

Homework 3

Due date; Tuesday 11th October 2016

1. Liddle Question A2.3
2. Liddle Question A2.4
3. Show that, in a flat radiation dominated Universe with age t_0 (and scale factor normalized such that $a(t_0) = 1$), the coordinate radius of the particle horizon is

$$r_0 = 2ct_0. \tag{1}$$

Derive the relationship between the redshift and coordinate distant (i.e. the counterpart to the equation given in Liddle Question A2.3) for this flat radiation dominated Universe. At what redshift is the angular-diameter size a maximum?