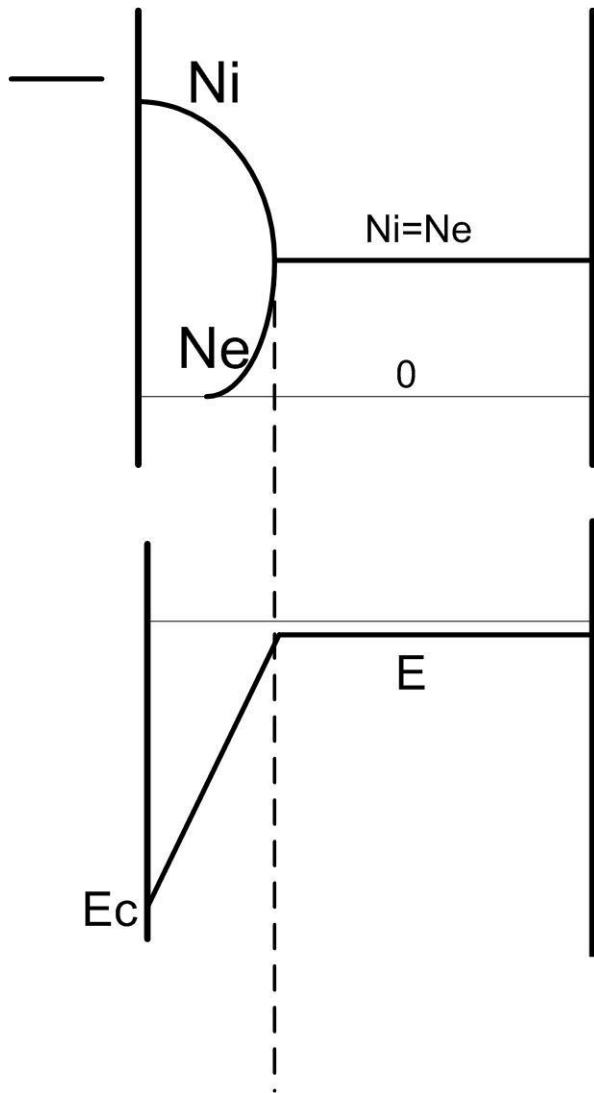


Лекция 3

Катодный слой тлеющего разряда



$$+ \frac{dj_e}{dx} = \alpha j_e$$

$$\frac{dj_i}{dx} = -\alpha j_e$$

$$j_e(0) = \gamma j_i(0) = \gamma(J - j_i(0)) = \frac{\gamma}{\gamma + 1} J$$

$$j_e(d_c) = J$$

$$j_e(x) = C * \exp\left(\int_0^x \alpha(E(x')) dx'\right) \quad C = \frac{\gamma}{\gamma + 1} J$$

$$J = \frac{\gamma}{\gamma + 1} J \exp\left(\int_0^{d_c} \alpha(E(x')) dx'\right)$$

$$\ln\left(1 + \frac{1}{\gamma}\right) = \int_0^{d_c} \alpha(E(x')) dx'$$

$$\alpha(E) = AN \exp(-BN/E_0)$$

Эксперимент

$$E(x) = E_c \left(1 - \frac{x}{d_c}\right) \quad U_c = \frac{E_c d_c}{2}$$

$$\ln \left(1 + \frac{1}{\gamma}\right) = \frac{AB}{E_{c0}} N^2 d_c F\left(\frac{E_{c0}}{BN}\right)$$

