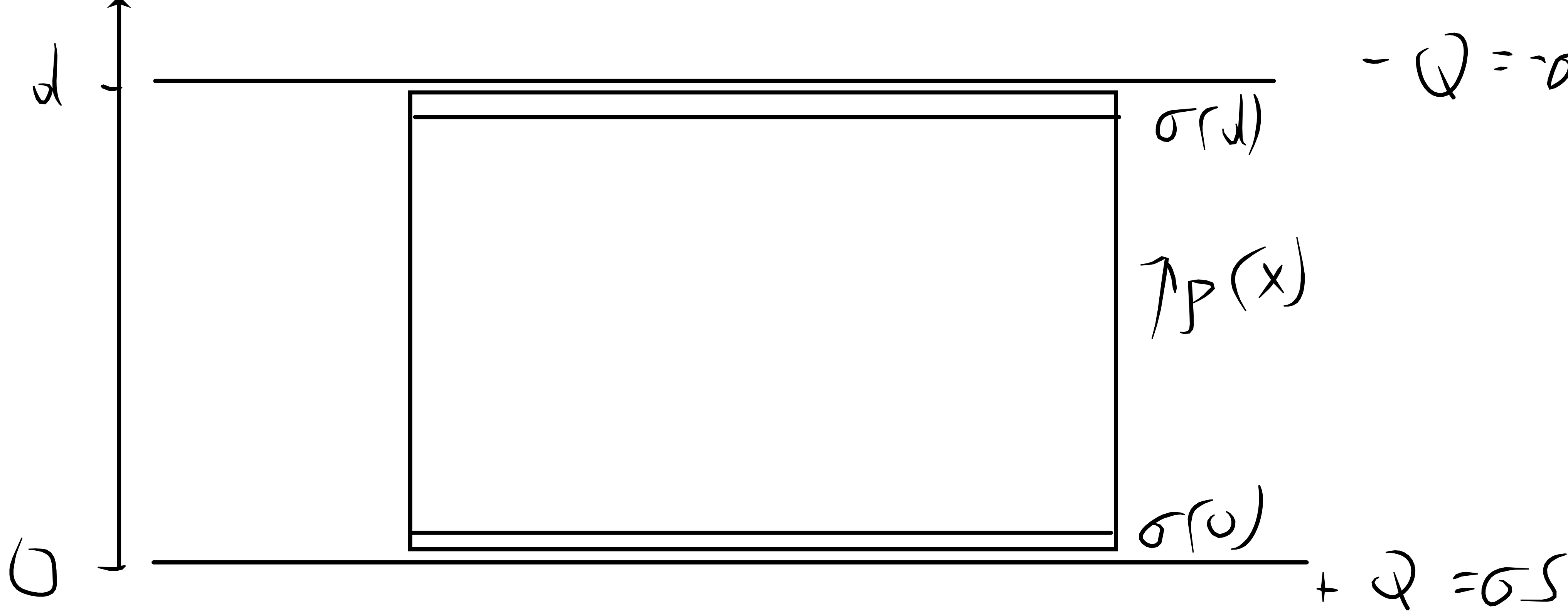


$$\varepsilon_r(x) = \varepsilon_1 + \frac{\varepsilon_2-\varepsilon_1}{d}x$$

$C_0$

Tutaj:

$$\bar{E} = \bar{E}_x(x) \qquad \bar{\nabla}\times\bar{D} = 0$$

$$\bar{D} = \bar{D}_x(x) \qquad \text{meč} \quad D(x) = \sigma = \frac{Q}{S}$$

$$E(x) = \frac{\sigma}{\varepsilon_0\varepsilon_r(x)} = \frac{\sigma}{\varepsilon_0}\frac{1}{\varepsilon_1+\frac{\varepsilon_2-\varepsilon_1}{d}x}$$

$$U = -\int_0^d \frac{\sigma}{\varepsilon_0}\frac{1}{\varepsilon_1+\frac{\varepsilon_2-\varepsilon_1}{d}x}dx = \frac{\sigma d}{\varepsilon_0(\varepsilon_2-\varepsilon_1)}\ln\left(\frac{\varepsilon_1}{\varepsilon_2}\right) = \frac{Qd}{S\varepsilon_0(\varepsilon_2-\varepsilon_1)}\ln\left(\frac{\varepsilon_1}{\varepsilon_2}\right)$$

$$C = \frac{Q}{|U|} = \frac{S\varepsilon_0(\varepsilon_2-\varepsilon_1)}{d\ln\left(\frac{\varepsilon_2}{\varepsilon_1}\right)} = C_0\frac{\varepsilon_2-\varepsilon_1}{\ln\left(\frac{\varepsilon_2}{\varepsilon_1}\right)}$$

$$\sigma(0) = \bar{P}(0)\cdot\bar{n}_1 = -\frac{Q}{S}\left(1-\frac{1}{\varepsilon_1}\right)$$

$$\sigma(d) = \bar{P}(d)\,\bar{n}_2 = \frac{Q}{S}\left(1-\frac{1}{\varepsilon_2}\right)$$

$$\bar{P}(x) = \bar{D}-\varepsilon_0\bar{E} = \frac{Q}{S}\left(1-\frac{1}{\varepsilon_1+\frac{(\varepsilon_2-\varepsilon_1)}{d}x}\right)\hat{e}_x$$

$$\rho(x) = -\bar{\nabla}\bar{P} = -\frac{d}{dx}\bar{P} =$$

$$= -\frac{Qd}{S}\cdot\frac{(\varepsilon_2-\varepsilon_1)}{(\varepsilon_1 d+(\varepsilon_2-\varepsilon_1)x)^2}$$

$$Q = -\int\frac{d}{dx}\bar{P}\,dV + (\sigma(d)+\sigma(0))S =$$

$$= P(0)S - P(d)S - P(0)S + P(d)S = 0$$

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