

→ Diffraction 1 fente

$$L = 2 \frac{\lambda}{a} D$$

long onde crist fente-écran
tache
taille fente

$$\Rightarrow a = 2 \frac{\lambda}{L} D$$

$$a = 2 \times \frac{632,8 \times 10^{-9}}{3 \times 10^{-3}} \times 1$$

$$a = 2 \times \frac{632,8}{3} \times 10^{-6} = 42,5 \times 10^{-6} \text{ m.}$$

$$= 0,425 \text{ mm} \quad \text{OK}$$

→ Diffraction 2 fentes (Young)

$$L = 2 \frac{\lambda D}{a}$$

$$e = 0,6 \text{ mm.}$$

interfrange. $\rightarrow i = \frac{\lambda D}{e}$

écartement entre les 2 fentes

$$a_H = 0,15 \times 10^{-3} \text{ m}$$

$$a = \frac{2 \lambda D}{L}$$

$$e = \frac{\lambda D}{i}$$

$$D = 55,4 - 4 = 51,4 \text{ cm}$$

$$Si = 196,65 \text{ mm}$$

$$L_H = \frac{2 \lambda D}{a_H} = 2 \times \frac{632,8 \times 10^{-9}}{0,15 \times 10^{-3}} \times 51,4 \times 10^{-2}$$

$$= 433678,9 \times 10^{-8}$$

$$L_H = 4,33 \times 10^{-3} \text{ mm.}$$

$$a = 2 \times \frac{632,8 \times 10^{-9} \times (55,5 - 5,4) \times 10^{-2}}{134,69 \times 10^{-6}}$$

$$= 4,179 \text{ mm} \quad 4,69 \text{ mm} \quad 0,335 \text{ mm}$$

$$e = 1,6 \times 10^{-2} \text{ m} \quad 8,29 \times 10^{-3} \text{ m}$$

$$3i = 58,38 \text{ mm} \Rightarrow i = 19,46 \text{ mm}$$

$$L = 134,69 \text{ mm}$$

$$5i = 96,2 \text{ pixels}$$

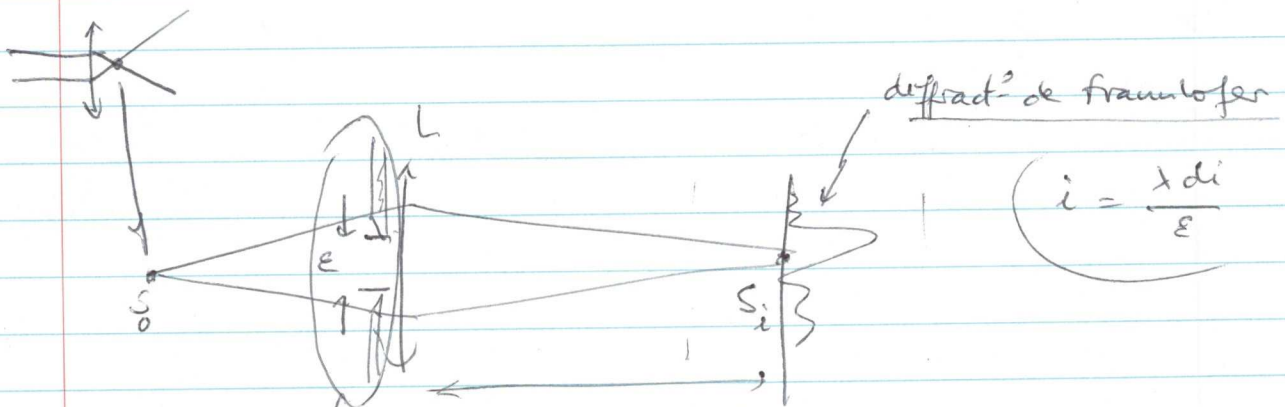
$$= 96,2 \times 14,4 \times 10^{-6} = 1,35 \times 10^{-3} \text{ m}$$

$$i = 2,7 \times 10^{-4} \text{ m}$$

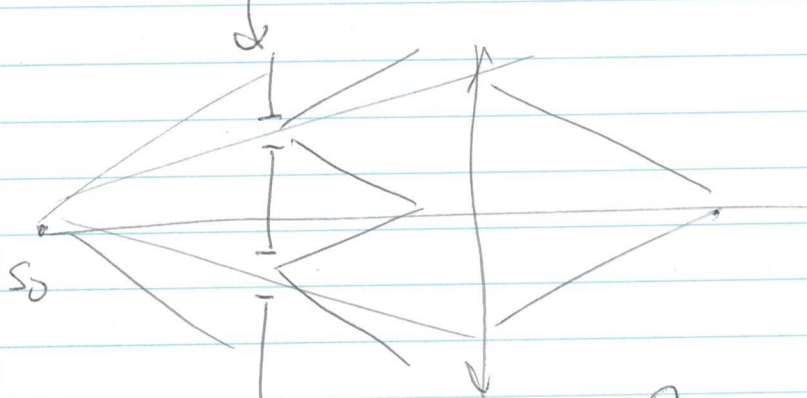
$$e = \frac{\lambda D}{i} = \frac{632,8 \times 10^{-9} \times 25 \times 10^{-2}}{2,7 \times 10^{-4}}$$

$$= 5,8 \times 10^{-4} \text{ m}$$

$$e = 0,58 \text{ mm}$$



$$i = \frac{\lambda D}{e}$$



0.0
1/ 1.6 S0
longueur

2/ 0,2, ...

