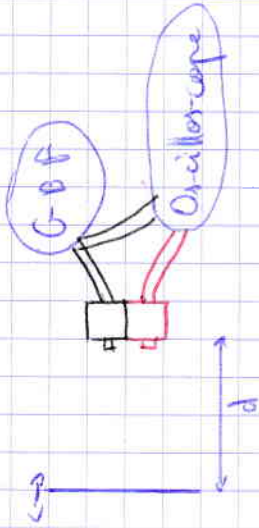


### MP 26: Mesures de longueur

#### I. Mesure avec le picot

##### I-1 Etalonnage



$$d = \alpha \Delta t \quad \alpha = \pm \text{m} \cdot \text{s}^{-1}$$

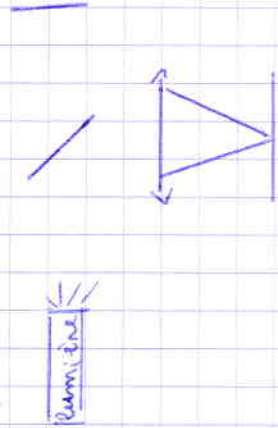
##### I-2 Mesure

$$\text{diamètre} = \pm \text{m}$$

$$d_{\text{ref}} = \pm \text{m}$$

#### II. Mesure micrométrique

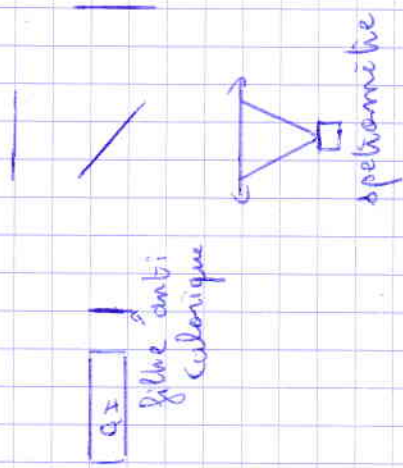
##### II-1 A l'aide du vernier



$$\Delta e = 2(n-1)e_L$$

$$\Delta e = \pm \text{m} \rightarrow \Delta e_L = \pm \mu\text{m}$$

##### II-2 A l'aide du blanc d'ordre supérieur



$$p_i d_i = 2(n_i d_i - 1) e_L$$

$$e_L = (p_2 - p_1) \frac{d_1 d_2}{d_1 - d_2} \frac{1}{2n(d_{\text{blanc}} - 1)}$$

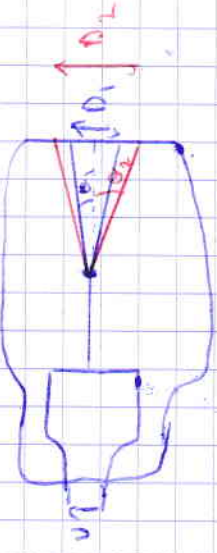
$$d_m = \frac{d_1 + d_2}{2}$$

$$\frac{d_1}{d_2} = \pm \text{m}$$

$$p_2 - p_1 = \pm \text{m}$$

$$L_{eL} = \pm \mu\text{m}$$

### III Mesure picométrique



$$E = eU = \frac{p^2}{2m}$$

$$d = \frac{h}{p} \quad \lambda = \frac{h}{\sqrt{2meU}}$$

$$d = 2d \sin \theta \rightarrow \frac{1}{d} = \frac{d\sqrt{2meU}}{2hL}$$

$$\frac{1}{d_i} = 8 \left( \frac{\sqrt{2meU}}{2hL} \right)$$

$$d_1 = \pm \text{m}$$

$$d_2 = \pm \text{m}$$