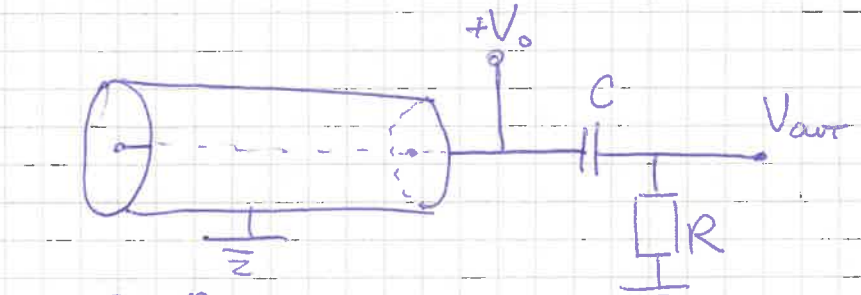
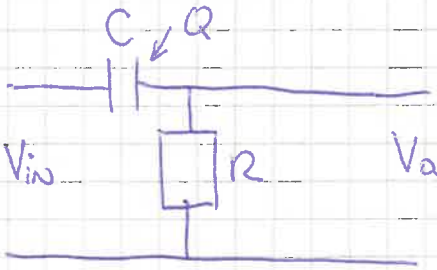
OBDELAVA SIGNALA IZ CILINDRIČNE ŠTEVCA ACI IZ VEČZIONE PROP. VOTORE





$$V_{IN} - \frac{Q}{C} - \underbrace{IR}_{V_{OUT}} = 0$$

$$V_{IN} = \frac{Q}{C} + V_{OUT} \quad \Big| \cdot \frac{d}{dt}$$

$$\frac{dV_{IN}}{dt} = \frac{1}{C}\frac{dQ}{dt} + \frac{dV_{OUT}}{dt}$$

$$\frac{dV_{IN}}{dt} = \frac{1}{C} I + \frac{dV_{OUT}}{dt}$$

$$V_{OUT} = IR$$

$$\frac{dV_{IN}}{dt} = \frac{V_{OUT}}{RC} + \frac{dV_{OUT}}{dt}$$

CILINDRIČNI ŠTEVEC

$$V_{IN} = u(t) = -\frac{1}{4\pi\varepsilon_0 \ell} \ln\left(1+\frac{t}{t_0}\right)$$

$$= -k \ln\left(1+\frac{t}{t_0}\right)$$

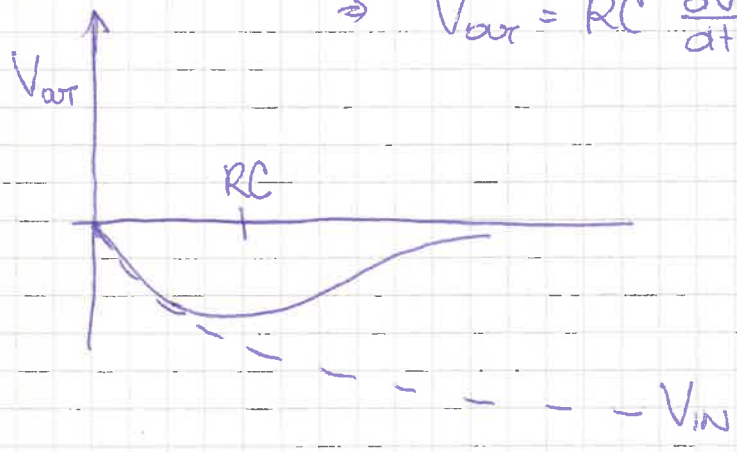
DIFERENCIRA, POSEBNO LIMITI:

za $t=0$ $V_{IN}=0$ in $V_{OUT}=0$

za $t \ll RC$ $\frac{dV_{IN}}{dt} \approx \frac{dV_{OUT}}{dt} \Rightarrow V_{IN} = V_{OUT}$

za $t \gg RC$ $\frac{V_{OUT}}{RC} \gg \frac{dV_{OUT}}{dt}$

$$\Rightarrow V_{OUT} = RC\frac{dV_{IN}}{dt} = -kRC\frac{1}{t_0}\frac{1}{1+\frac{t}{t_0}}$$

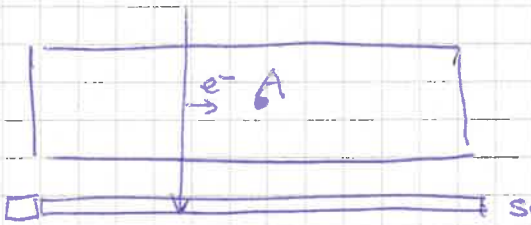


MIS 13.3.2026

DRIFT (POTOVALNA) KOMORA

IZZIV: RESOLUCIJA DOLOČENA Z d (1–2 mm) → RAZDALJA MED ŽICAMI

BOLJŠA RESOLUCIJA → DRUGAČEN PRISTOP

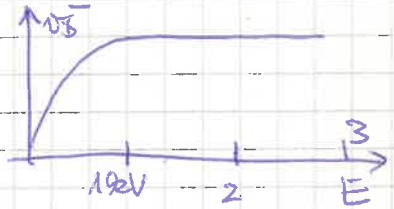


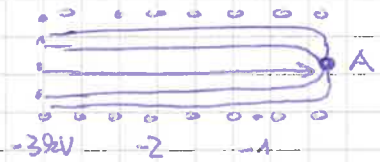
MERIMO ČAS POTOVANJA e^- OD SLEDI DELCA DO ANODE
- $t_{zač}$: SCINTILATOR
- t_{konec}: PLAZ NA ANODI.

$$x = \int v_D(t)\,dt$$

KER $v_D = v_D(E)$ JE UGODNO, ČE
- E KONST ALI PA
- v_D NEODVISEN OD E

RECIMO: STA



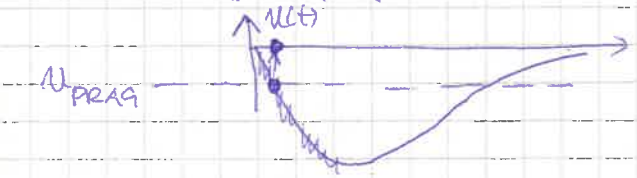


RESOLUCIJA DRIFT KOMORE

- DIFUZIJA: ELEKTRONSKI OBLAK SE KRČEVITO V GAUSSOVO PORAZDELITEV

$$\sigma_x \propto \sqrt{Dt} \propto \sqrt{x}$$

- ELEKTRONIKA: NEODVISNO OD x



NAPAKA PRI MERITVI ČASA ZARADI ŠUMA

$$\sigma_t = \sigma_v \cdot \left(\frac{dU}{dt}\right)^{-1}$$

↑ŠUM

- PRIMARNA STATISTIKA: ZRNATOST SLEDI, KI JO POSTI DELEC