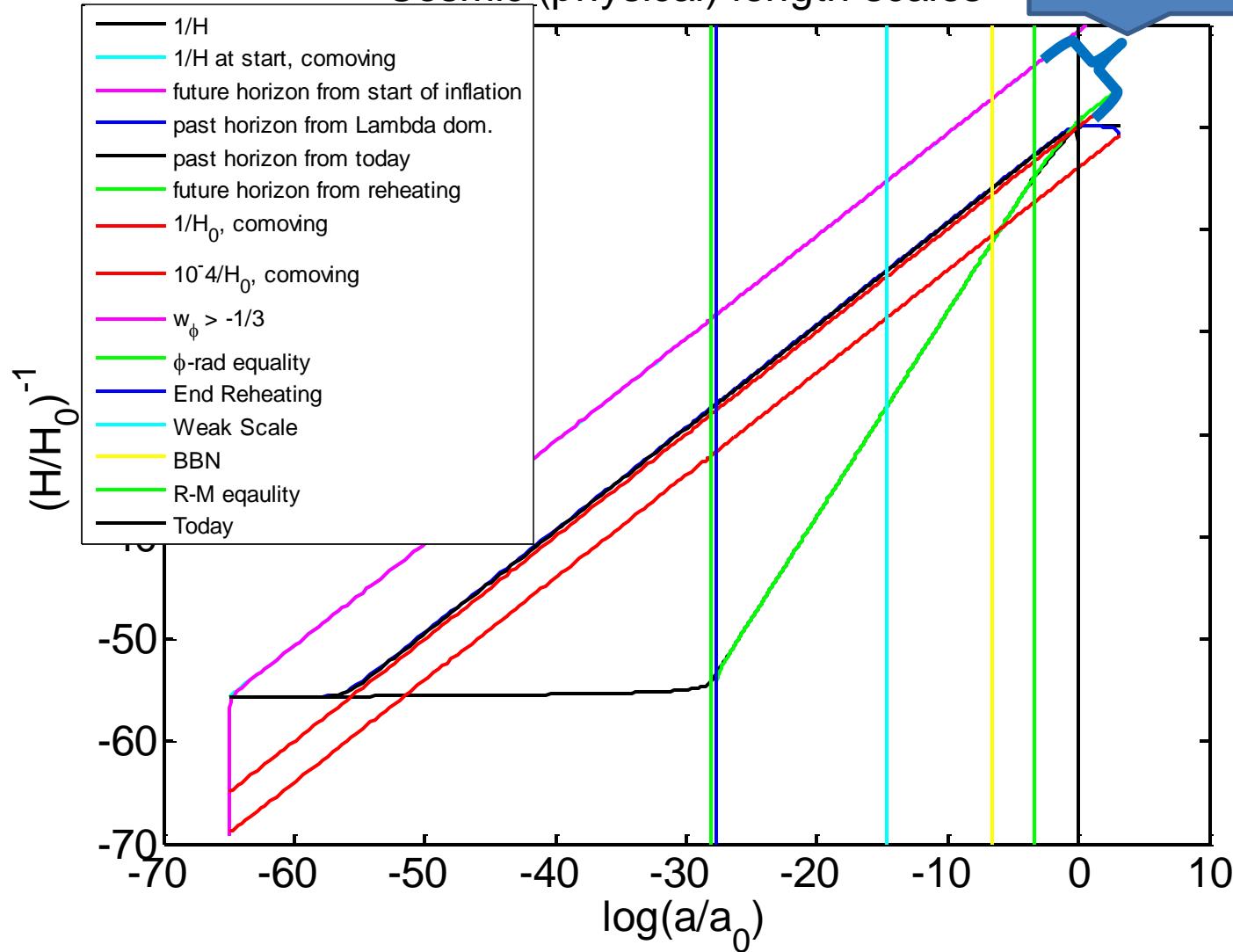
[Albrecht & Sorbo 2004, Albrecht 2009, Albrecht 2011 in prep]

(these are the slides... much of the talk was on the blackboard)

