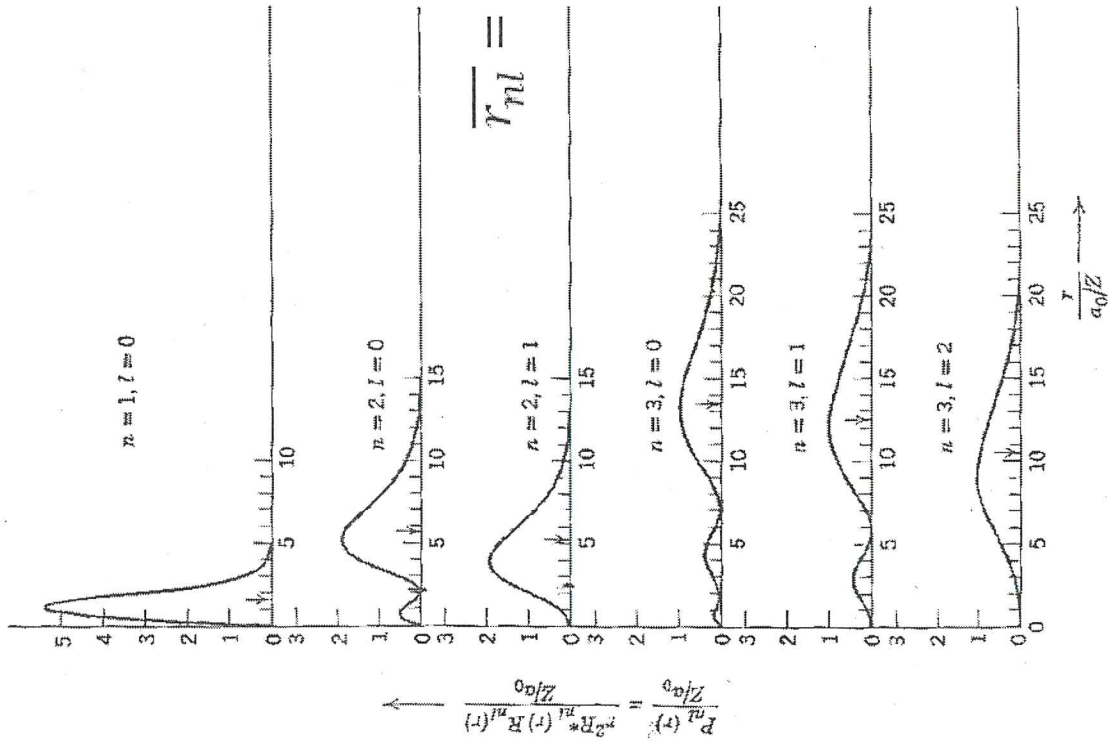


Atomo d'idrogeno: distribuzione di probabilità radiale



$$P_{nl}(r)dr = r^2 R_{nl}^*(r) R_{nl}(r) dr$$

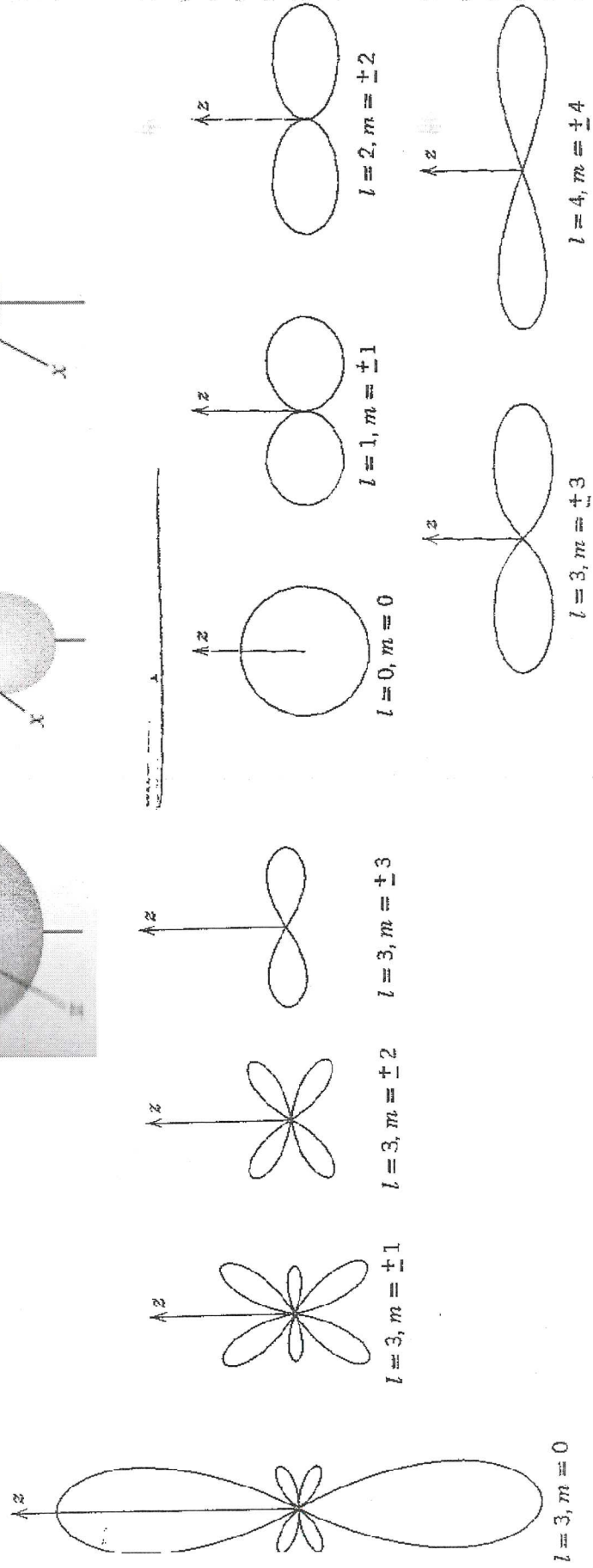
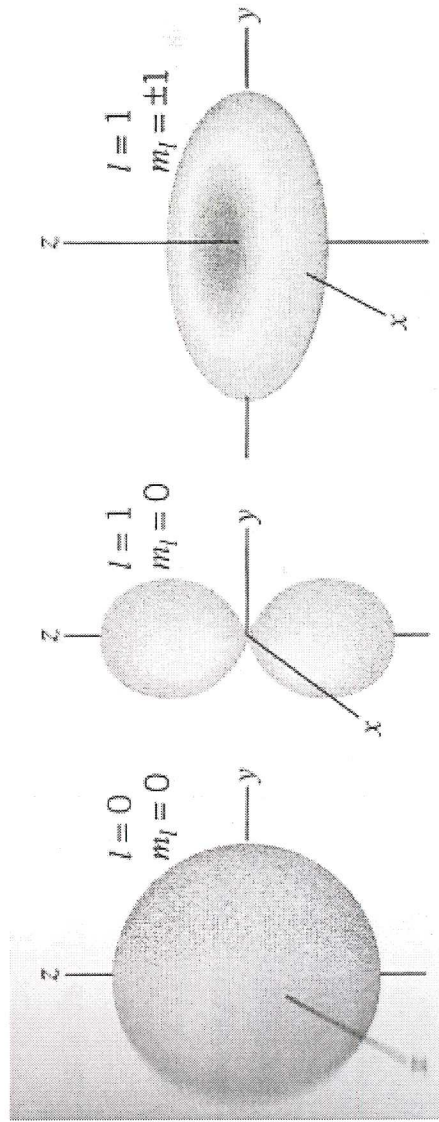
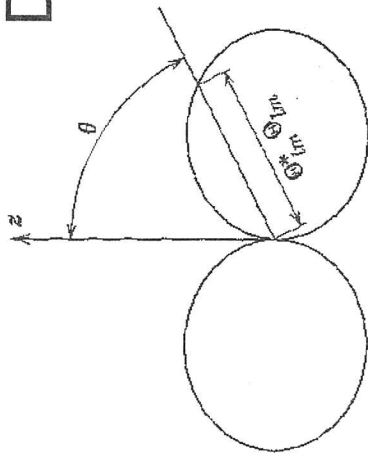
$$\overline{r}_{nl} = \int_0^{\infty} r P_{nl}(r) dr$$

$$= \int_0^{\infty} \int_0^{\pi} \int_0^{2\pi} \Psi_{nlm}^* \Psi_{nlm} r^2 \sin\theta dr d\theta d\phi$$

$$= \frac{n^2 a_0}{Z} \left\{ 1 + \frac{1}{2} \left[1 - \frac{l(l+1)}{n^2} \right] \right\} \approx \frac{n^2 a_0}{Z}$$

Distribuzione di probabilità angolare

Diagramma polare



Densità di probabilità
 totale di un elettrone in
 un atomo di idrogeno
 (o idrogenoide)

$$\Psi^*(\vec{r}, t)\Psi(\vec{r}, t) = |\Psi|^2$$

