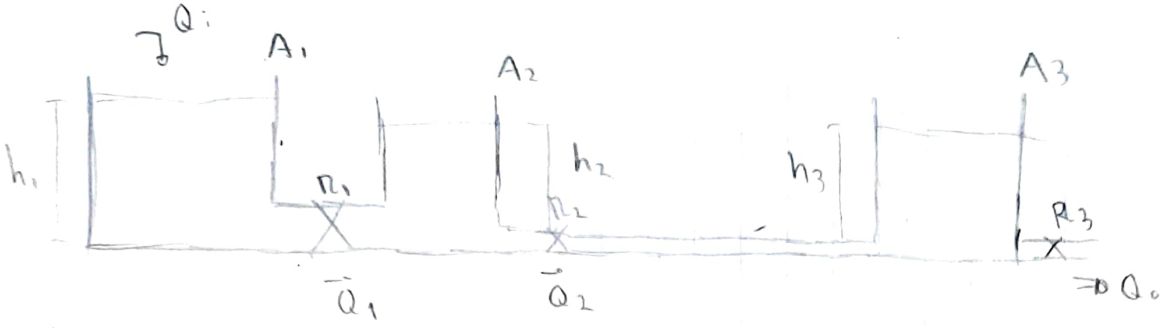
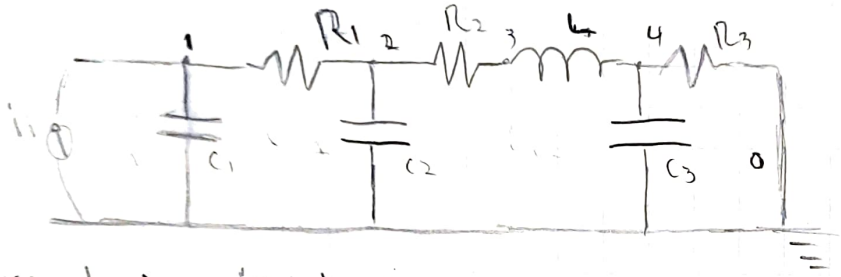
Enzo C. Zugliani - 10333741

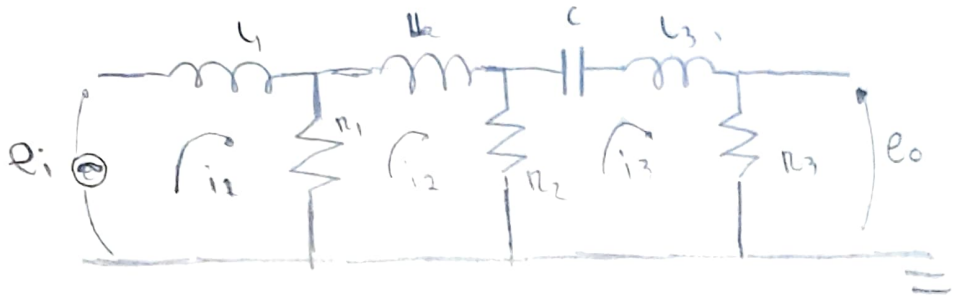


- Analogia tipo 2:



- Metodo "Pratico":
  - $V_1\left(C_1 D + \frac{1}{R_1}\right) - V_2 \frac{1}{R_1} = i_1$
  - $V_2 \cdot \left(\frac{1}{R_1} + C_2 D + \frac{1}{R_2}\right) - V_1 \frac{1}{R_1} - V_3 \frac{1}{R_2} = 0$
  - $V_3 \cdot \left(\frac{1}{R_2} + \frac{1}{LD}\right) - V_2 \frac{1}{R_2} - V_4 \frac{1}{LD} = 0$
  - $V_4 \cdot \left(\frac{1}{LD} + C_3 D + \frac{1}{R_3}\right) - V_3 \frac{1}{LD} = 0$
- Per analogia:
  - $V \to P = \rho g h$ · $L \to L_f = \frac{\rho L}{A}$
  - $i \to Q$ · $R \to R_f = \rho g R_f$ · $C \to C_f = \frac{A}{\rho g}$
  - $A_1 \dot{h}_1 + \frac{h_1}{R_{f1}} - \frac{h_2}{R_{f1}} = Q_i$
  - $\frac{h_2}{R_{f2}} + A_2 \dot{h}_2 + \frac{h_2}{R_{f2}} - \frac{h_1}{R_{f1}} - \frac{h_3}{R_{f2}} = 0$
  - $\frac{\dot{h}_3}{R_{f2}} + \frac{\rho g h_3}{L} - \frac{\dot{h}_2}{R_{f1}} - \frac{\rho g h_4}{L} = 0$
  - $\frac{\rho g h_4}{L} + A_3 \ddot{h}_4 + \frac{\dot{h}_4}{R_{f3}} - \frac{\rho g \cdot h_3}{L} = 0$

- Analogia Tipo 1:



- $V \rightarrow Q$
  $i \rightarrow P$
- $L \rightarrow C_t$
  $C \rightarrow L_t$
  $R \rightarrow \bar{R}_t$

- $i_1 \cdot L_1 \cdot D + (i_1 - i_2) \cdot R_1 = e_i$
- $(i_2 - i_1) R_1 + i_2 \cdot L_2 D + (i_2 - i_3) \cdot R_2 = 0$
- $(i_3 - i_2) \cdot R_2 + \frac{i_3}{CD} + L_3 D i_3 + i_3 \cdot R_3 = 0$

- Por analogia:
  - $\dot{P}_1 \cdot C_{t1} + (P_1 - P_2) \cdot \bar{R}_{t1} = Q_i$

    $\Rightarrow \rho g \dot{h} \cdot \frac{A_1}{\rho g} + \frac{\rho g (h_1 - h_2)}{\rho g R_{t1}} = Q_i$

    $\Rightarrow \dot{h}_1 A_1 + \frac{(h_1 - h_2)}{R_{t1}} = Q_i$ /
  - $(P_2 - P_1) \bar{R}_{t1} + \dot{P}_2 C_{t2} + (P_2 - P_3) \cdot \bar{R}_{t2} = 0 \Rightarrow$

    $\Rightarrow \frac{(h_2 - h_1)}{R_{t1}} + \dot{h}_2 \cdot A_2 + \frac{(h_2 - h_3)}{R_{t2}} = 0$ /
  - $(P_3 - P_2) \bar{R}_{t2} + \frac{\int P_3 \, dt}{L_t} + C_{t3} \cdot \dot{P}_3 + P_3 \cdot \bar{R}_{t3} = 0$

    $\Rightarrow \frac{\dot{h}_3 - \dot{h}_2}{R_{t2}} + \frac{\rho g h_3}{L} + A_3 \cdot \ddot{h}_3 + \dot{Q}_0 = 0$ /