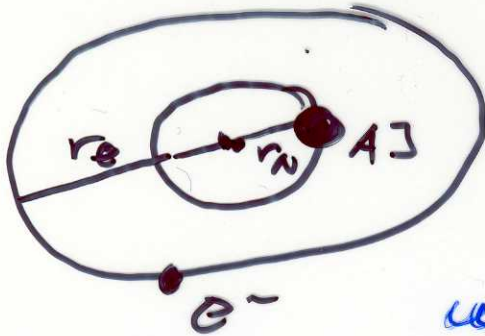


$$m r_e = M r_N$$

$$r = r_e + r_N$$

(*)
(**)



$$L = L_e + L_A$$

$$= m \omega r_e^2 + M \omega r_N^2$$

ω - rovnaké pre e^- a j. A

Podľa Bohrovho postulátu

$$L = n \hbar$$

$$m \omega r_e^2 + M \omega r_N^2 = n \hbar$$

$$z (*) r_e = \frac{M r_N}{m}$$

dosadím r_N vyjadrené z (**)

$$r_N = r - r_e$$

$$r_e = \frac{M(r - r_e)}{m} = \frac{M r - M r_e}{m}$$

a vyjadrím si r_e

$$r_e = \frac{M}{m+M} r$$

Obdobne si vyjadrím (') a (x) r_N

$$r_N = \frac{m}{M+m} r$$

Do sadím do Bohrovho postulátu pre celkový moment hybnosti

$$m \omega \left(\frac{M r}{m+M} \right)^2 + M \omega \left(\frac{m r}{M+m} \right)^2 = n \hbar$$

$$\omega r^2 \frac{m M (M+m)}{(M+m)^2} = n \hbar$$

$$\boxed{\frac{m M}{m+M} \omega r^2 = n \hbar}$$