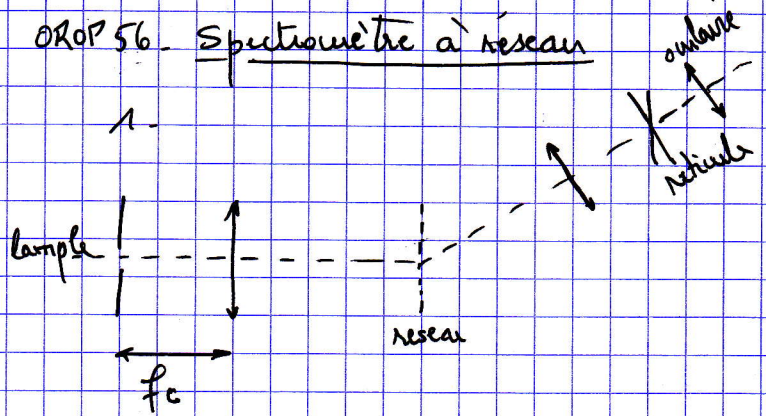
ORAP 56 - **Spectromètre à réseau**

1 -



2 - (cf cours) : $\sin r - \sin i = np\lambda$

3 - Incidence normale : $i = 0$

$r = \alpha_{2,V} - \alpha_0 = 19°08'$

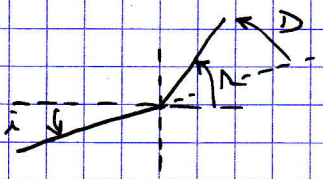
$$n = \frac{\sin r}{2\lambda_V}$$

$n = 3{,}06 \cdot 10^5 \text{ tr m}^{-1} = 306 \text{ tr.mm}^{-1}$

$a = \frac{1}{n} = 3{,}27 \ \mu m$.

4 - $D = r - i$

$$\frac{dD}{di} = \frac{dr}{di} - 1$$



* On différencie la formule des réseaux à n, p, λ constants

$d\sin r = d\sin i \longrightarrow \cos r \, dr = \cos i \, di \Rightarrow \frac{dr}{di} = \frac{\cos r}{\cos i}$

$\rightarrow \frac{dD}{di} = \frac{\cos r}{\cos i} - 1 = 0$ si $\cos r = \cos i \Rightarrow$ $\begin{cases} r = i & (1) \\ \text{ou} \\ r = -i & (2) \end{cases}$

Si $r = i \longrightarrow np\lambda = 0$ impossible

$r = -i \longrightarrow \begin{cases} -2\sin i = np\lambda \longrightarrow i = -\arcsin \frac{np\lambda}{2} \\ D_m = -2i \end{cases}$ D'où $\sin\left(\frac{D_m}{2}\right) = \frac{np\lambda}{2}$

5 - $D_m = \alpha_{2,b} - \alpha_0 = 15°10'$ $\longrightarrow$ $\lambda_b = 432$