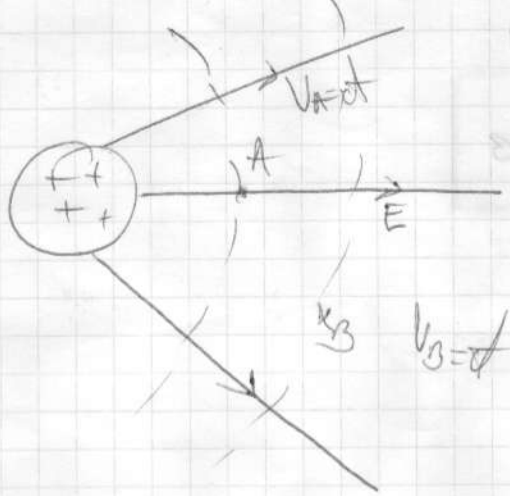
Suprafețele echipotențiale : este perp. ⊥ pe liniile de câmp

$\int_A^P \bar{E}\,\bar{dl} = V_A$ $\boxed{dV_A = \bar{E}\cdot\bar{dl}}$

$0 = \bar{E}\cdot\bar{dl}$

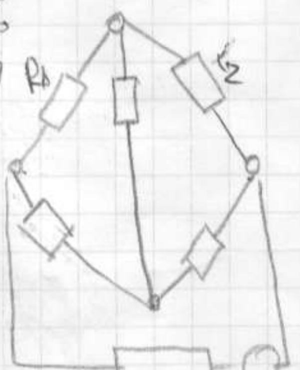


Curs 2

Cap 1.1. Circuite de c.c

1.1 Mărimi, parametrii, legi și teoreme în circuite de c.c

a) Structura și clasificarea circuitelor



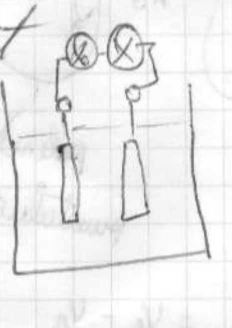
$i = \frac{dq}{dt} = \int \bar{J}\,\bar{ds}$ ← în porecătarea tuturor conductoarelor el. se ține cont $J \simeq 4A/mm^2$

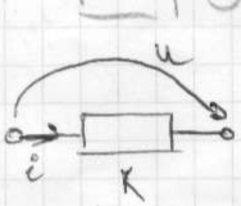
$u = \int E\,dl$

$e = \int \bar{E_i}\,\bar{dl}$ → câmp electric imprimat

$p = u\cdot i$

$\bar{E} = \frac{\bar{F}}{q^0}$ $\bar{E_i} = \frac{F_{nel}}{q^0}$





un circuit el. are L și Noduri ← se numesc punctele de int. a cel puțin 3 laturi

↳ o porțiune neramificată

se numește buclă o porțiune conductoare S_p Σ

- o buclă se numește ochi dacă în interior C, Γ

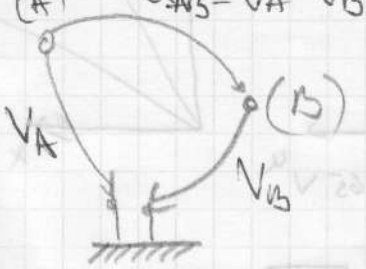
nu se găsește nici o latură

Noduri independente $n = N-1$

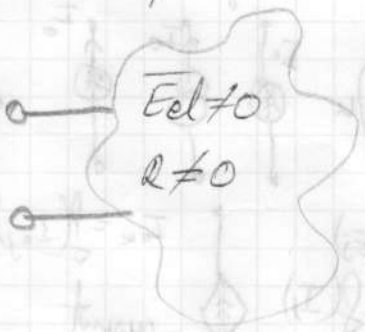
$\begin{cases} n = N-1 \\ b = L-N+1 \end{cases}$

$n+b = L$

(A) $U_{AB} = V_A - V_B$



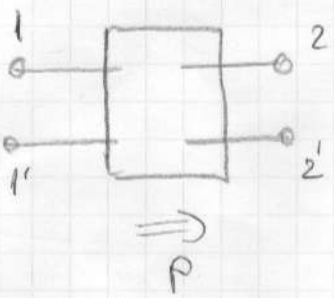
bipol



Clasificarea circuitelor → pasiv - nu are sursă

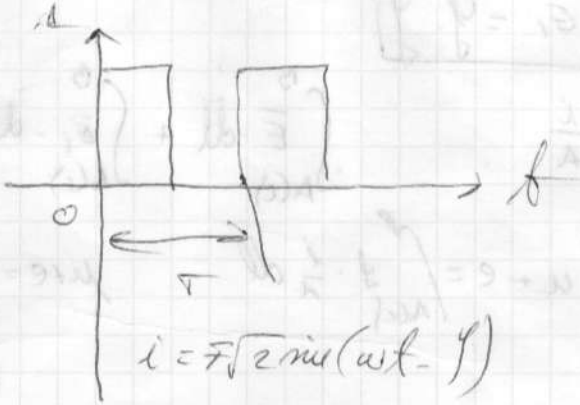
→ activ → are sursă

cuadripol



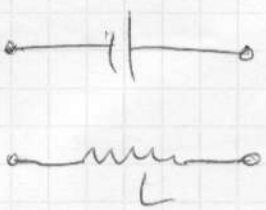
- Laturile pasive nu au surse
- Surselle sunt constante pe mobile