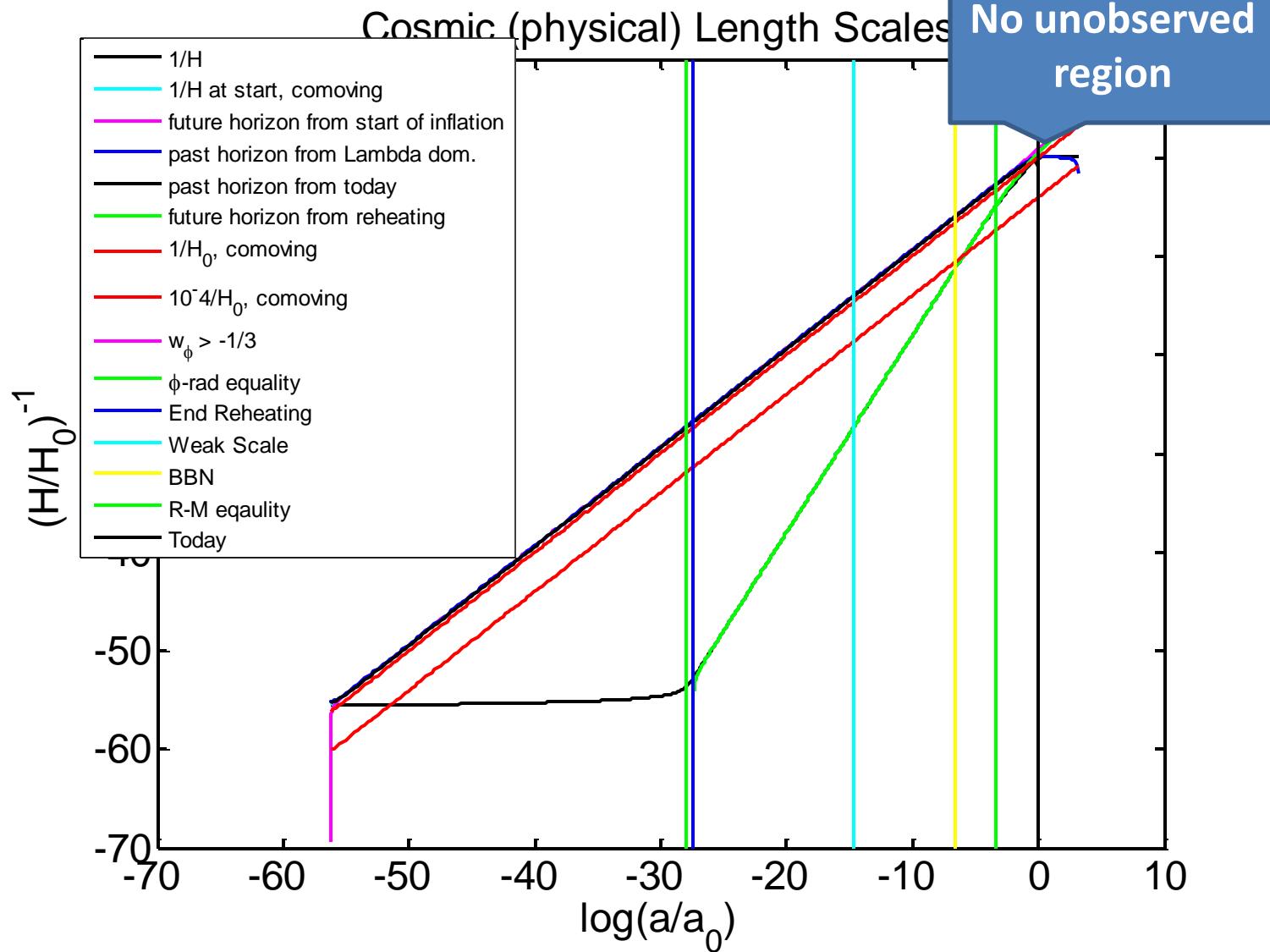
Plenty Inflation

Cosmic (physical) length scales

This region
never observed



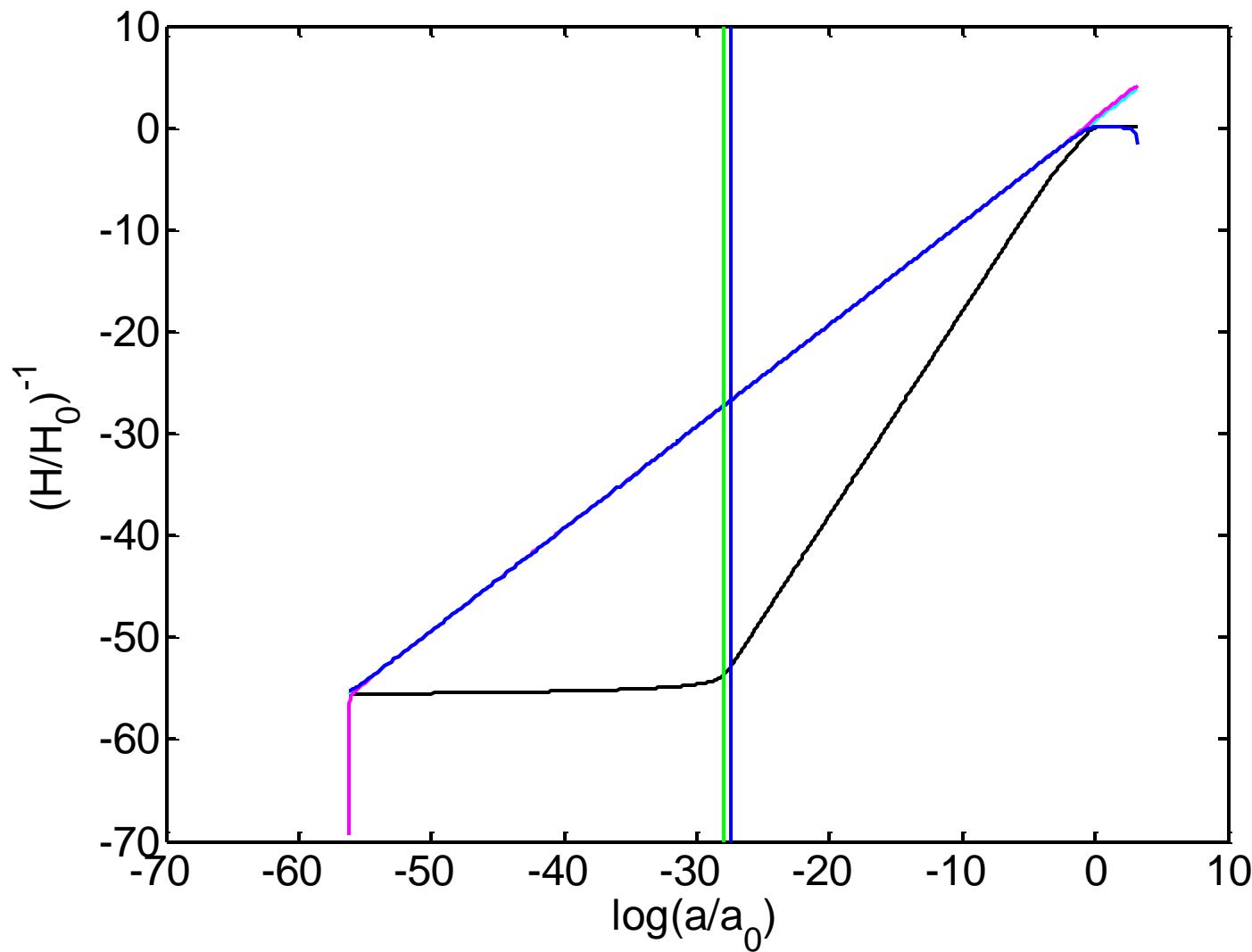
Just Enough Inflation



dSE Cosmology Illustration 1: Reheating

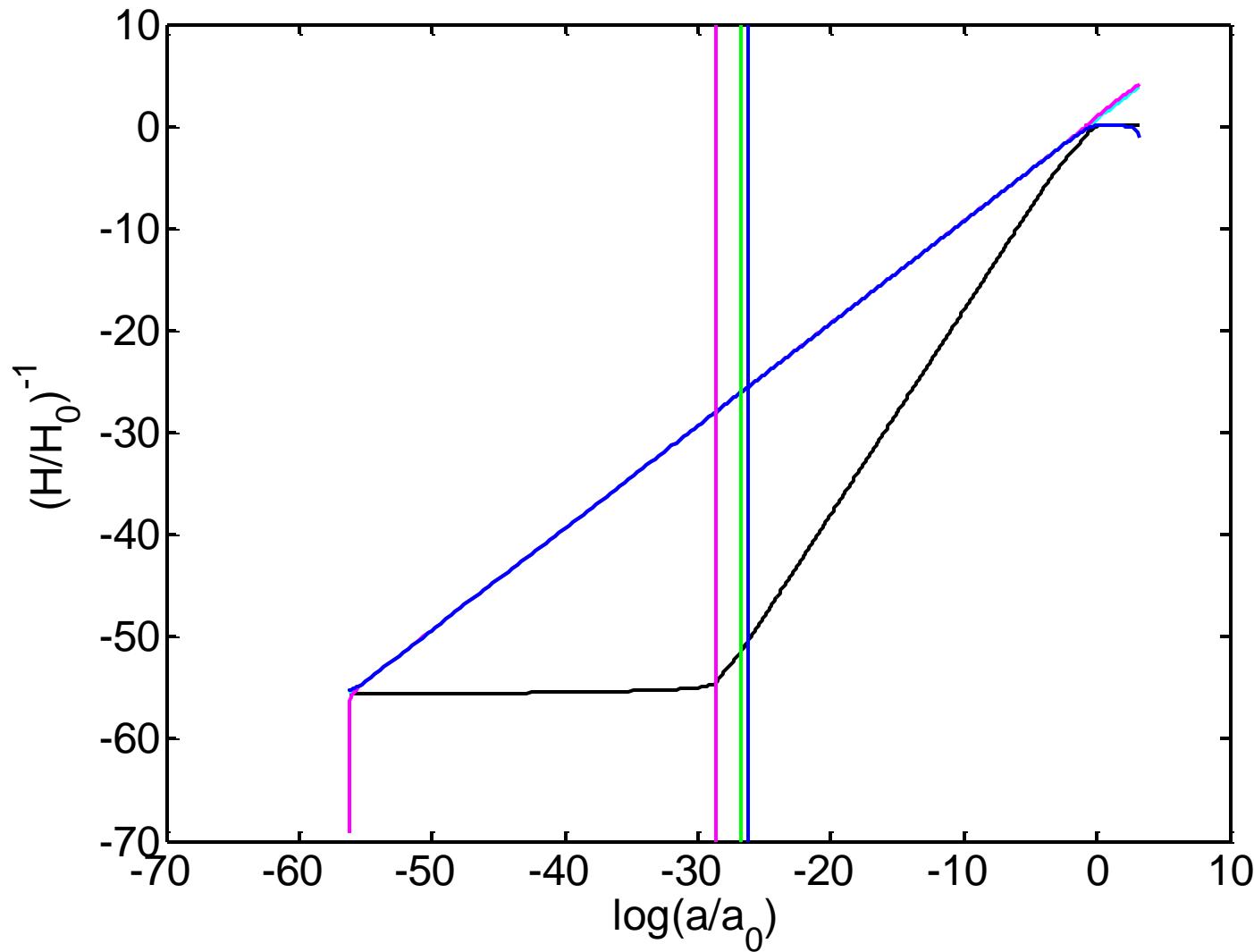
Fast Reheating

$M = 1111; \log(a_{dSE}/a_R) = -28.817; \log(a_{Rs}/a_R) = -0.6356 \log(\Lambda) = 13.37$

