

Положительное магнетосопротивление

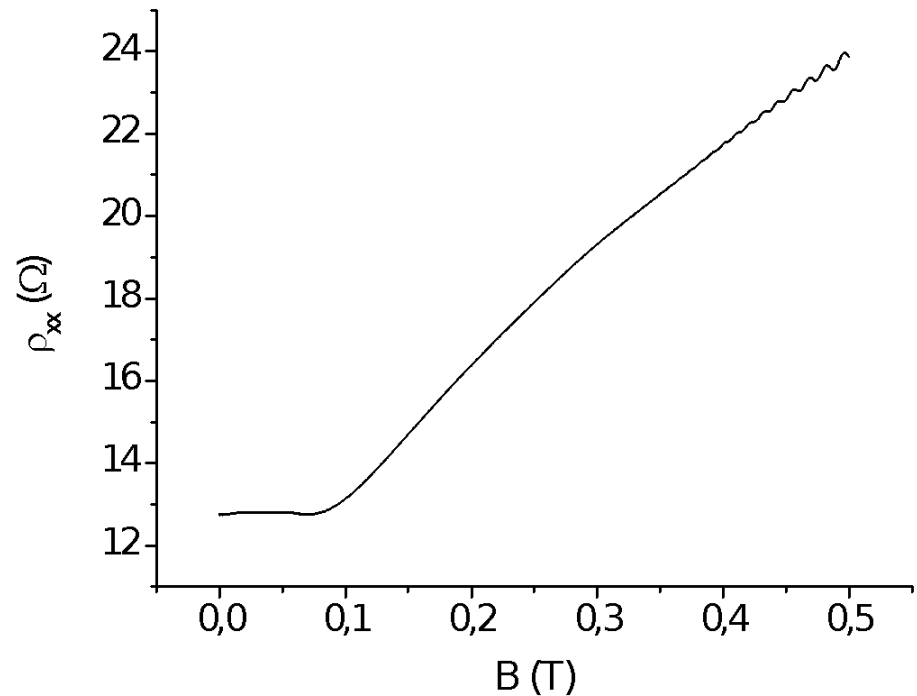
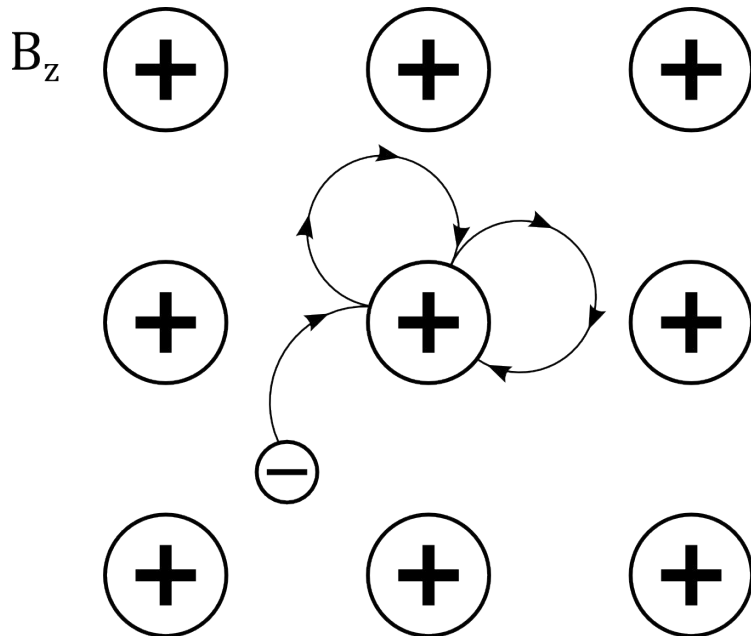
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Положительное магнетосопротивление

