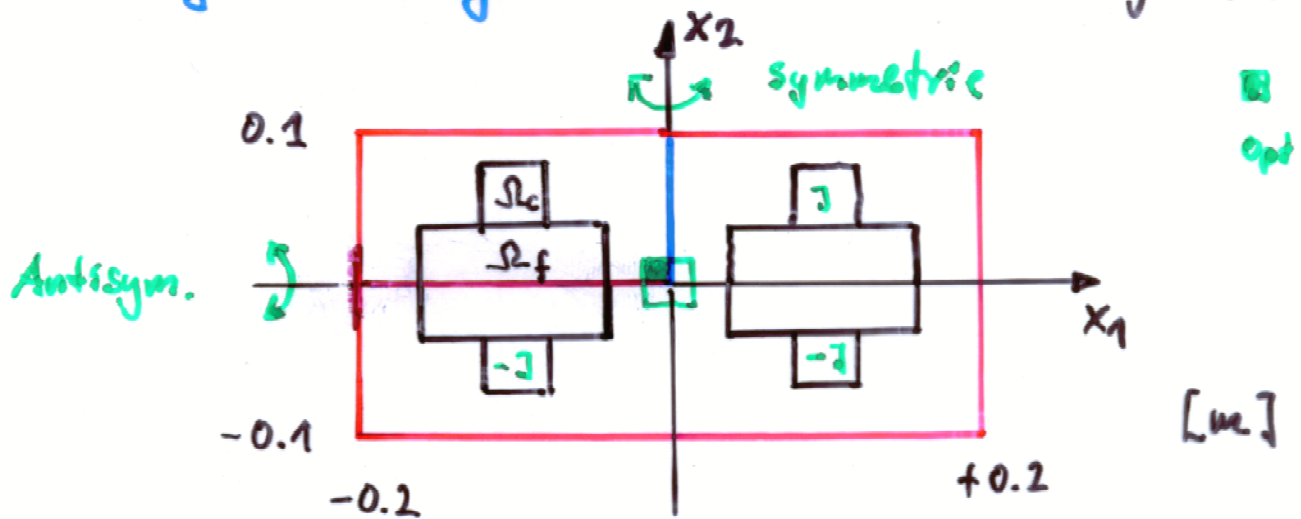


Beispiel 2.18: Elektromagnet (vgl. Abs. 1.4)

Ges. $u(x) = u(x_1, x_2) := A_3(x_1, x_2)$, $x = (x_1, x_2) \in \bar{\Omega}$

Geg. Rechengebiet $\bar{\Omega} = \text{"Elektromagnet"}$



$$\Omega = (-0.2, 0) \times (0, 0.1) - \text{Rechengebiet}$$

$$\Omega_f = (-0.16, -0.04) \times (0, 0.04) - \text{Ferromagnet Material}$$

$$\Omega_c = (-0.12, -0.08) \times (0.04, 0.08) - \text{Spule}$$

$$\Gamma_1 = [-0.2, 0] \times \{0\} \cup \{-0.2\} \times [0, 0.1] \cup [-0.2, 0] \times \{0.1\} - \text{Dirichlet-Rand,}$$

$$\Gamma_2 = \{0\} \times (0, 0.1) - \text{Neumann-Rand,}$$

$$\mu(x) = \begin{cases} \mu_r := 5000 \mu_0, & x \in \Omega_f \\ \mu_0 := 1.256637 \cdot 10^{-6} \left[\frac{\text{Vs}}{\text{Am}} \right], & \text{sonst} \end{cases}$$

$$J_3(x_1, x_2) = J(x) = \begin{cases} J := 10^6 \left[\frac{\text{A}}{\text{m}^2} \right], & x \in \Omega_c, \\ 0, & \text{sonst} \end{cases}$$