

ASTR 792
T/R 9:30 - 10:45 AM
Due October 24

Week #10

Draine 16.2

Consider a two-level system. Suppose that there is only one collision partner. If the critical density as defined in Eq. (17.7):

$$n_{crit,u}(c) = \frac{\Sigma_{l<u} [1 + (n_\gamma)_{ul}] A_{ul}}{\Sigma_{l<u} k_{ul}(c)}$$

is n_{crit} , and the actual density of the collision partner is n , what fraction of collisional excitations will be followed by a radiative decay back to the ground state?