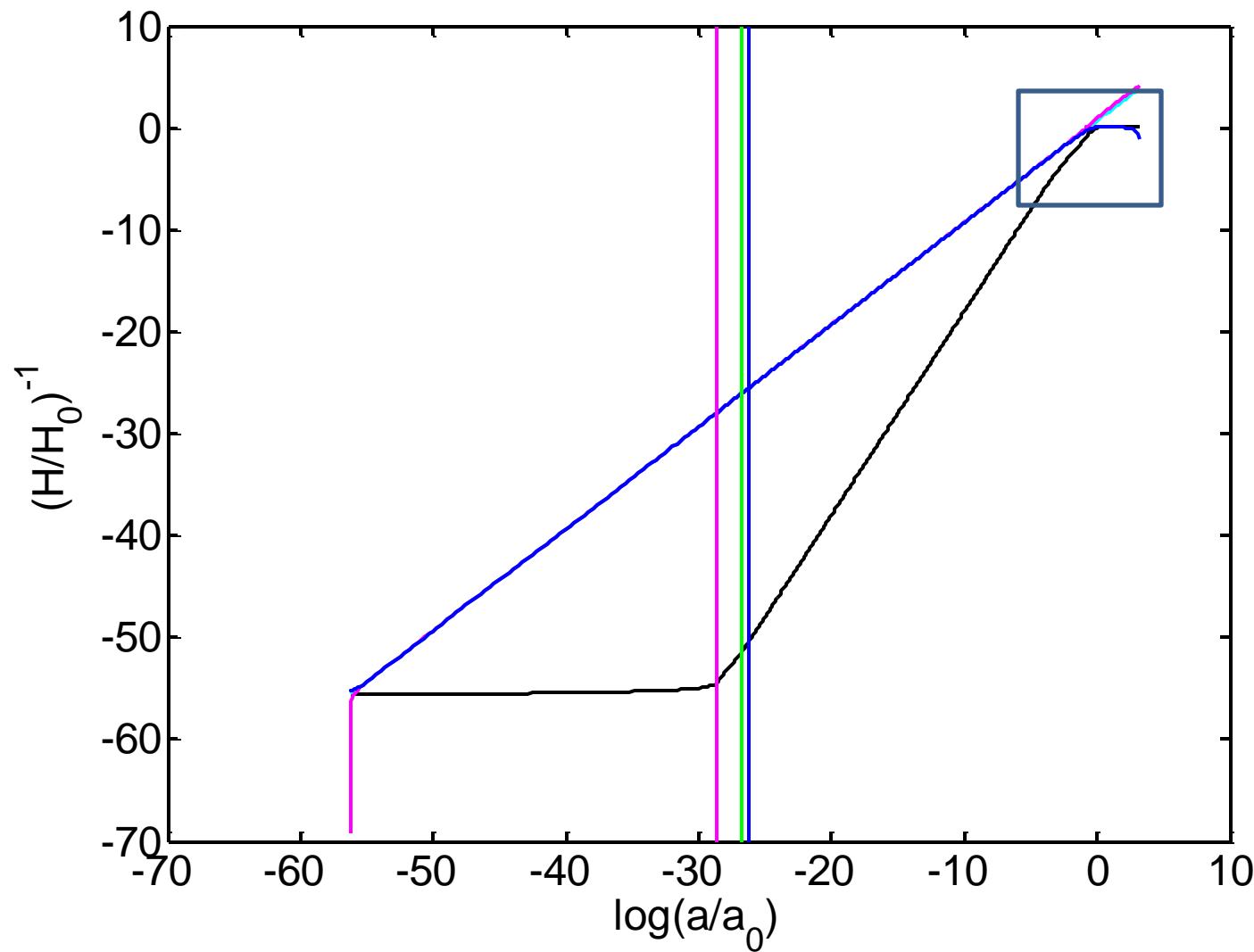


Slow Reheating

$\lambda = 1112; \log(a_{dSE}/a_R) = -30.046; \log(a_{Rs}/a_R) = -0.59304 \log(\Lambda) = 13.3$

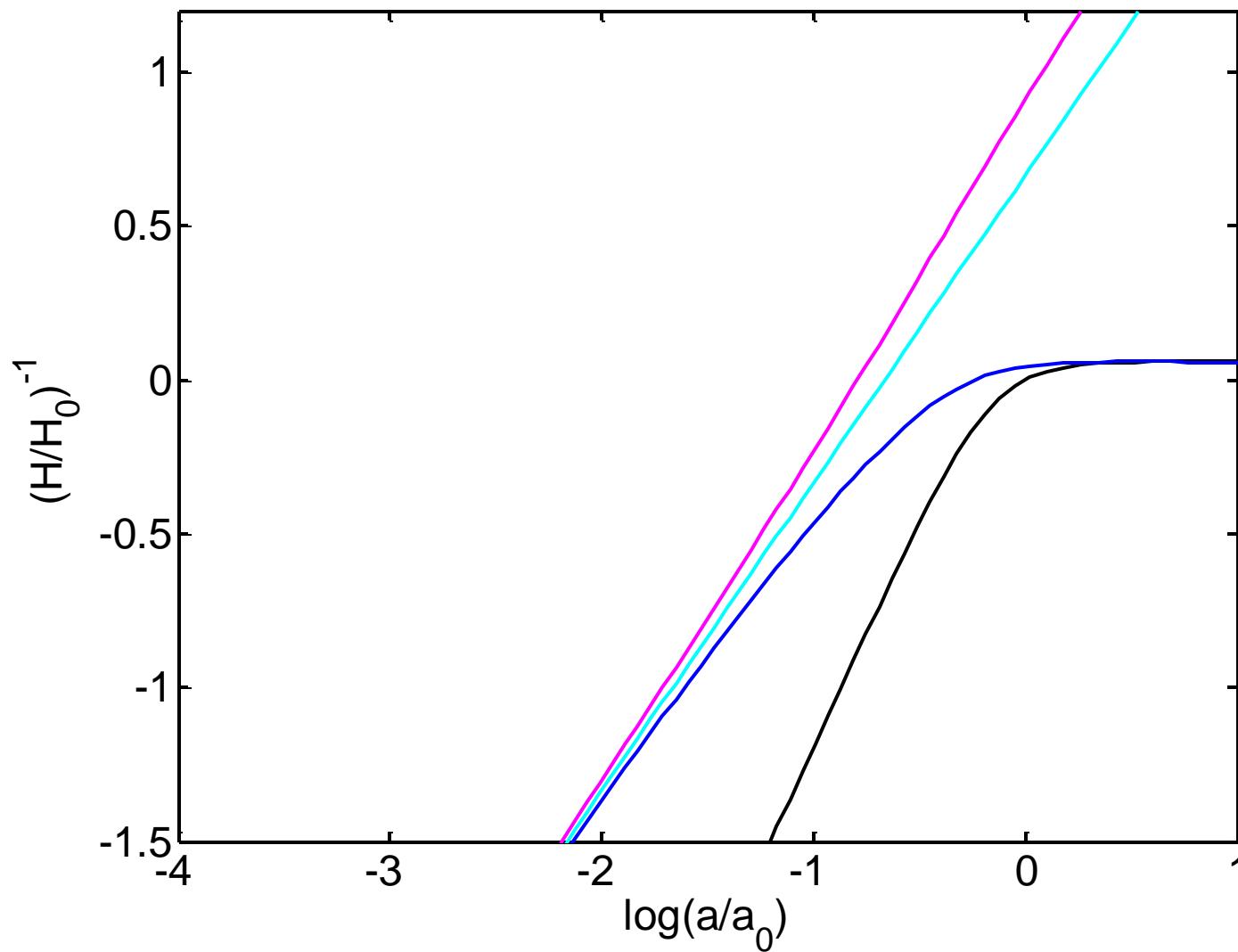


$$\mathcal{N} = 1112; \log(a_{\text{dSE}}/a_R) = -30.046; \log(a_{\text{Rs}}/a_R) = -0.59304 \log(\Lambda) = 13.3$$



