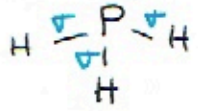
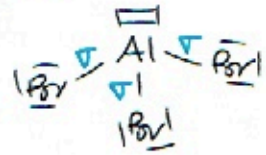
3. Le caractère principal des liaisons : / 4. Type de liaison

- PH_3 : $\Delta\chi = \chi_P - \chi_H = 0 \Rightarrow$ Purement covalente.

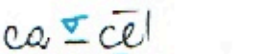


- CS_2 : $\Delta\chi = \chi_C - \chi_S = 0 \Rightarrow$ Purement covalente

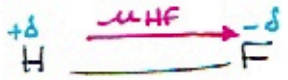
- $AlBr_3$: $\Delta\chi = \chi_{Br} - \chi_{Al} = 1,3 \Rightarrow$ Polaire (Ionocovalente ou Covalente polaire).



- $CaCl_2$: $\Delta\chi = \chi_{Cl} - \chi_{Ca} = 2 \Rightarrow$ Ionique



5. Le moment dipolaire :



$\mu_{HF} = 1,82D$, $d = 0,92\,\text{Å} = 92.10^{-10}\,m$

$1D \longrightarrow 3,335.10^{-30}\,C.m$

a. Calcul de la charge partielle : $\mu = q.d$

$\mu = \delta.e.d$

$\delta = \frac{\mu}{e.d} = \frac{1,82 * 3,335.10^{-30}}{1,6.10^{-19} \times 0,92.10^{-10}}$

$\delta = 0,41$

$q = \delta.e = 0,41 \times 1,6.10^{-19} \Rightarrow$ $q = 0,65.10^{-19}\,C$

b. L'ionicité en pourcentage de la liaison HF

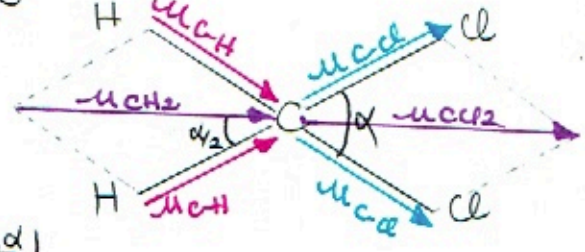
$CI = \frac{\mu_{exp}}{\mu_{théo}} \times 100 = \frac{\delta.e.d}{e.d} \times 100 \Rightarrow$ $CI = \delta.100$

$CI = 0,41 \times 100$

$CI = 41\,\%$

6. $\mu_{CH_2Cl_2}$:

$\mu_{C-Cl} = 2,2D$, $\mu_{C-H} = 0,4D$, $\alpha = 109°28$



$\mu_{CH_2Cl_2} = \sum \mu_{molécule}$

$= \mu_{CH_2} + \mu_{CCl_2}$

$= (2\mu_{C-H}\cos\frac{\alpha}{2}) + (2\mu_{C-Cl}\cos\frac{\alpha}{2})$

$= (2 . 0,4 . \cos\frac{109°28}{2}) + (2 . 2,2 . \cos\frac{109°28}{2})$

$\mu_{CH_2Cl_2} = 3,009\,D$