Transitions in H atom:

$$E_n = -\frac{me^4}{32\pi^2\varepsilon_0^2\hbar^2}\frac{1}{n^2} = -13.6\,\text{eV}\cdot\frac{1}{n^2}$$

$$\Delta E = E_{n_2} - E_{n_1} = -\frac{me^4}{32\pi^2\varepsilon_0^2\hbar^2}\left(\frac{1}{n_2^2} - \frac{1}{n_1^2}\right)$$

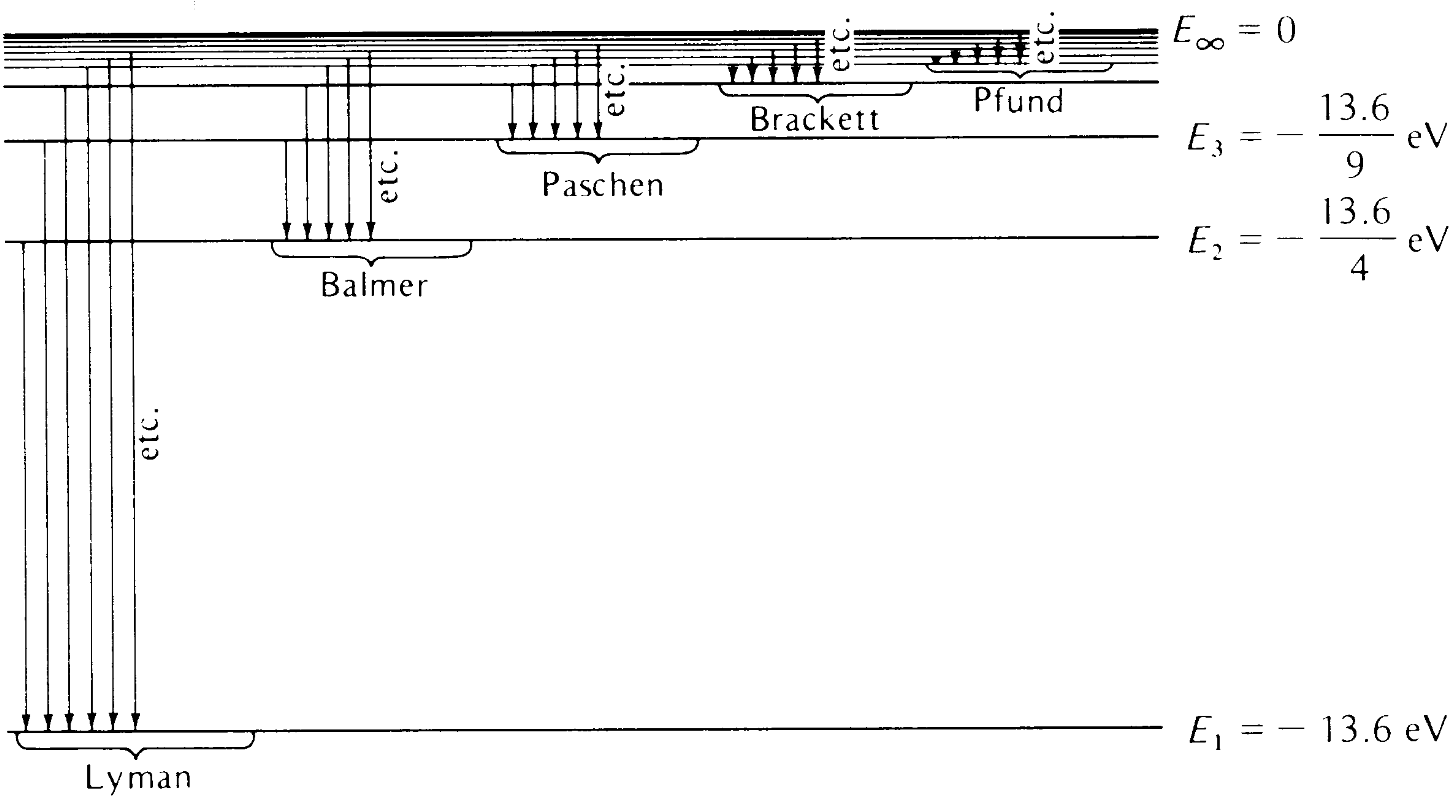

***Fig. 5.** Energy levels of the hydrogen atom, according to Bohr, showing transitions which give rise to the Lyman, Balmer, and other series of spectral lines. (Adapted from R. M. Eisberg, "Fundamentals of Modern Physics." Wiley, New York, 1961.)*

$$\lambda = \underbrace{\frac{64\pi^2\varepsilon_0^2\hbar^3 c}{me^4}\cdot n_2^2}_{\lambda_{\text{limit}}}\left(\frac{n_1^2}{n_1^2 - n_2^2}\right) \qquad n_1 > n_2$$

corresponding to given n_2 (n_0 in Eq. 6.24)