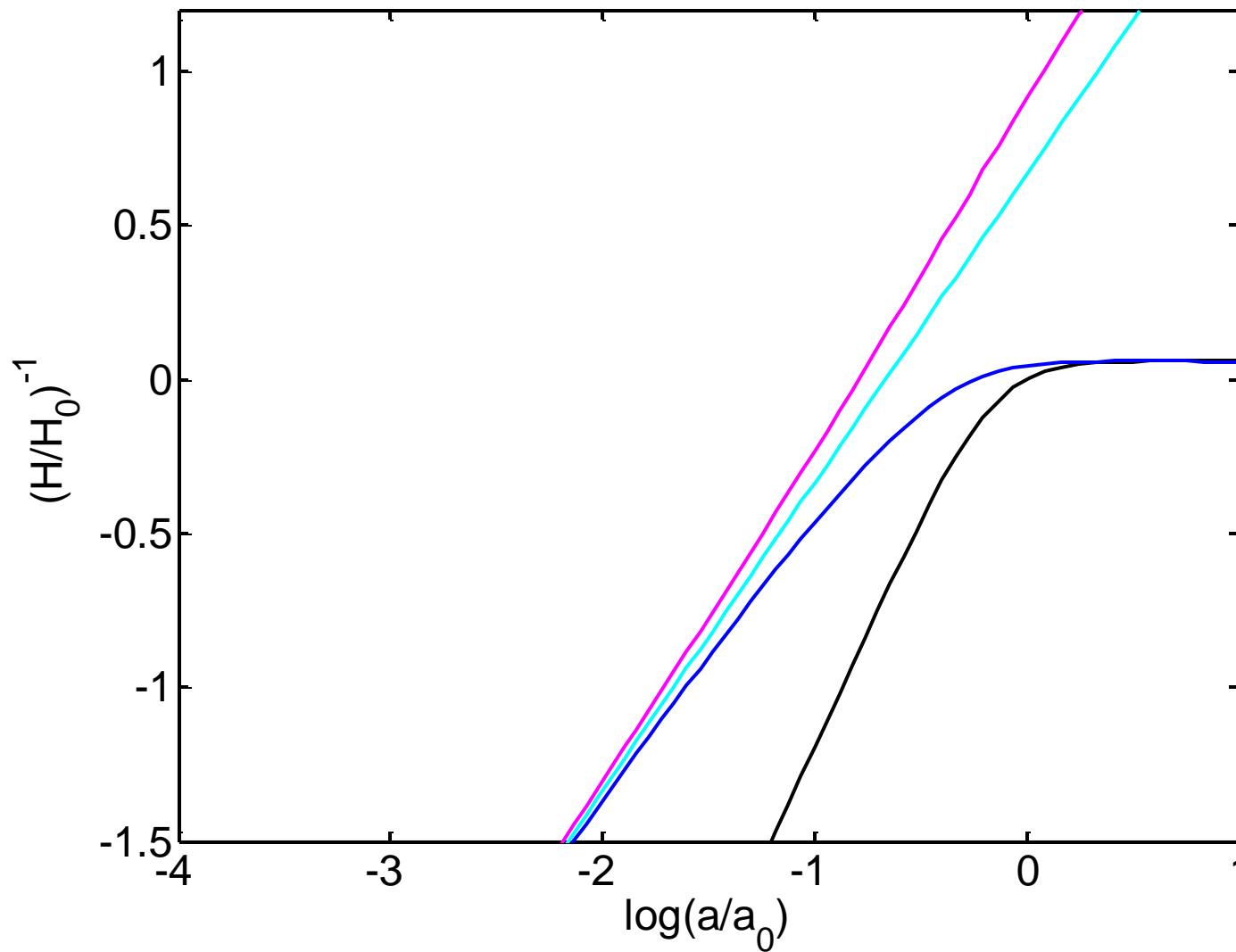
Fast Reheating

Physical Scales

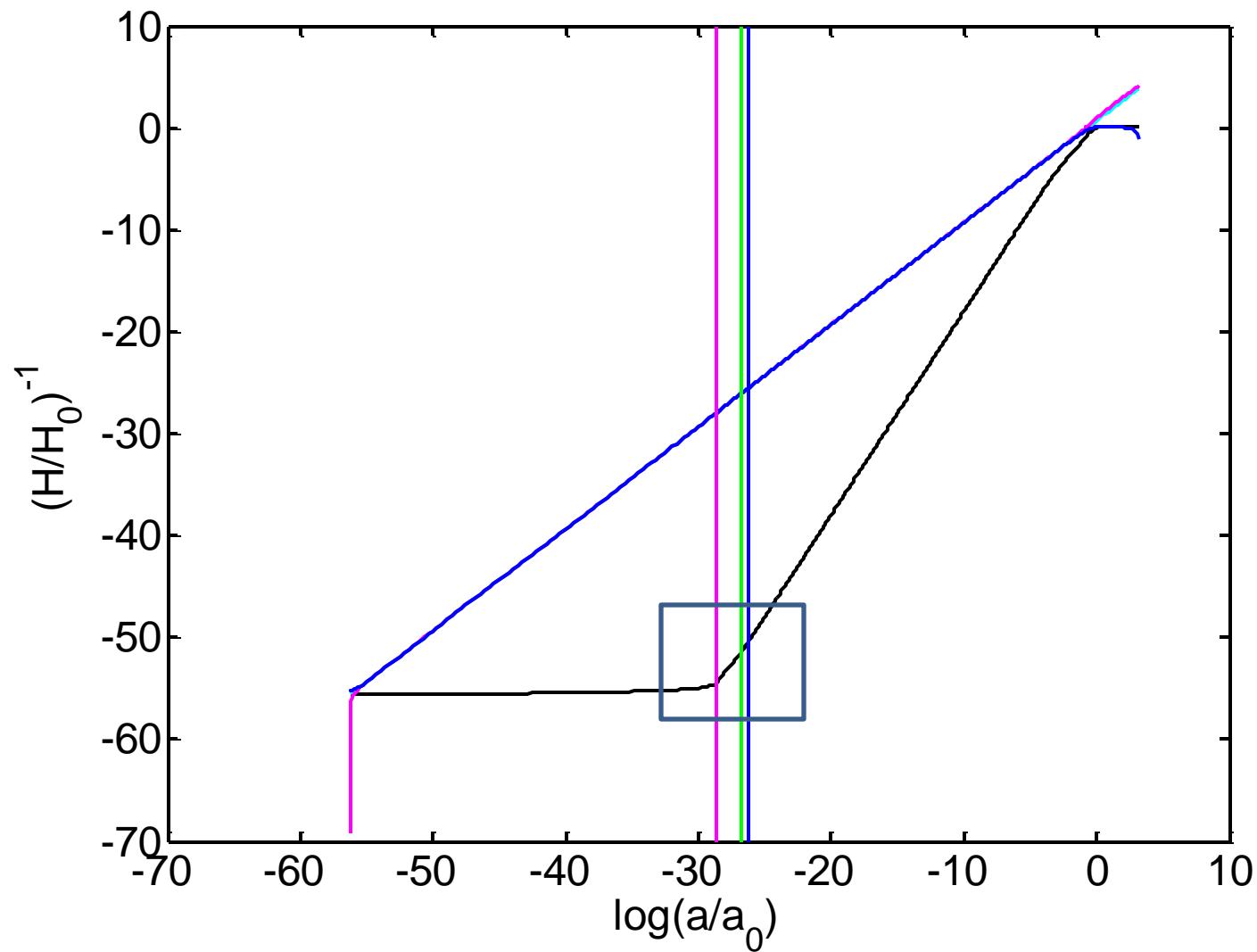


Slow Reheating