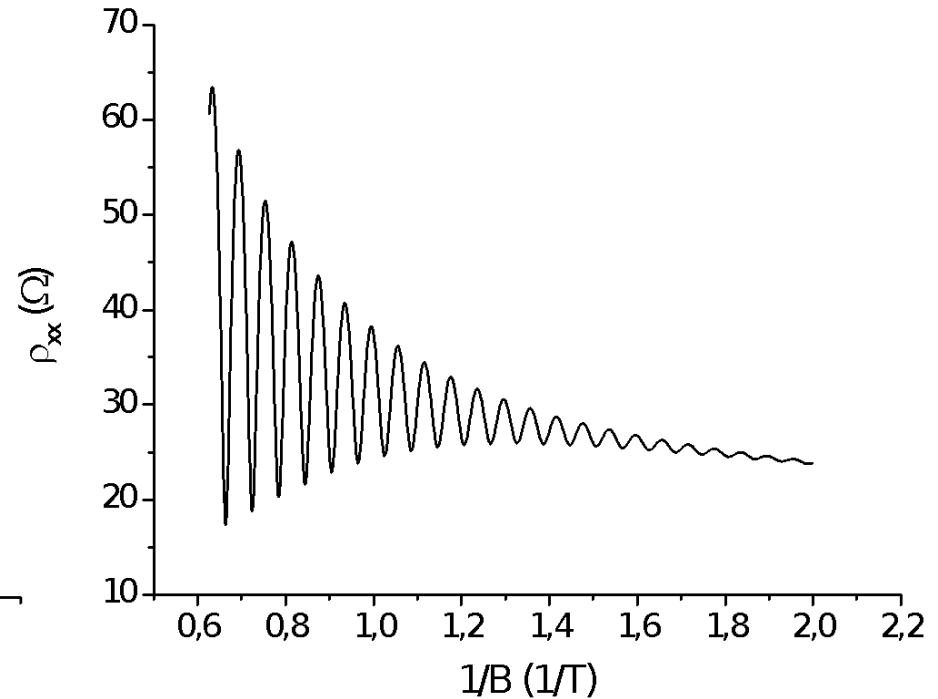
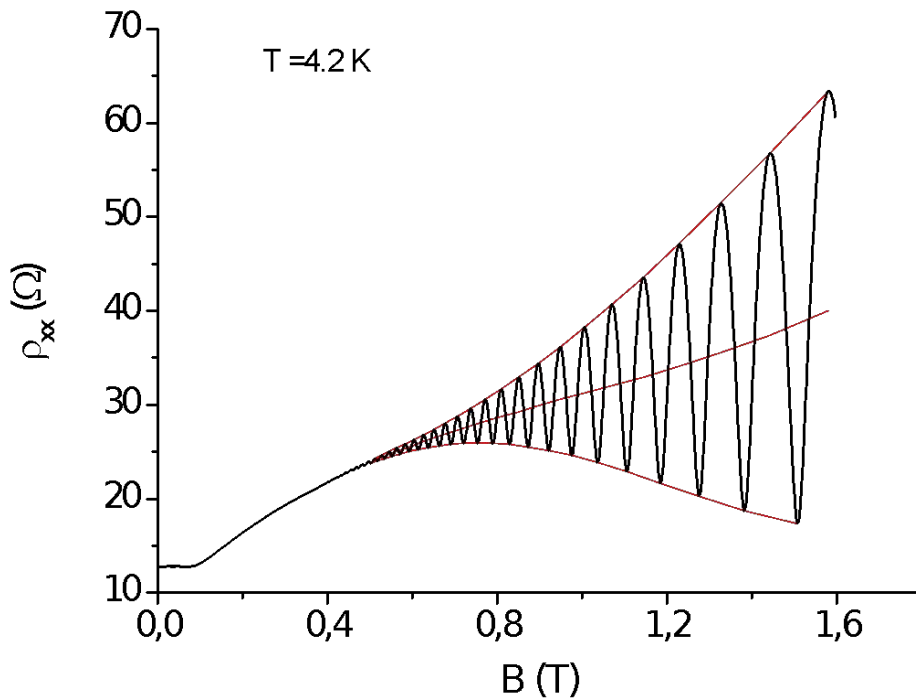
$$R_{xx}(B) = R_0 \{ 1 + 2 [e^{-\alpha} + e^{-2\alpha} (1 - \alpha)^2] \}$$

