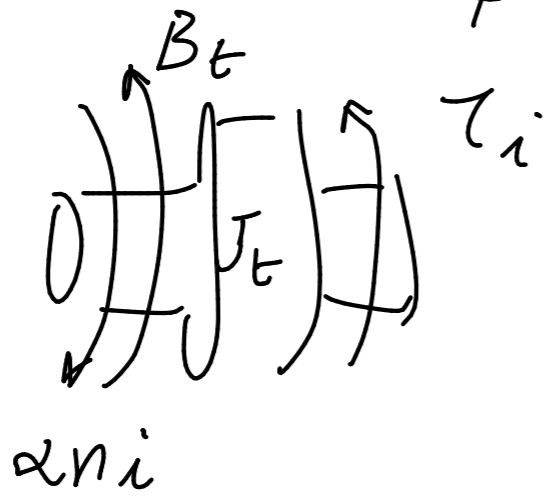


$$V_i - iR - \alpha n \dot{q}_i = 0$$



$$i = \frac{V_i - \alpha \dot{q}_i n}{R}$$

$$iV - i^2 R - i \alpha n \dot{q}_i = 0$$

$$\alpha n i - B_t \dot{q}_i - \tau_i = J_t \ddot{q}_i$$

$$\alpha n i \dot{q}_i - B_t \dot{q}_i^2 - \tau_i \dot{q}_i = J_t \ddot{q}_i \dot{q}_i$$

$$iV - i^2 R - B_t \dot{q}_i^2 - \tau_i \dot{q}_i = J_t \ddot{q}_i \dot{q}_i$$

$$iV = J_t \ddot{q}_i \dot{q}_i + B_t \dot{q}_i^2 + \tau_i \dot{q}_i + i^2 R$$

$$\Delta E_{\text{elec}} = \Delta KE_{\text{act}} + \cancel{\Delta E_{\text{act}}} + ( ) + \sum \mathcal{E}$$