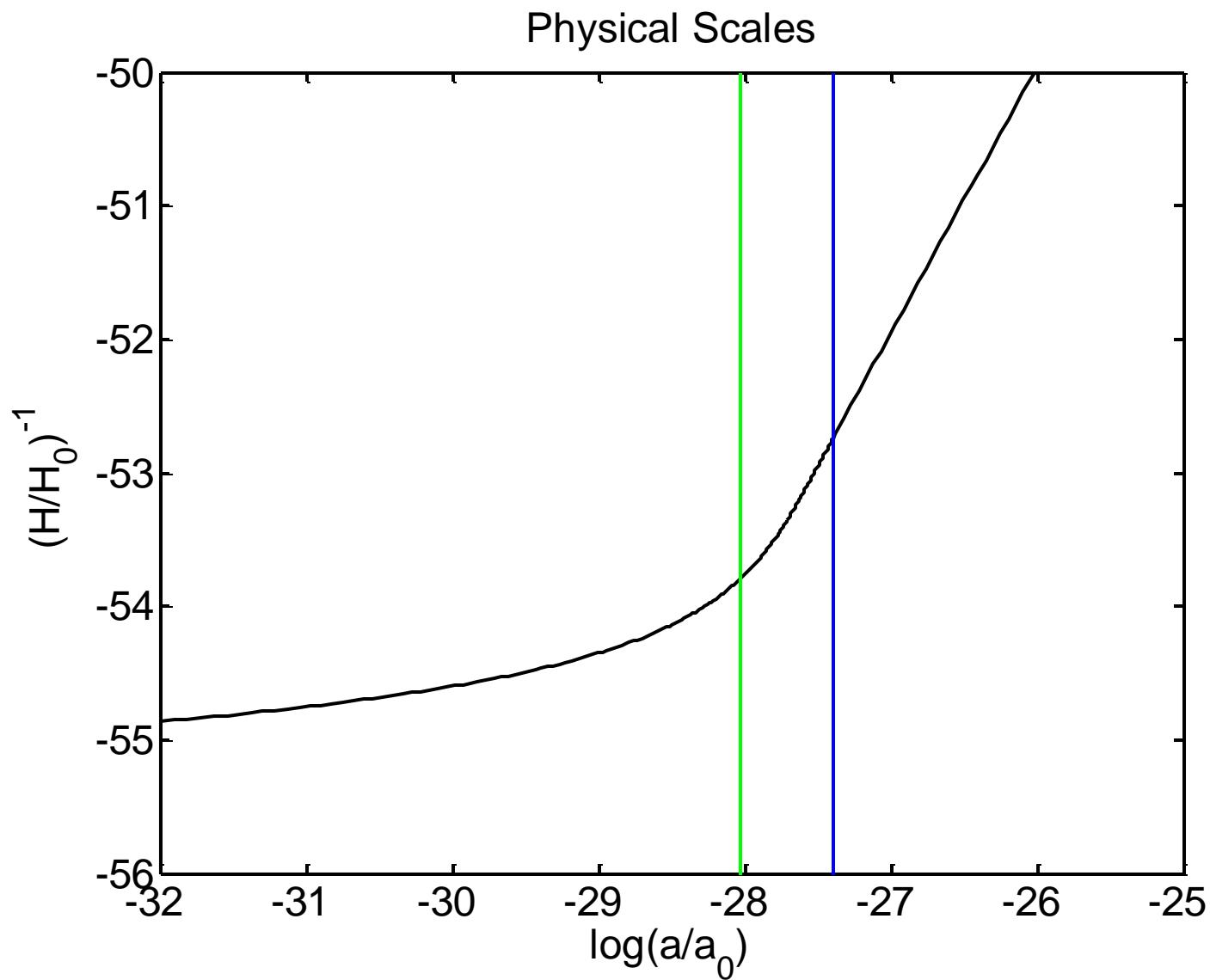
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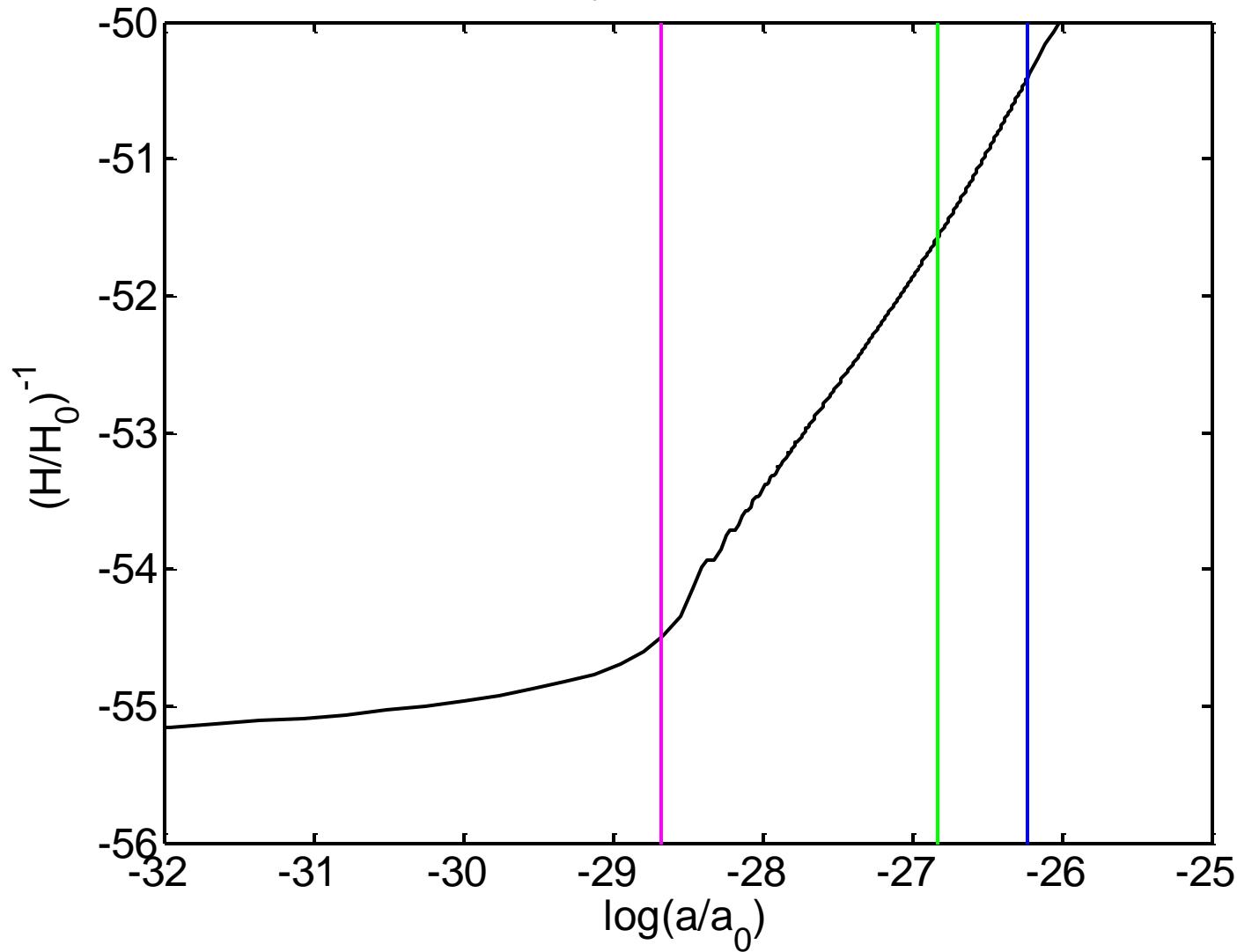


