Temperature of a Star

Dark lines = absorbtion
Light lines = emission

What keeps an e^- seperated from its nucleus?

Electron Wave Function

Probability $\sim |\psi|^2$

Electron emissions

$$h_f = Ry\left(\frac{1}{n^2} - \frac{1}{m^2}\right) \qquad \lambda \cdot \frac{c}{f} = \boxed{hc}$$

Boltzmann Equation

Spin

$$[g(E_n)] \approx 2n^2$$

$$n(E) \sim \frac{1}{e^{E_n/kT}} \qquad \frac{n(E_2)}{n(E_1)} = \frac{e^{E_1/kT}}{e^{E_2/kT}} = \frac{1}{e^{(E_2-E_1)/kT}}$$

$k = 8.617 \times 10^{-5} \frac{eV}{K_{(kelvin)}}$ $\quad T$ = temperature $\quad \mathcal{F}_{surface} = \sigma T^4$

Hydrogen = 90% of Sun

Why not much on Earth?

- High-energy atoms are excited enough to escape earth's gravity.