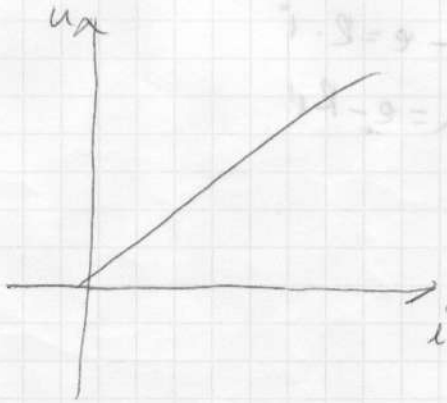
$u = U\sqrt{2}\sin \omega t$ $\quad \omega = \frac{2\pi}{T}$



$i = I\sqrt{2}\sin(\omega t - \varphi)$

Regim tranzitoriu (metastabil)

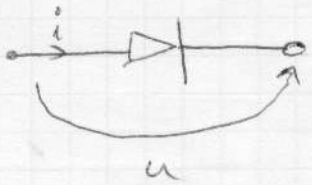


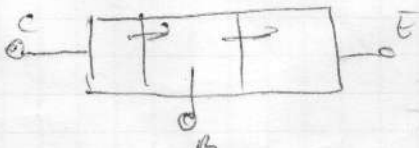


circ. liniar

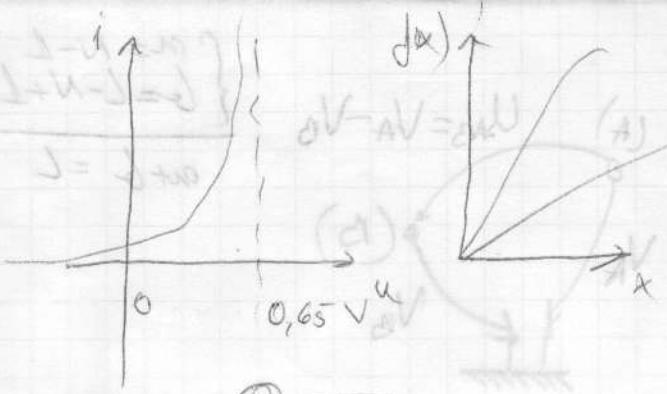
- în sistemele liniare se aplică suprapunerea efectelor

Circ. neliniare

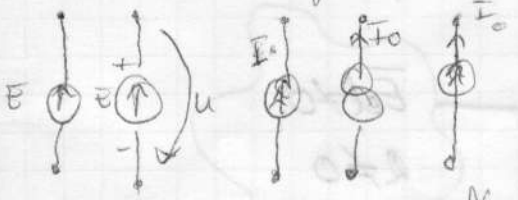


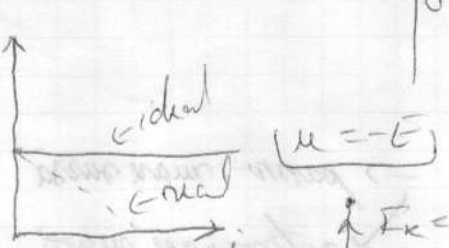


$$\int(x_1+x_2) = \int(x_1) + \int(x_2)$$

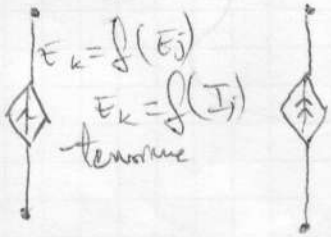


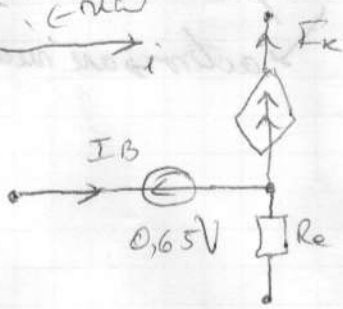
5.) Surse de surpr





$u = -E$





c.) Legea lui Ohm și teoremele lui Kirchhoff

$$\mathcal{E} = -\frac{d\Sigma\Phi}{dt} \qquad i = \frac{dq}{dt}$$

$$\bar{E} + E_i = \rho \cdot \bar{J}$$

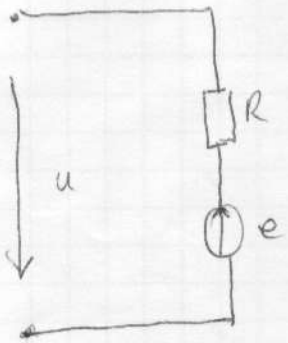
$$J = \frac{i}{A}$$

$$\int_{A(c)}^{B} \bar{E}\cdot d\bar{l} + \int_{A(c)}^{B} \bar{E}_i \cdot d\bar{l} = \int_{A}^{B} \rho \bar{J} \cdot d\bar{l}$$

$$u + e = \int_{A(c)}^{B} \rho \cdot \frac{i}{A}\, dl \qquad u + e = I \int \rho \frac{dl}{A}$$

$$R = \rho \cdot \frac{l}{A}$$

$$u + e = l \cdot I$$



$$u - e = R \cdot i$$

$$u = e - R i$$