Fast Reheating

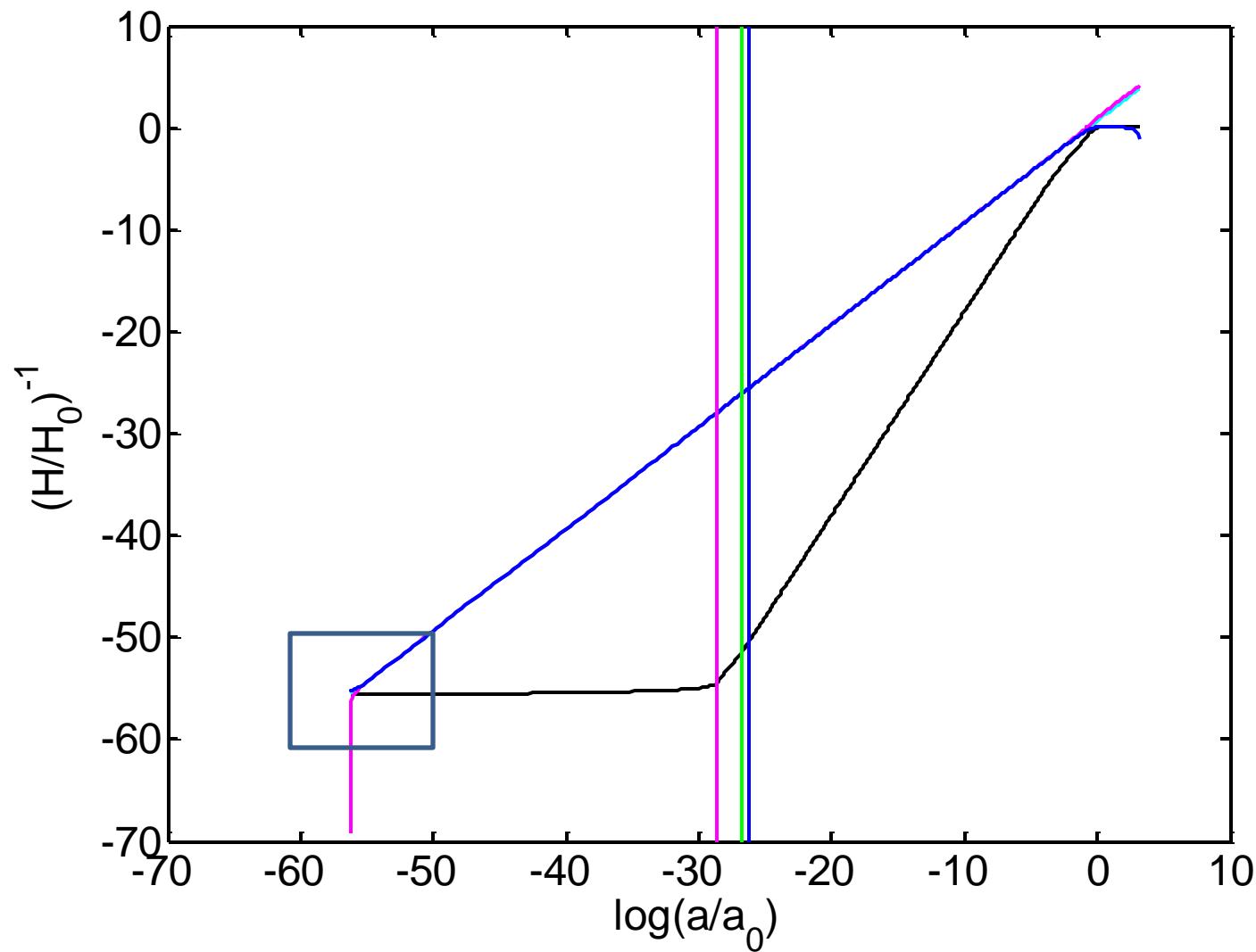


Slow Reheating

Physical Scales

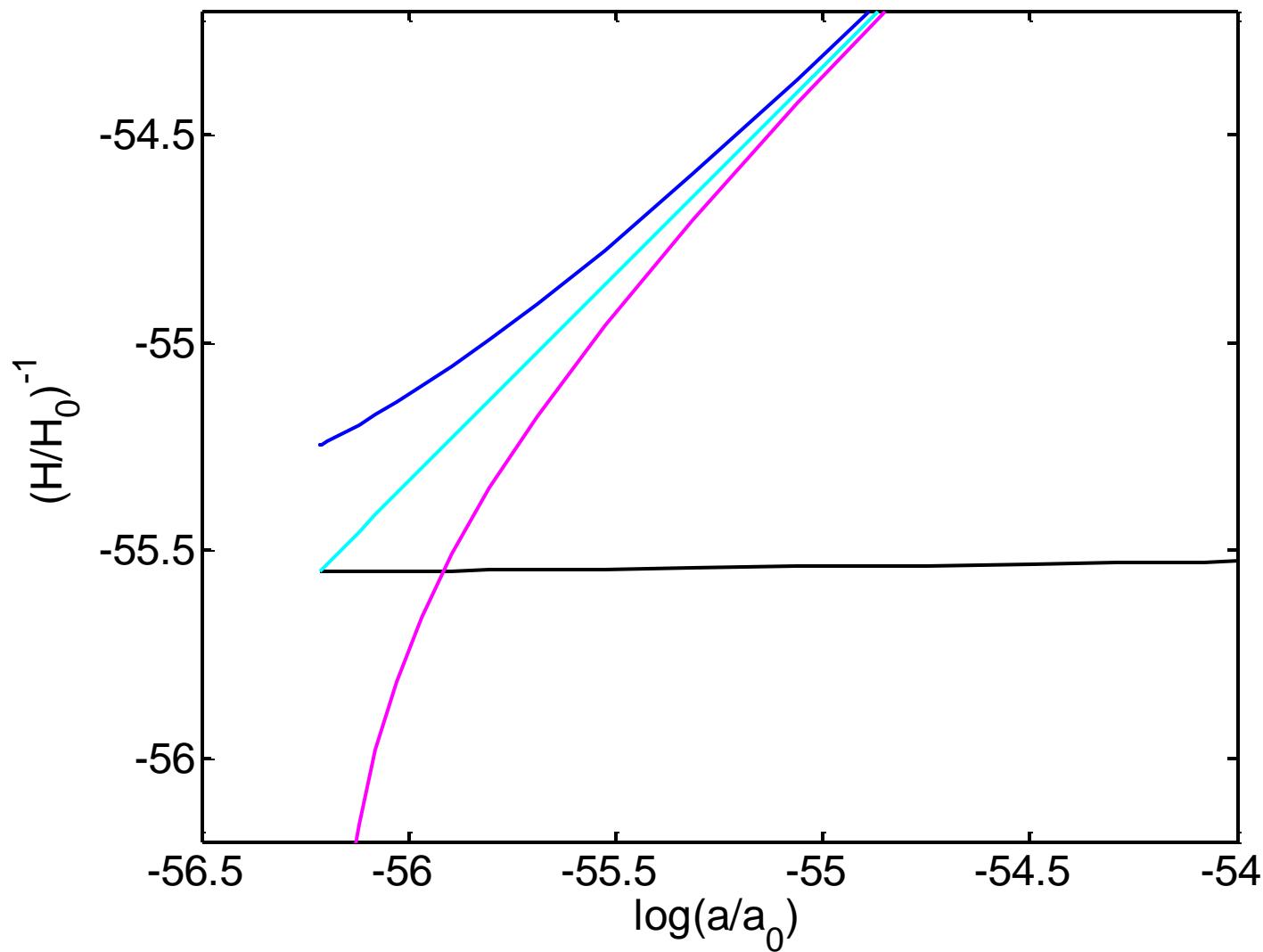


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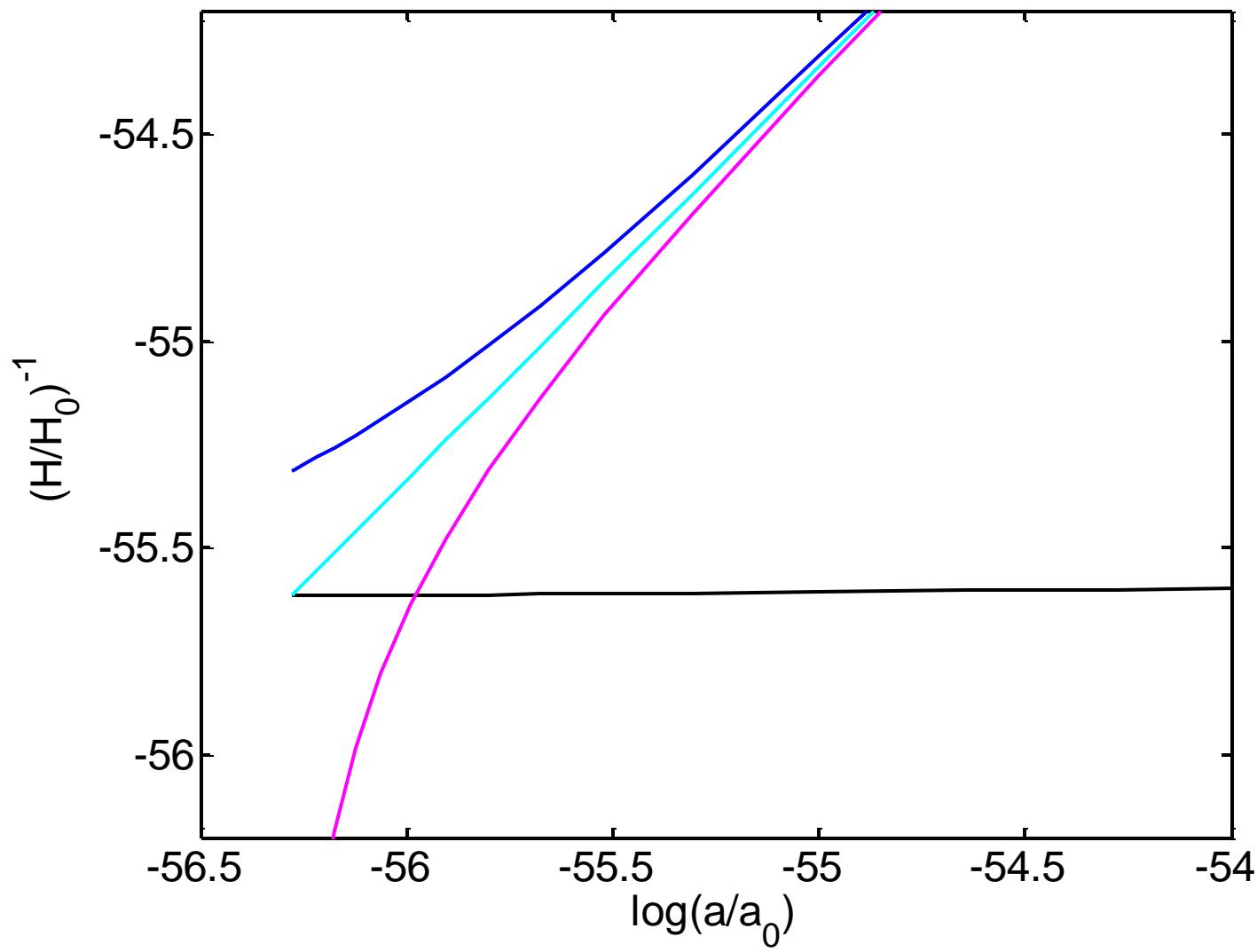
Fast Reheating

