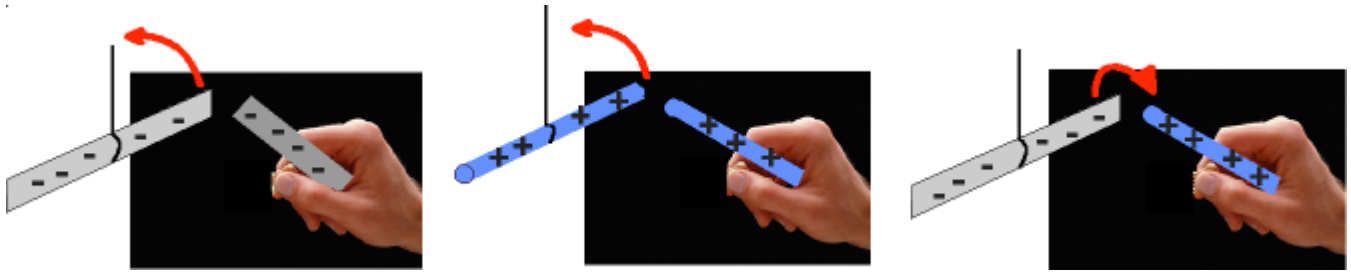
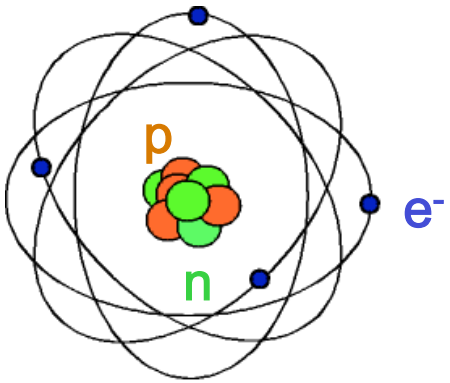
CHAPITRE IV : La charge électrique et la loi de Coulomb

IV.1,2,3 : Force et charge électrique, conservation de la charge



Les charges électriques > matière:



$q_p = + e$ $\qquad$ $q_e = - e$

$e \sim 1{,}602 \;\; 10^{-19}$ C

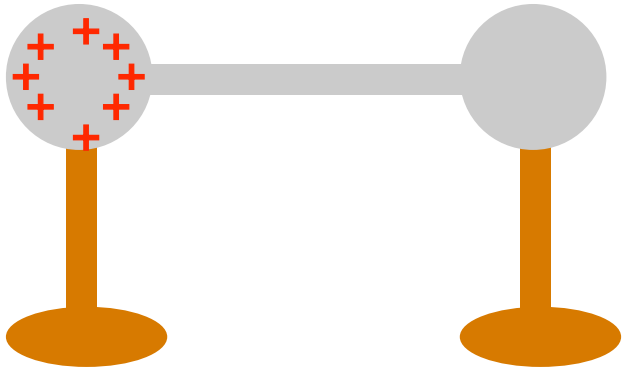
La charge électrique totale d'un système isolé reste constante.

IV.4.Conducteurs et isolants

Conducteurs:

$q_1 = Q$

$q_1 = Q/2$

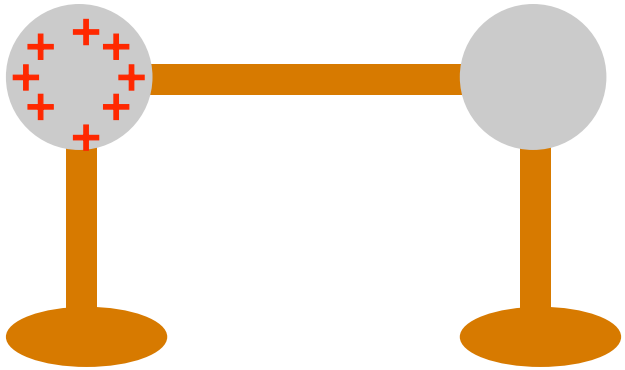


$q_2 = 0$

$q_2 = Q/2$

Isolants:

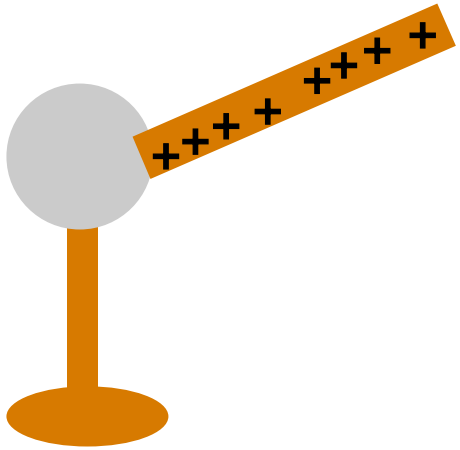
$q_1 = Q$



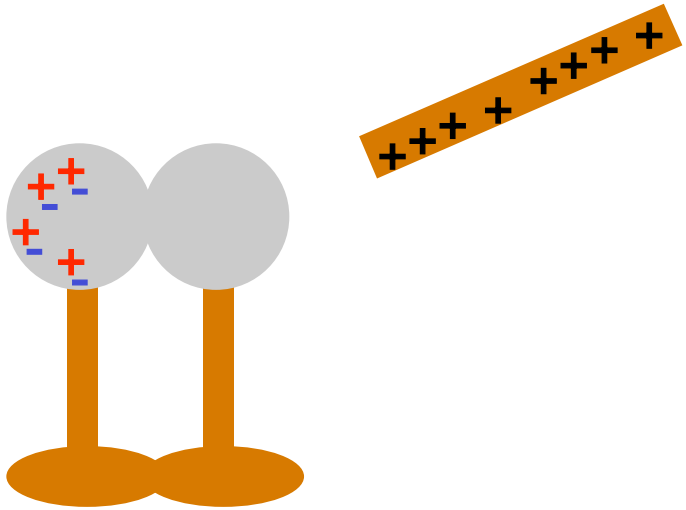
$q_2 = 0$

IV.5. Charge par conduction et induction:

conduction:



induction:

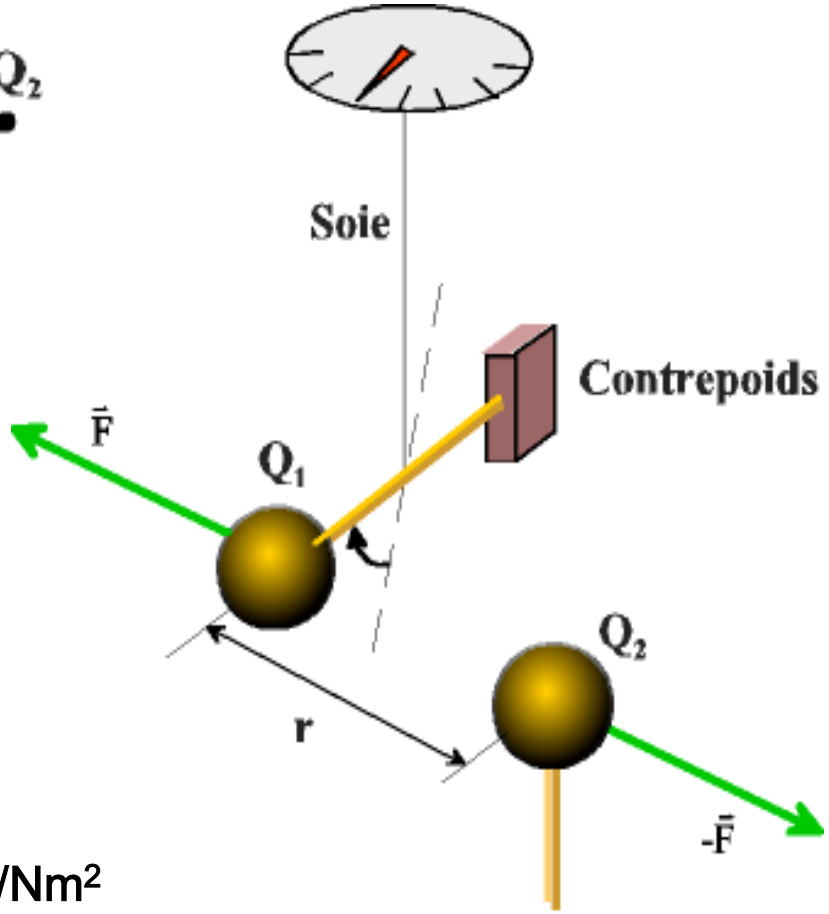


IV.6.La loi de Coulomb

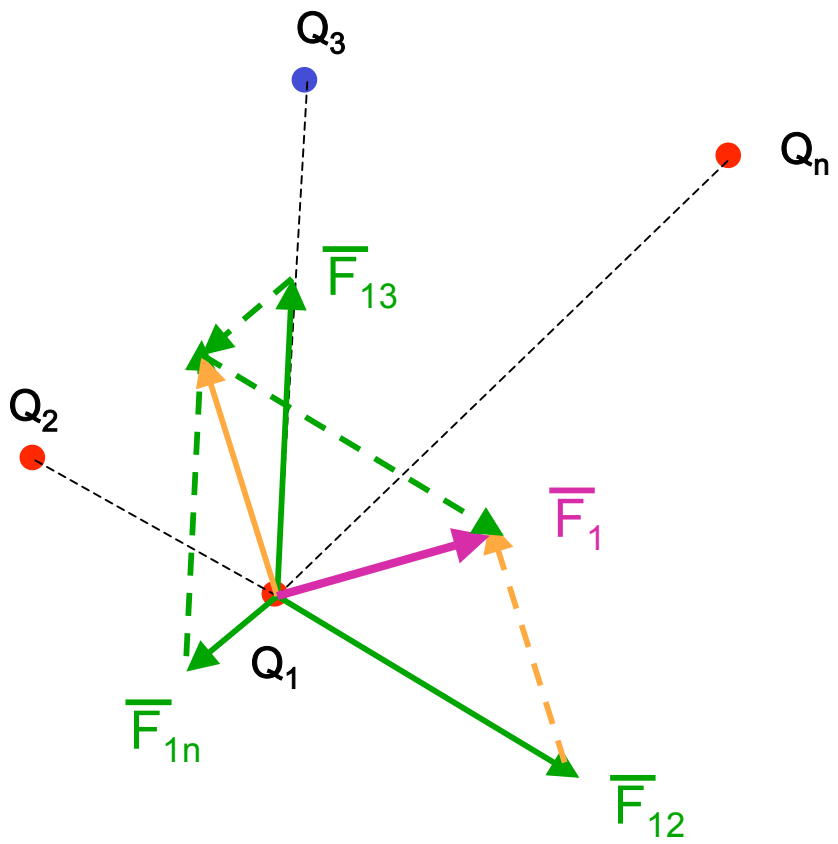
Charges de signes opposés : $Q_1\ Q_2 < 0$.

Charges de même signe : $Q_1\ Q_2 > 0$.

$$\boxed{\bar{F}_{12} = \frac{1}{4\pi\varepsilon_0}\frac{Q_1 Q_2}{r_{12}^2}\ \bar{l}_{21}}$$



permitivité du vide: $\varepsilon_0 = 8{,}85\ \ 10^{-12}\ C^2/Nm^2$

IV.7.Principe de superposition:

$$\overline{F}_1 = \overline{F}_{12} + \overline{F}_{13} + \ldots + \overline{F}_{1n}$$