$$F(z) = \int_0^z \exp\left(-\frac{1}{y}\right) dy$$

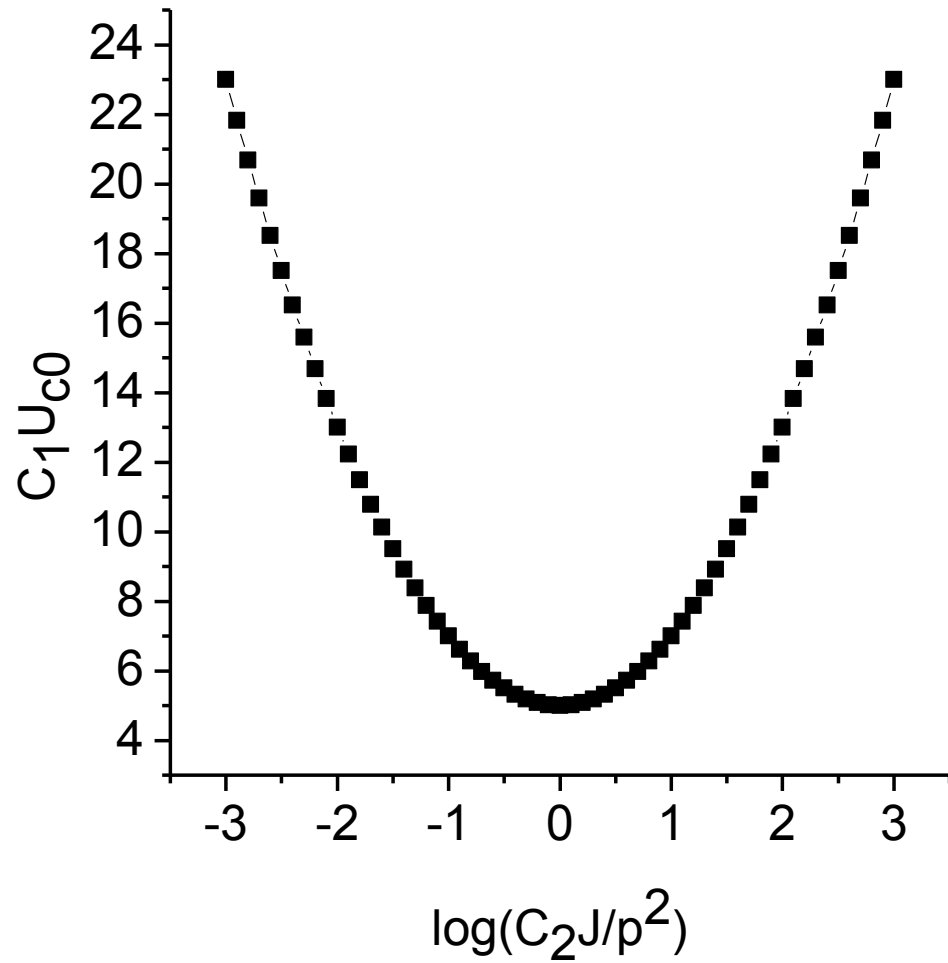
$$\varepsilon_0 \frac{dE}{dx} = en_i \qquad n_i = \frac{\varepsilon_0 E_{c0}}{ed_c}$$

$$J = en_i \mu_i E_{c0} (1 + \gamma)$$

$$\frac{C_1}{C_2^2} \left(\frac{p^2}{J}\right)^2 U_{c0} F^3 \left(C_1 C_2 \frac{J}{p^2} U_{c0}\right)^{\frac{1}{3}} = 1$$

$$C_1 = \frac{2A}{B} \frac{1}{\ln(1 + 1/\gamma)}$$

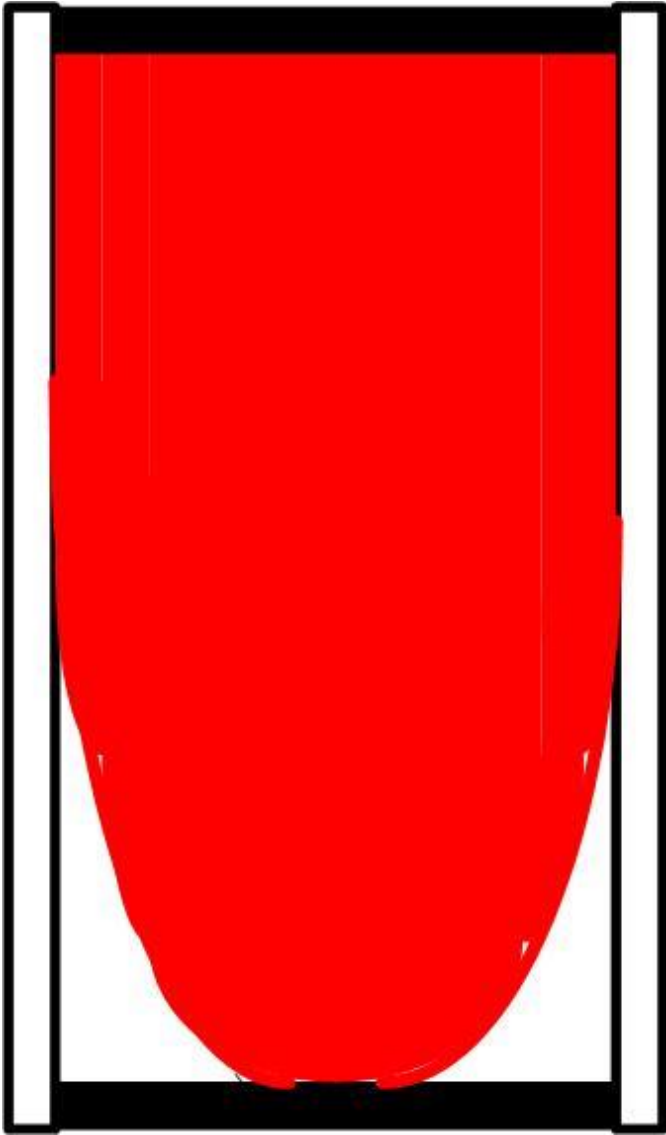
$$C_2 = \frac{4\pi}{AB^2} \frac{\ln(1 + 1/\gamma)}{p\mu_i(1+\gamma)}$$



$$U_n = 6 / C_1$$

$$\frac{J_n}{p^2} = \frac{0.67}{C_2}$$

$$d_{cn} = 7.54 / B C_1$$



$$S = \frac{J}{J_n}$$

$$D = 2 * \sqrt{\frac{J}{J_n \pi}}$$