Physical Scales



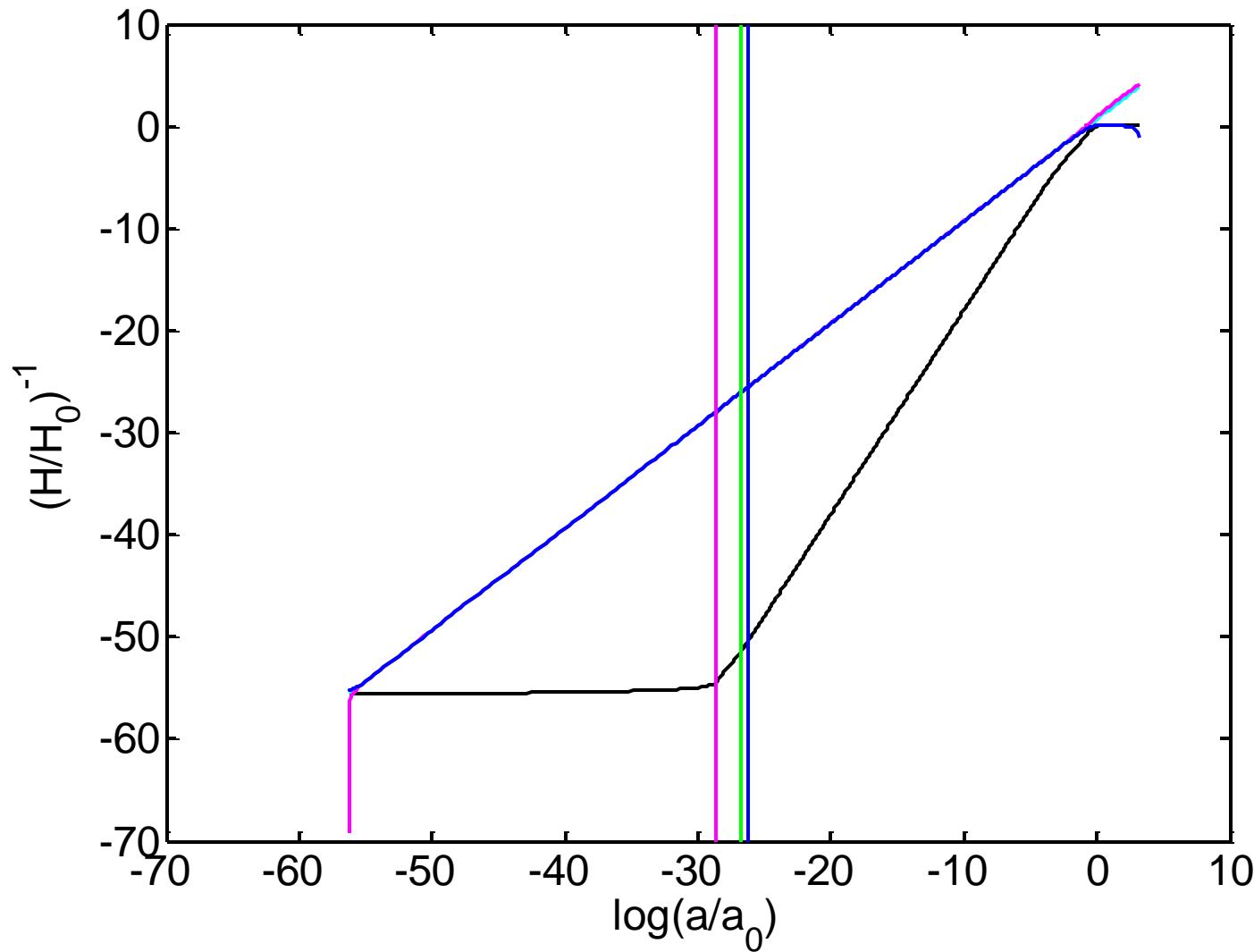
Slow Reheating

Physical Scales



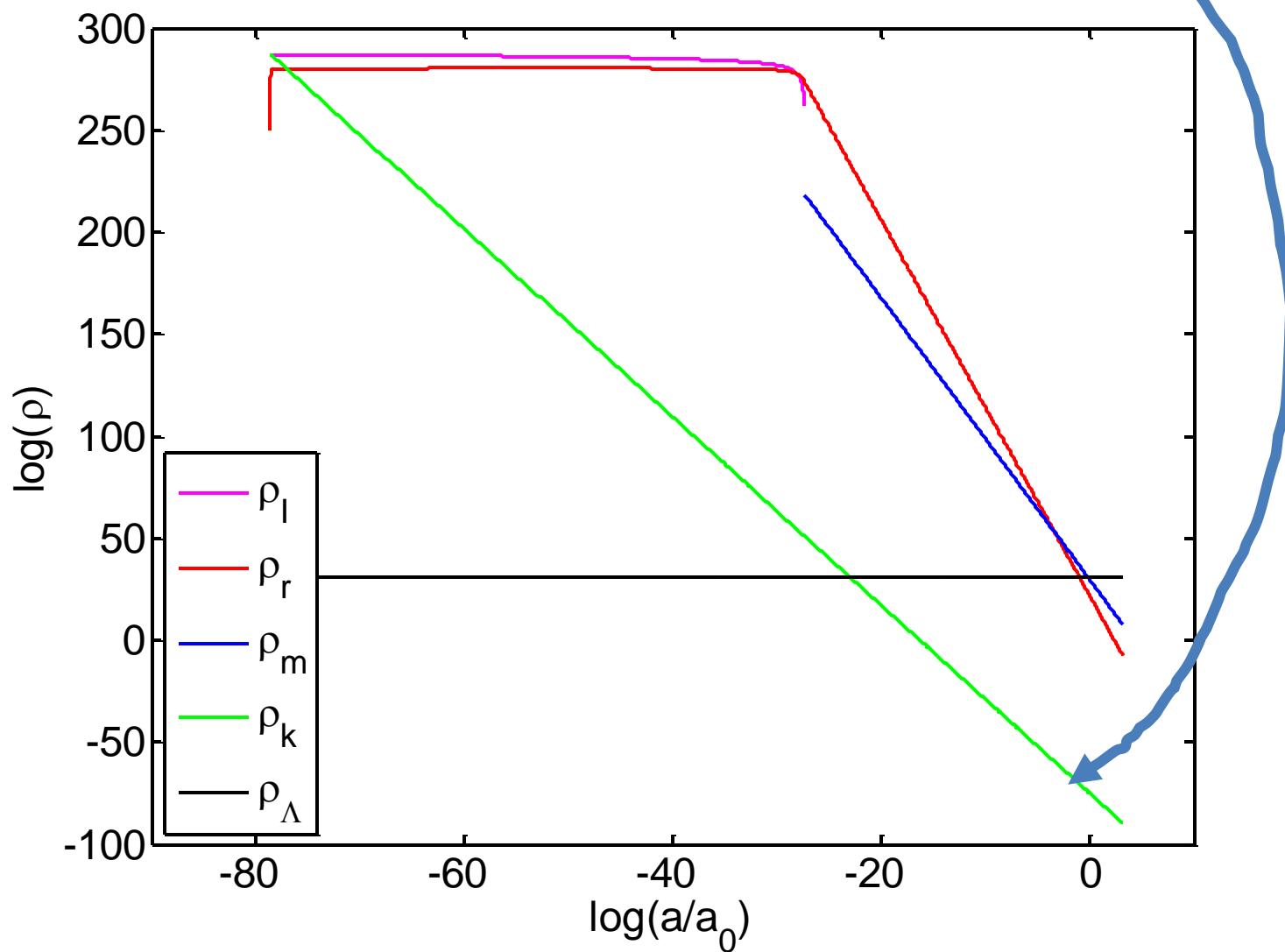
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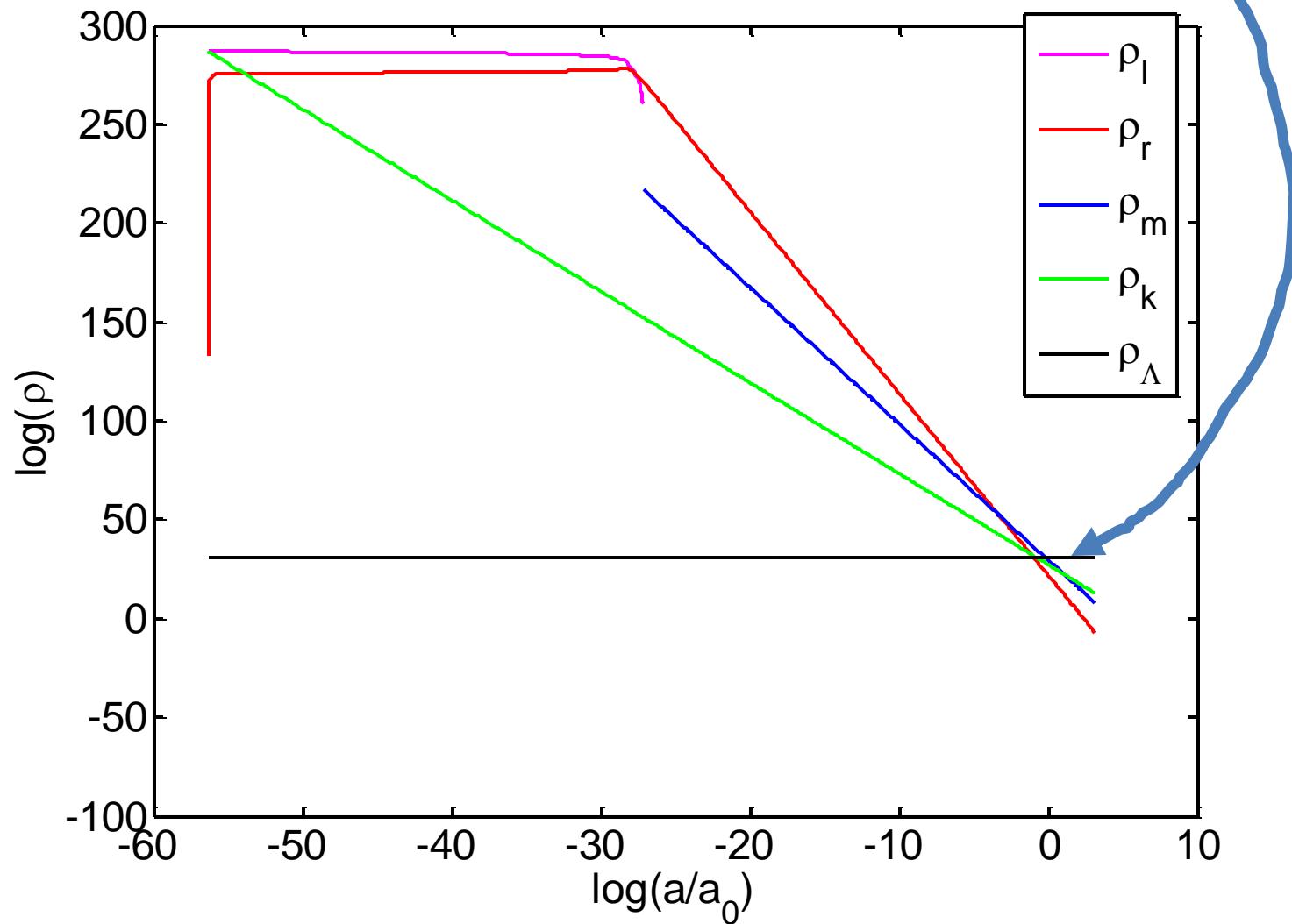
dSE Cosmology Illustration 2: Curvature

