

# CMB

part 2

# Recombination

Seager, Sasselov, & Scott (1999), RECFAST code

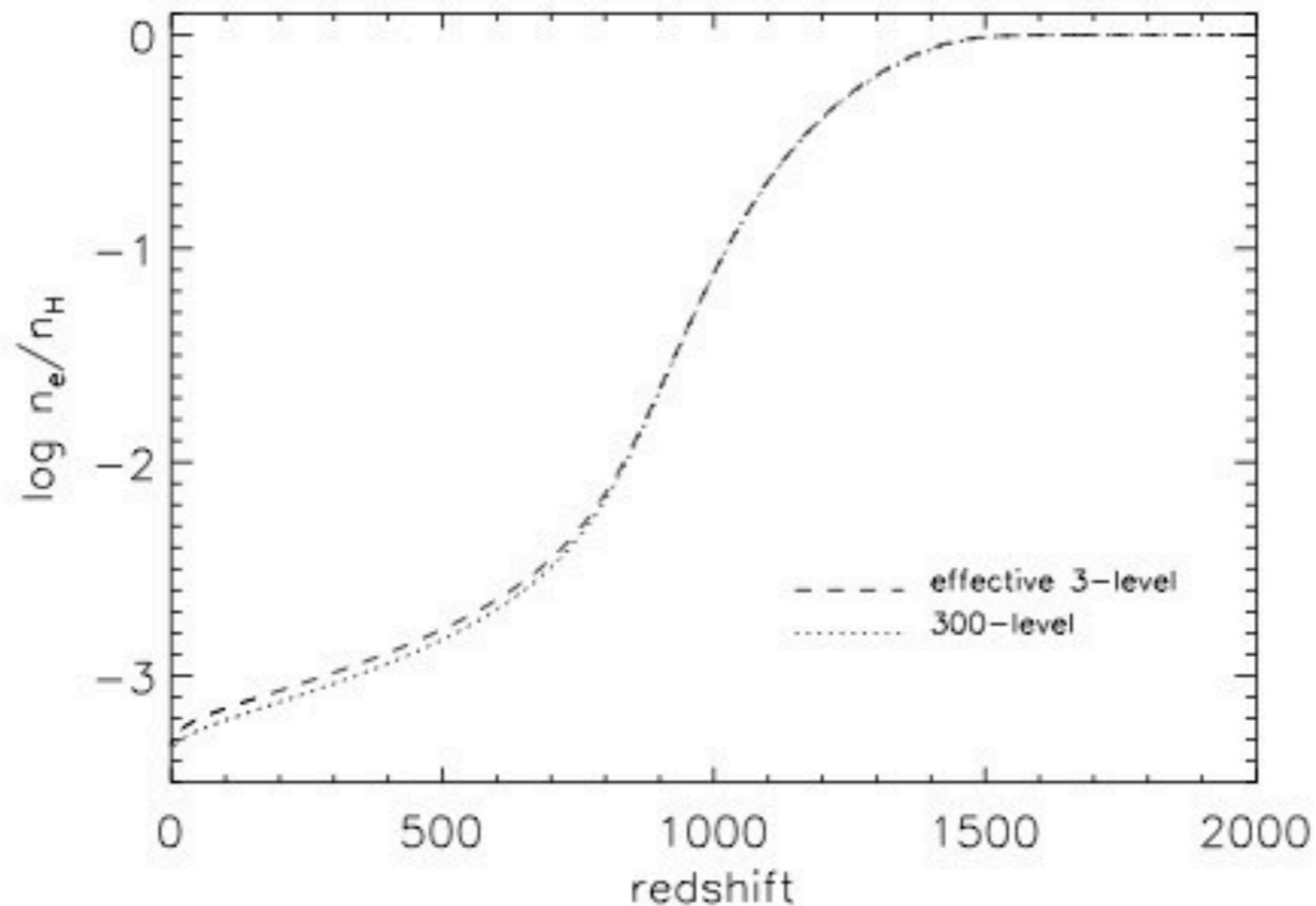
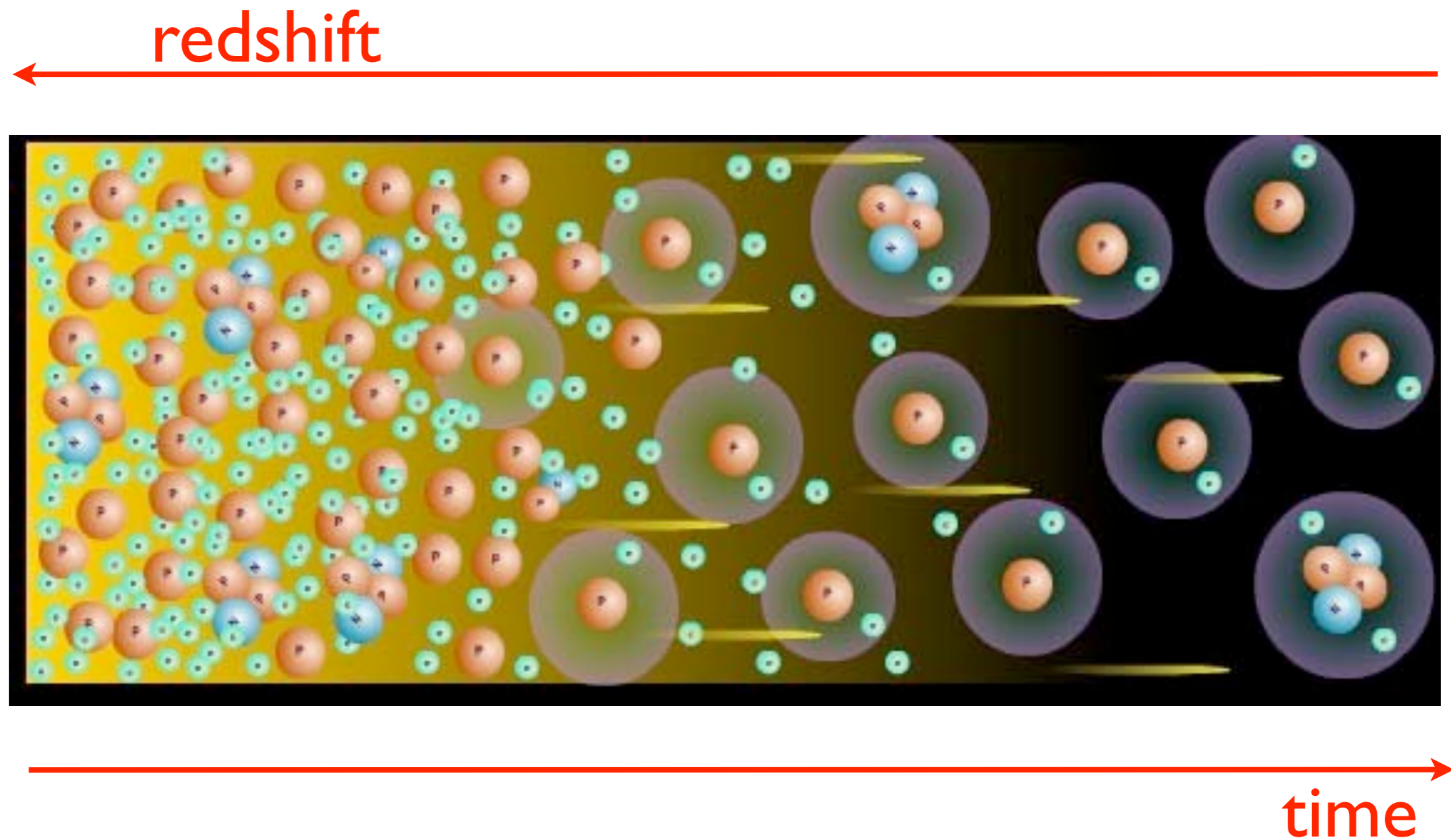


