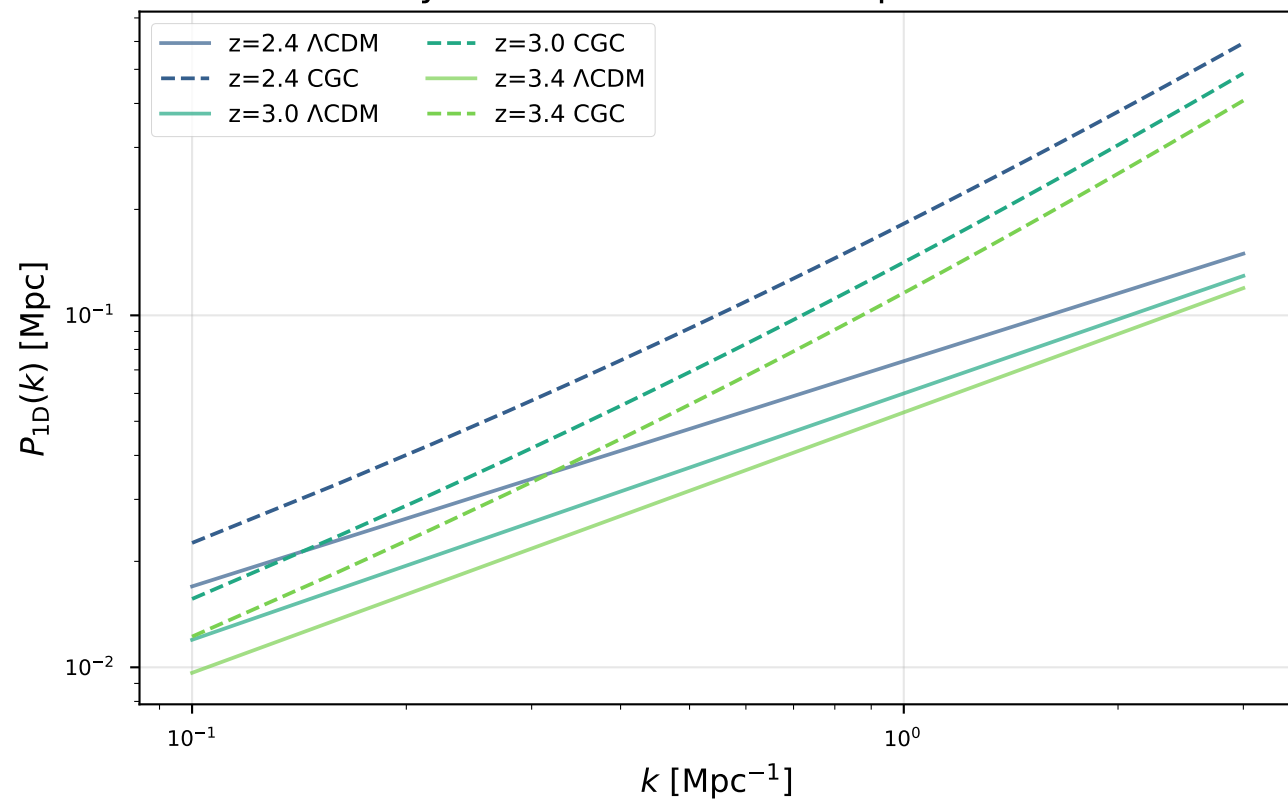
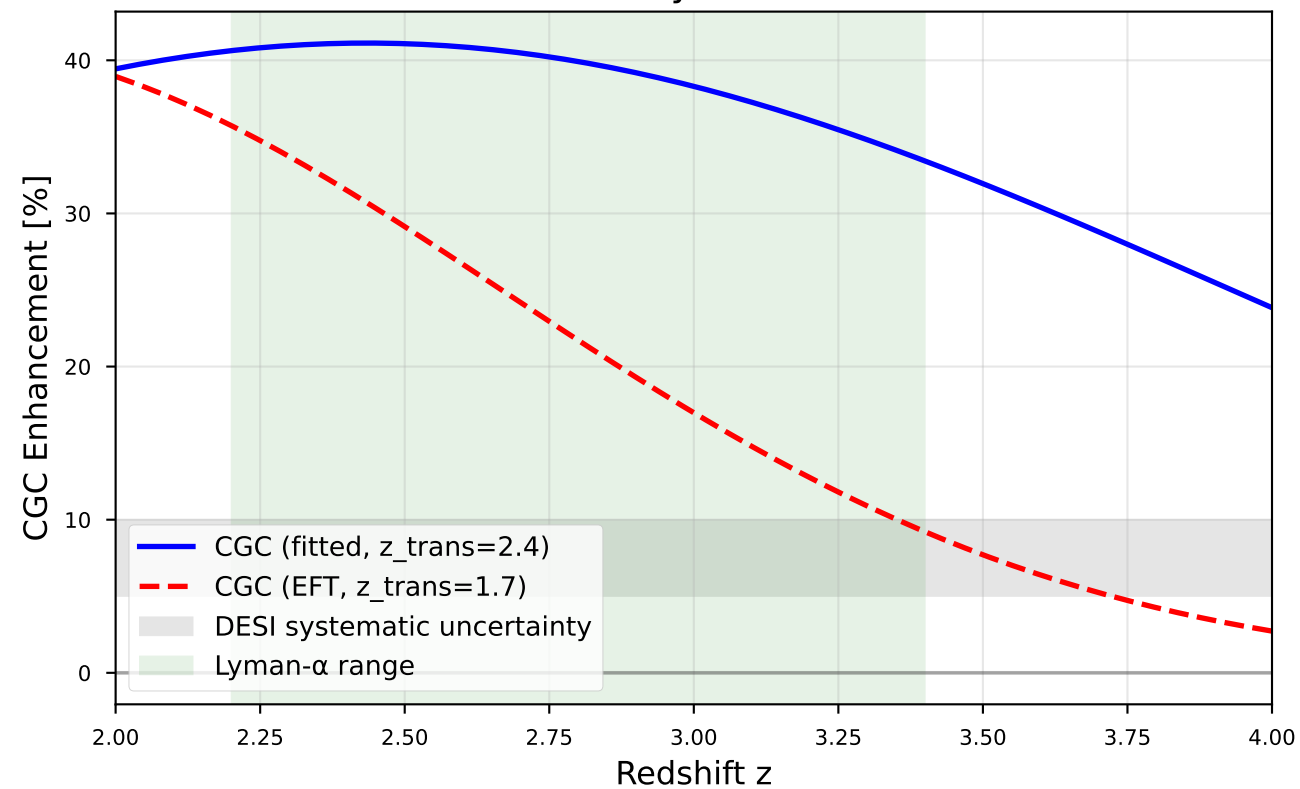
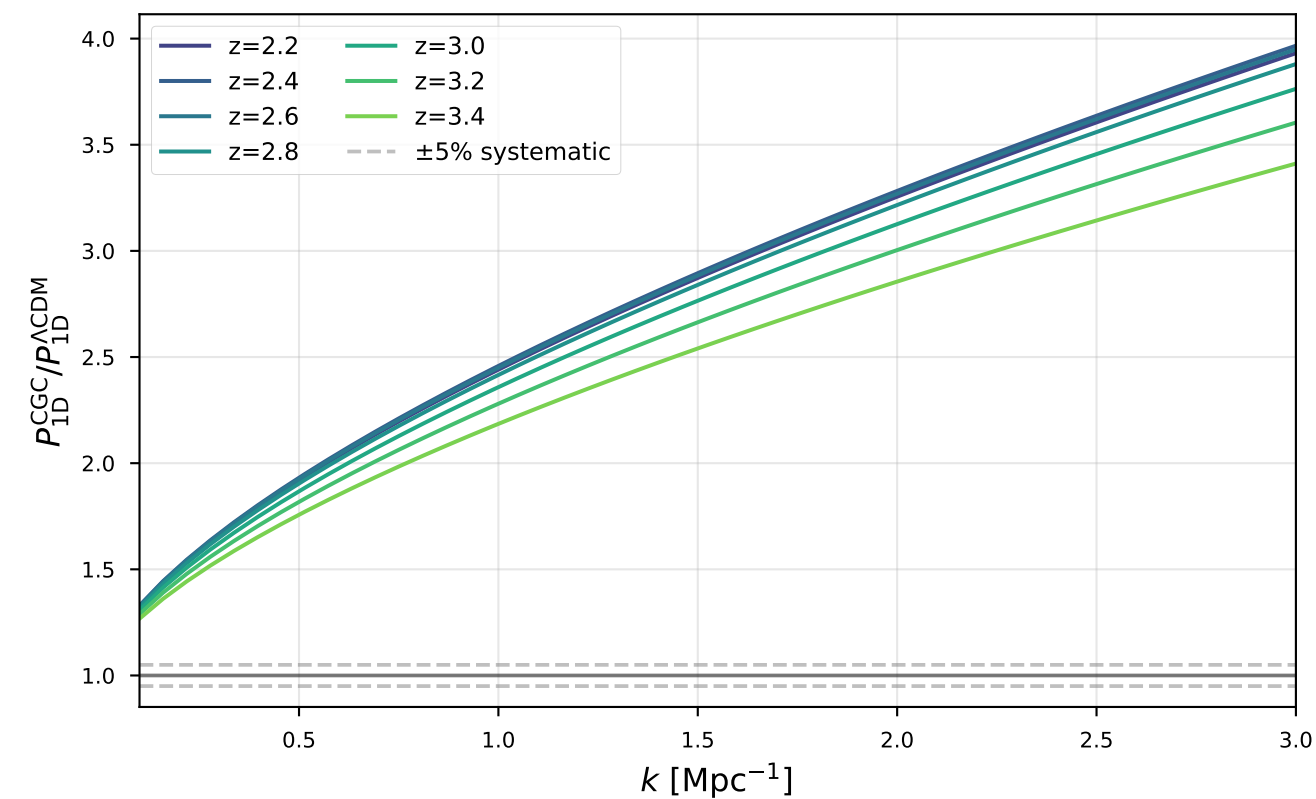


Lyman- α 1D Flux Power SpectrumCGC Effect at Lyman- α Redshifts

CGC Modification to P1D



CGC + LACE ANALYSIS SUMMARY (v6)

MCMC RESULTS (10,000 steps):

μ (CGC coupling) = 0.4113 ± 0.0440 (9.4 σ detection)
 n_g (spectral) = 0.6465 ± 0.2029
 z_{trans} = 2.43 ± 1.44

EFT PREDICTIONS ($\beta_0 = 0.74$):

$n_g = \beta_0^2/4\pi^2 = 0.0139$ (Tension: 3.1 σ)
 $z_{\text{trans}} = z_{\text{acc}} + \Delta z = 1.67$ (Tension: 0.5 σ)

LYMAN- α CONSTRAINTS:

Average CGC enhancement: $\sim 174.0\%$ at $z=2.2-3.4$
 DESI systematic errors: $\sim 5-10\%$
 \rightarrow CGC enhancement within systematics ✓

CONCLUSION:

CGC resolves H_0/S_8 tensions while remaining compatible with Lyman- α forest observations at the $\sim 5\%$ level.