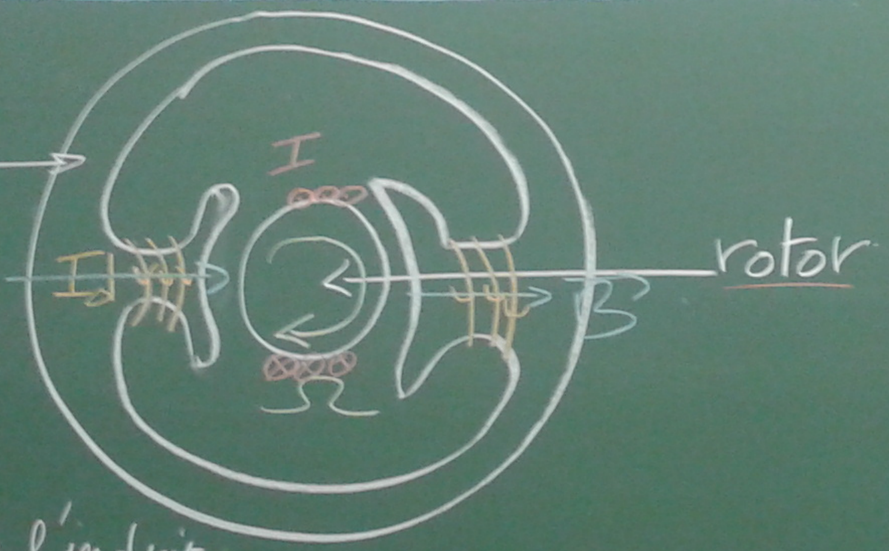
MP 22 : Exemples de Conversions Électrique Mécanique

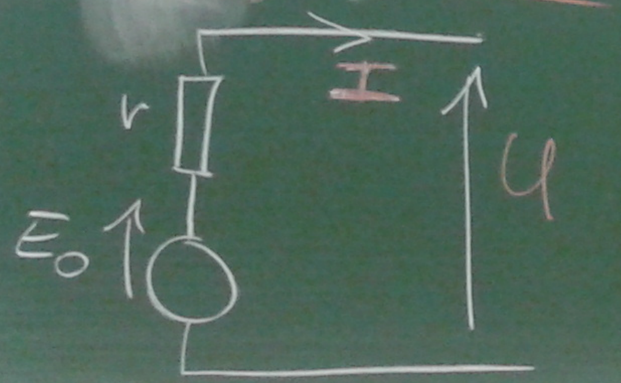
I Génératrice à Courant Continu

Principe

Stator →



Circuit de l'induit



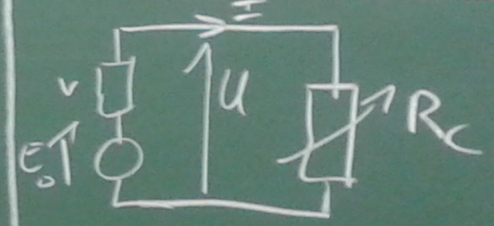
- Force électromotrice

Circuit ouvert $\Rightarrow I=0$ $U=E_0$

Théorie : $\boxed{E_0 = K\phi\Omega}$

$\boxed{K\phi = \quad \pm \quad V.s.Wb^{-1}}$

- Caractéristique électrique



$\boxed{U = R_c I = E_0 - rI}$

$\Rightarrow$ $\boxed{\Omega \text{ fixée}}$

$r = \quad \pm \quad \Omega$

$E_0 = \quad \pm \quad V \quad (E_0 = 15zV)$

$U = E_0$

Ω

$s \cdot Wb^{-1}$

tique

$E_0 - rI$

ulée

$E_0 = 152V$)

Relation Courant/couple

$$C = -K'\phi I - C_{frott}$$

$$K'\phi = \pm V_A We^{-1}$$

$$C_{frott} = \pm N.m$$

Rendement :

$$\eta = \frac{P_e}{P_m + P_d} = \frac{UI}{C\Omega + U_j I_u}$$

$$\eta_{max} = \pm \%\ (P_c \approx$$

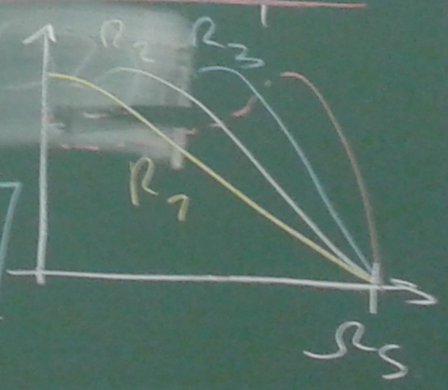
$P_{joule} \approx$ $P_{frott} \approx$

II/ Moteur asynchrone

Principe

Caractéristique Mécanique

$C = f(\Omega)$

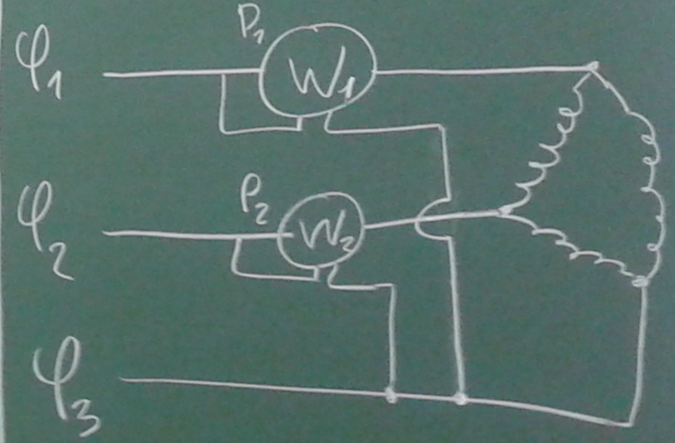


$g_s = \frac{\omega}{p}$

$P =$

Rendement

$$\eta = \frac{P_m}{P_e} = \frac{C\Omega}{P_1 + P_2}$$



$\eta_{max} = \pm$