Fig. 1: Multi-level hydrogen recombination for the standard CDM parameters  $\Omega_{\text{tot}} = 1.0$ ,  $\Omega_{\text{B}} = 0.05$ ,  $H_0 = 50$ ,  $Y_{\text{P}} = 0.24$ ,  $T_0 = 2.728$  K. The two lines are the complete calculation of Paper I (dotted) and the standard (effective 3-level atom) calculation (dashed).

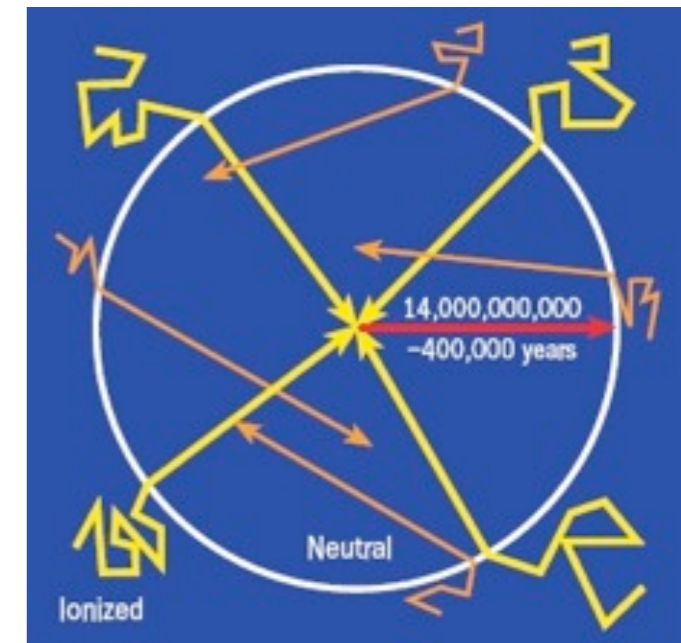
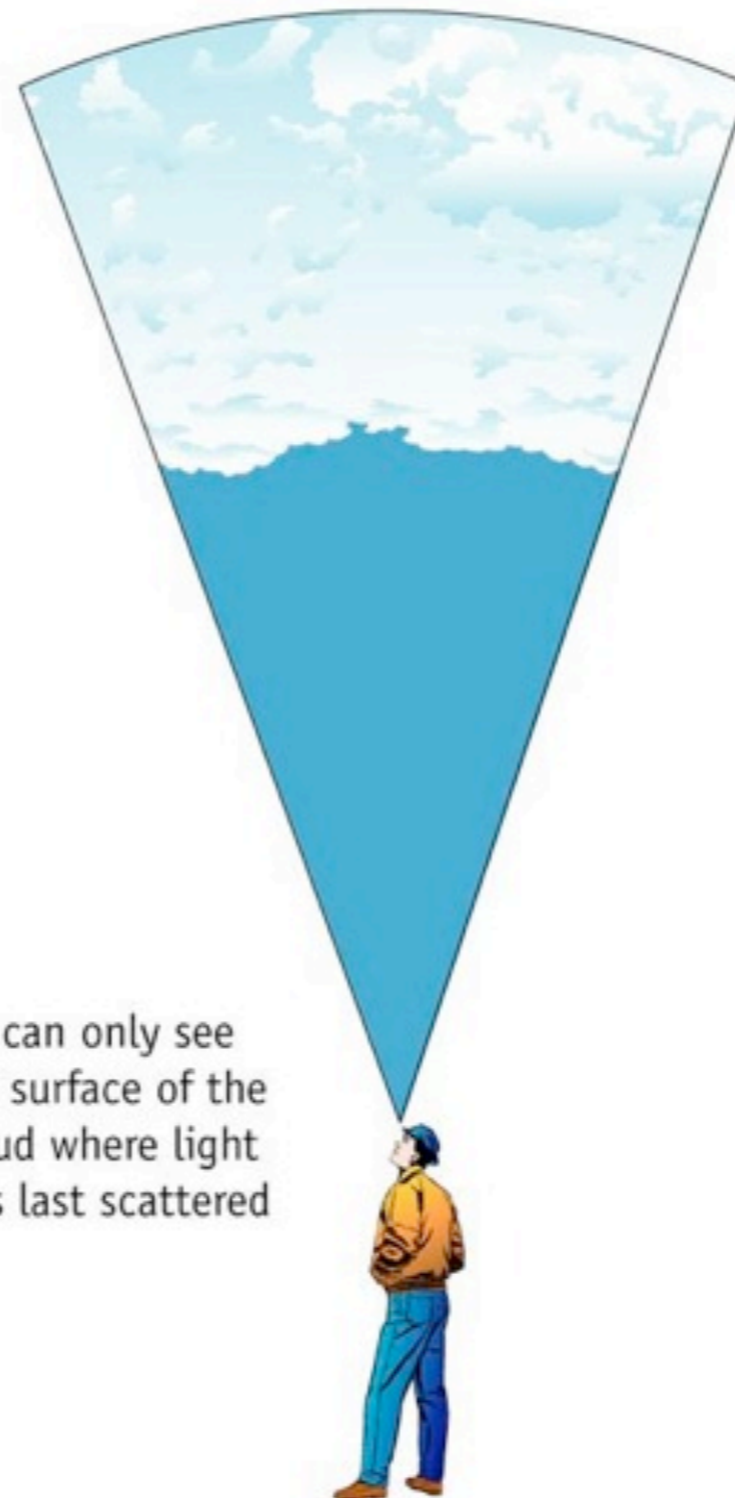
# Photon decoupling



# Last Scattering Surface



The cosmic microwave background Radiation's "surface of last scatter" is analogous to the light coming through the clouds to our eye on a cloudy day.



# Reionization