$$\alpha = 2\pi / (\omega_c \tau_q)$$

$$R_{xx}(B) = R_0 + 2R_D [e^{-\alpha} + e^{-2\alpha} (1 - \alpha)^2]$$



Транспортное время жизни



$$T = 0,061 \text{ Tл}^{-1}$$

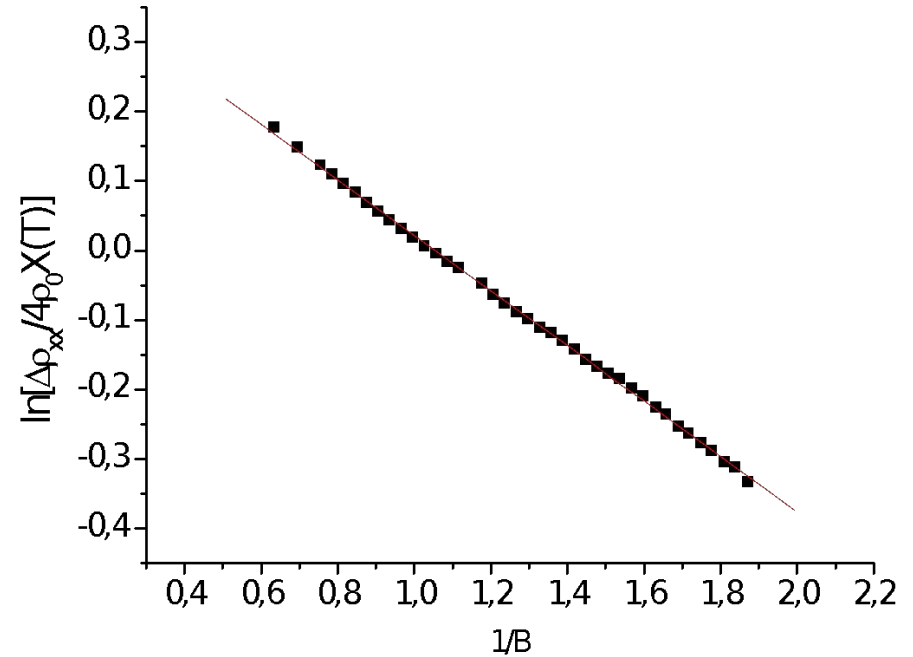
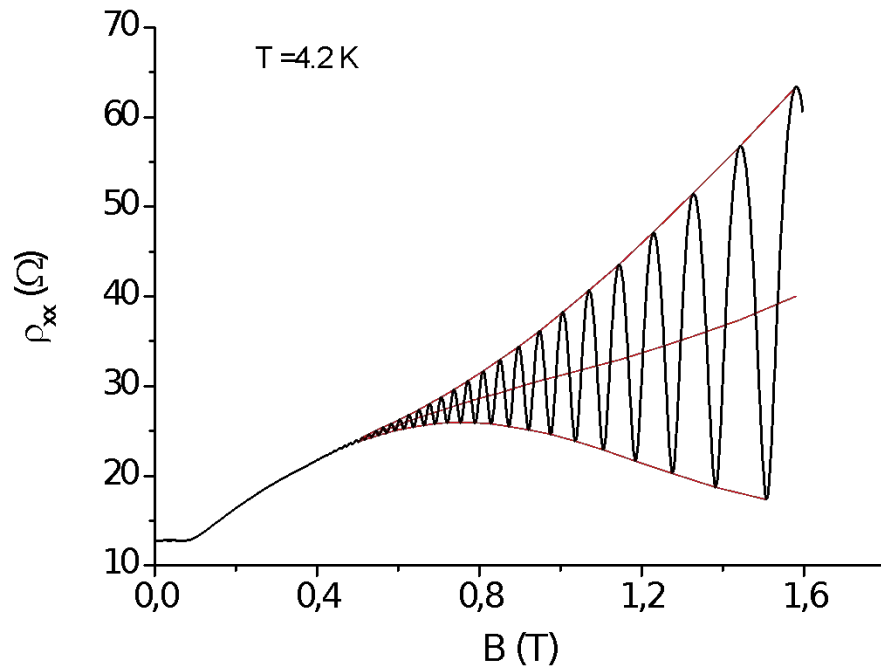
$$n_e = \frac{2q}{hT} = 7,9 * 10^{15} \text{ M}^{-2}$$

