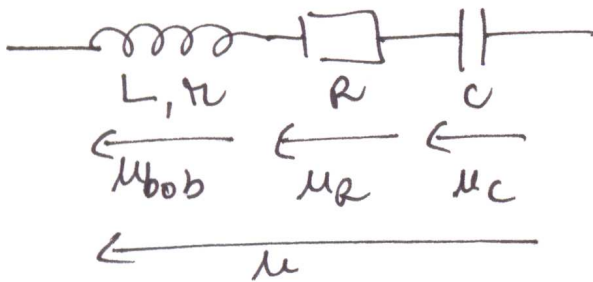


Première ST1 (14+)

Circuit RLC série exemple

RLC série



bobine / $L = 1,08 \text{ H}$
 $r = 11,2 \Omega$

condensateur $C = 10 \mu\text{F}$

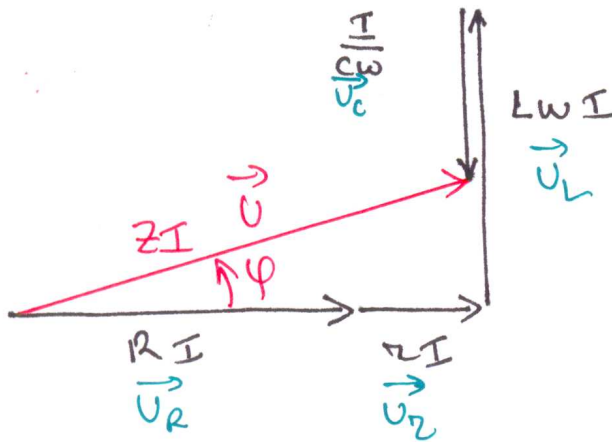
Résistance $R = 10 \Omega$

fréquence de ω : $f = 50 \text{ Hz}$

$$\mu = \mu_{\text{bob}} + \mu_R + \mu_C$$

$$\mu = \mu_L + \mu_r + \mu_R + \mu_C$$

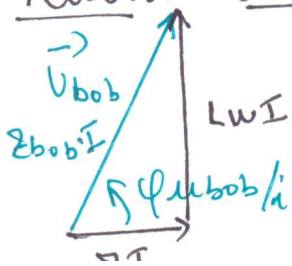
Fresnel: $\vec{U} = \vec{U}_L + \vec{U}_r + \vec{U}_R + \vec{U}_C$



calcul de l'impédance $Z = \sqrt{(R+r)^2 + (L\omega - \frac{1}{C\omega})^2} \approx 30 \Omega$

calcul du déphasage de μ par rapport à i : $\varphi = \tan^{-1}\left(\frac{L\omega - \frac{1}{C\omega}}{R}\right)$
 $\varphi = 45^\circ = \frac{\pi}{4}$

Tension aux bornes de la bobine $\mu_{\text{bob}} = \mu_r + \mu_L$
 $\vec{U}_{\text{bob}} = \vec{U}_r + \vec{U}_L$



$$Z_{\text{bob}} = \sqrt{r^2 + L^2\omega^2} = 340 \Omega$$

$$\varphi_{\mu_{\text{bob}}/i} = \tan^{-1}\left(\frac{L\omega}{r}\right) = 88^\circ$$