Lezione # 14
24/01/2025

RISONANZA MAGNETICA NUCLEARE

$\vec{B}$ Campo magnetico

Quando q $\vec{v} \neq \vec{0}$ $\Rightarrow$ una nuova forza

$\Rightarrow$ B $\Rightarrow$ $\vec{F}$

$[B]$ = Tesla = T

Le sorgenti di un campo magnetico

- Magneti permanenti (calamite)
- qualunque carica in mov.

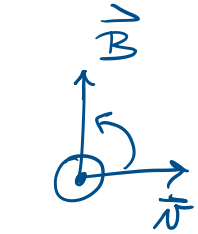
$\vec{F}_L$ = Forza di Lorentz $\qquad [\vec{F}_L] = N$

$$\vec{F}_L = q\vec{v} \times \vec{B}$$

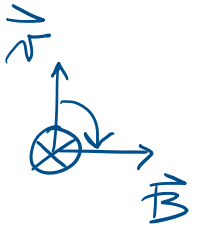
$\vec{v}$ → velocità; q → carica elettrica; $\vec{B}$ → campo magnetico

$[\vec{M} = \vec{r} \times \vec{F}]$ analogo

$$F_L = qvB\sin\theta$$



senso antiorario ⇓ $\odot$ F_L



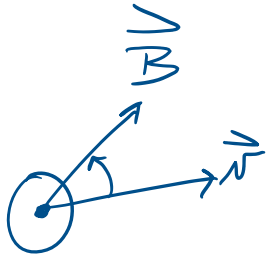
senso orario ⇓ $\otimes$ F_L

Mano sinistra:

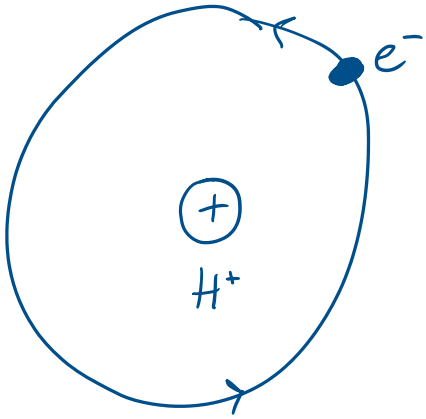
Medio → $\vec{v}$

Indice → $\vec{B}$

Pollice ⇒ F_L

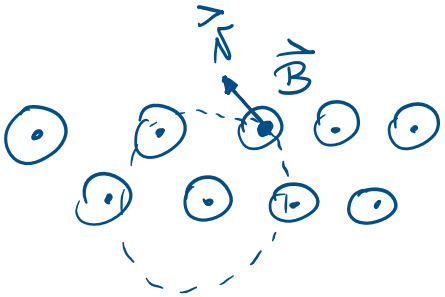


Esempio:

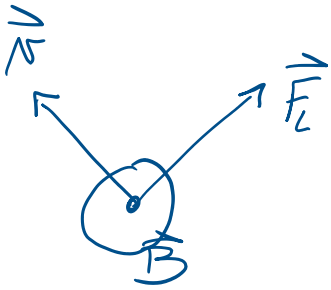


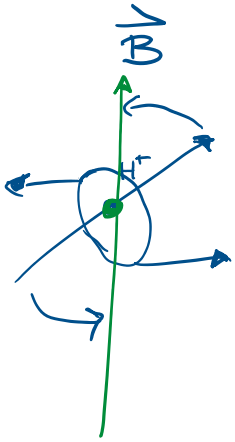
$q < 0$

Supponiamo di immergere l'idrogeno in un campo $\vec{B}$



$F_L = ?$





In presenza di $\vec{B} \neq \vec{0}$ gli atomi di Idrogeno tenderanno ad allinearsi con il campo magnetico