Std. Inflation picture: Curvature washed out

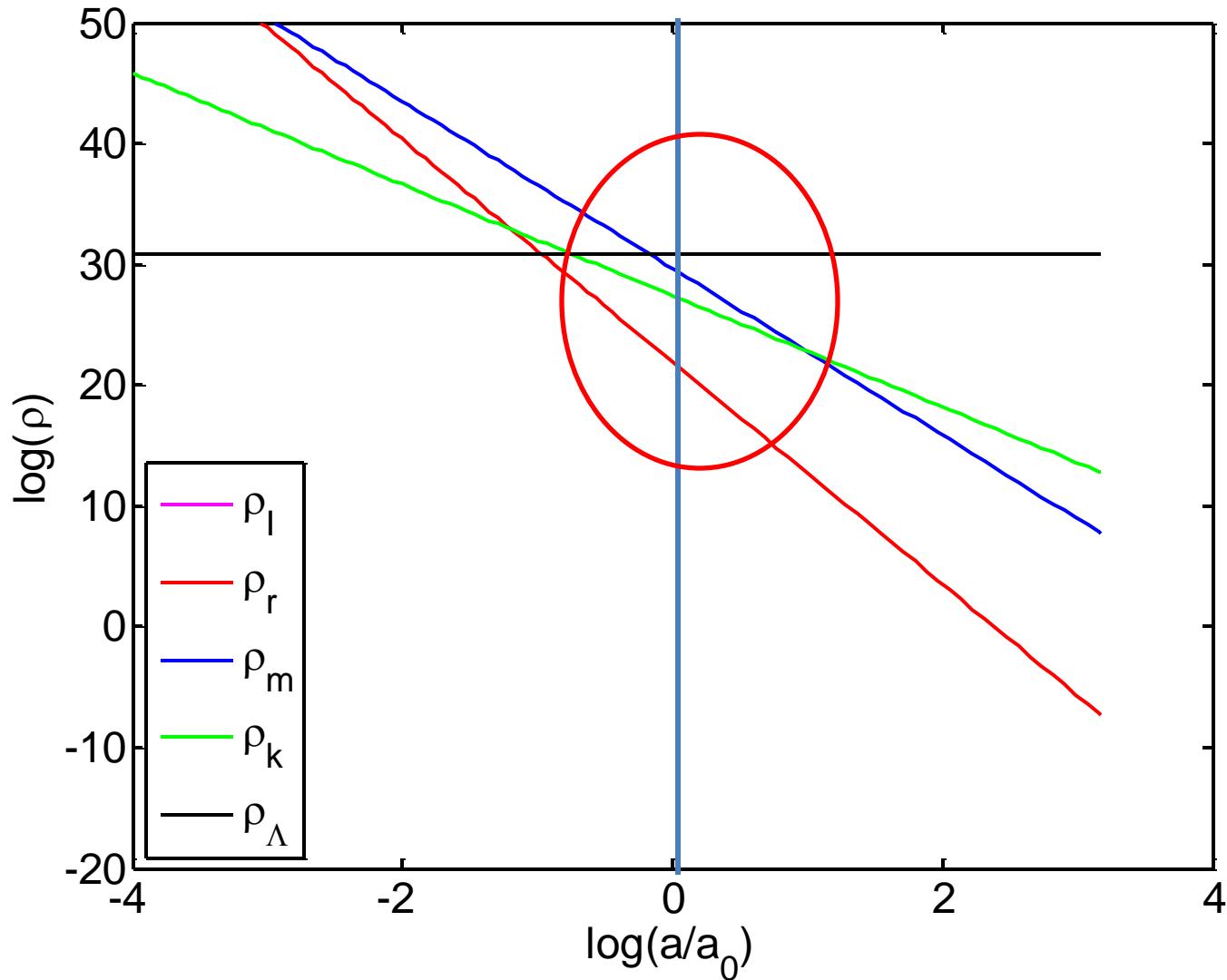


dSE picture: Minimal inflation \rightarrow non-trivial Ω_k

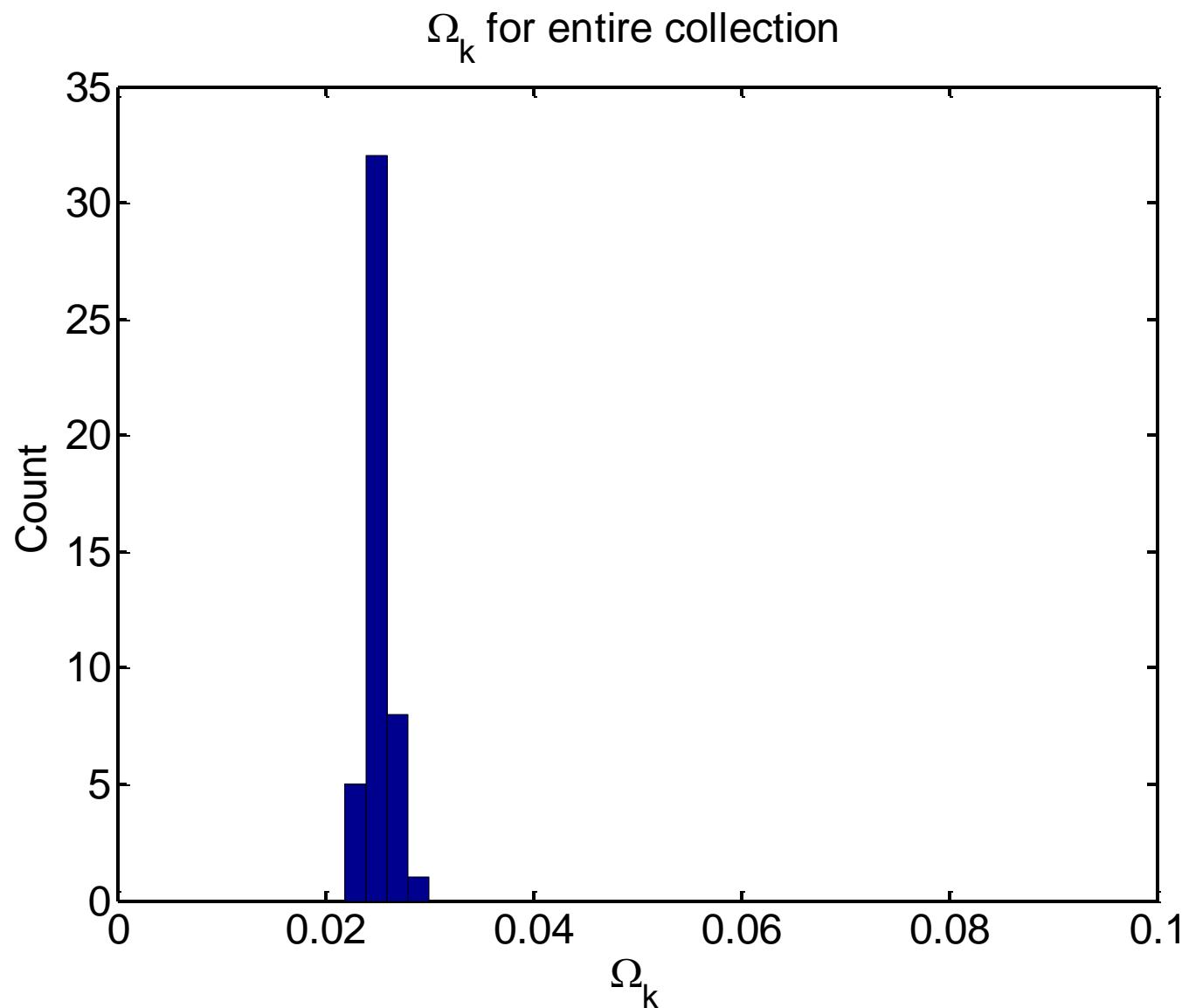
iModel = 1331 $\Omega_k^0 = 0.024661$



Zoomed in:



The bottom line:



de Sitter Equilibrium Cosmology:

- Compelling framework for cosmology motivated by Λ
- Very different from std “eternal inflation” picture
- Does not have the very difficult problems presented by eternal inflation
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- Return TO de Sitter!