$$\rho_0 = 12,75 \text{ Ω/□}$$

$$\mu = \frac{1}{en\rho_0} = 62,0 \frac{\text{M}^2}{\text{B} * \text{с}}$$

$$\tau_{tr} = 23.6 \text{ пс}$$

Квантовое время жизни



$$\Delta\rho_{xx} = 4\rho_0 X(T) e^{-\frac{\pi}{\omega_c \tau_q}}$$

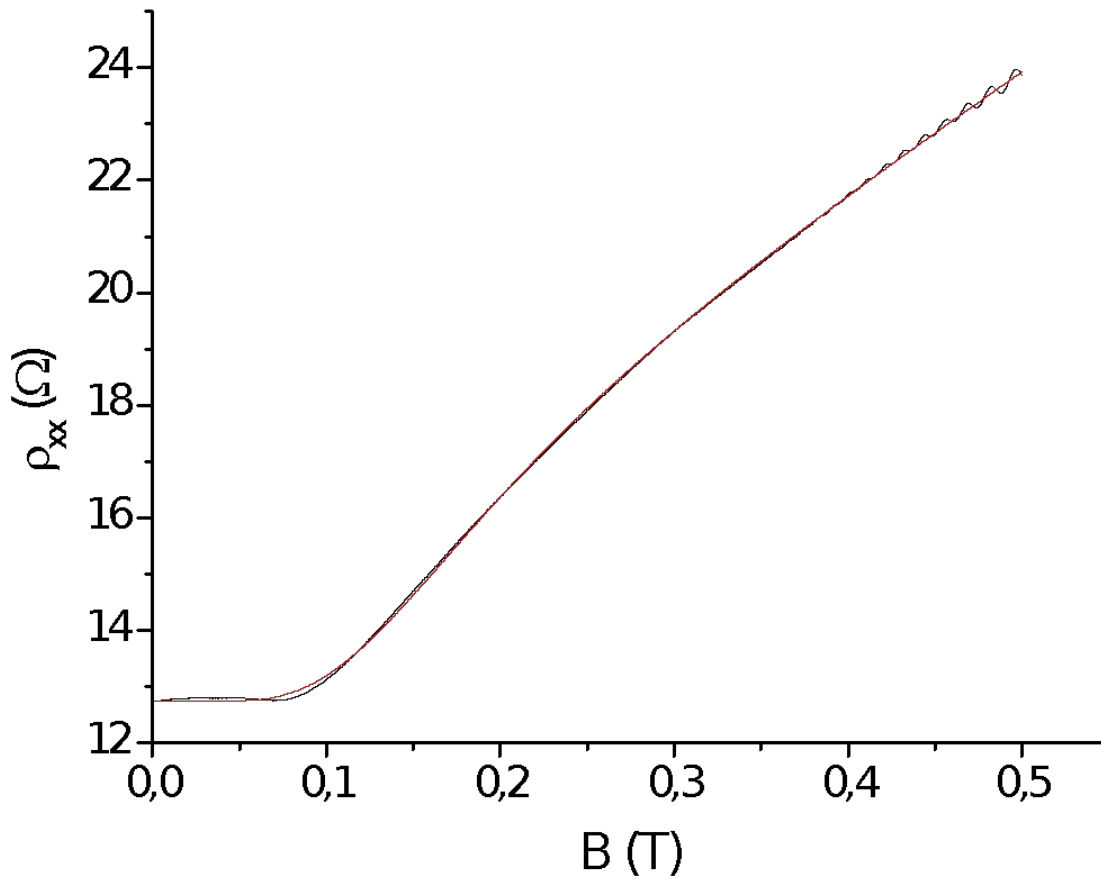
$$\omega_c = \frac{eB}{m^*}$$

$$\ln\left(\frac{\Delta\rho_{xx}}{4\rho_0 X(T)}\right) = -\frac{\pi m^*}{e\tau_q B}$$

$$\tau_q = 3,00 \text{ пс}$$

Квантовое время жизни

$$R_{xx}(B) = R_0 + 2R_D[e^{-\alpha/B} + e^{-2\alpha/B}(1 - \alpha/B)^2]$$



$$\rho_0 = 12,75 \, \Omega/\square$$

$$\rho_D = 12,72 \, \Omega/\square$$

$$\alpha = \frac{2\pi m^*}{e\tau_q} = 0,41713$$

$$\tau_q = 5,74 \, \text{пс}$$

Спасибо за внимание!