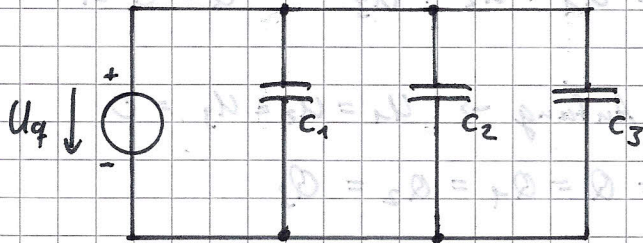# Parallelschaltung von Kondensatoren

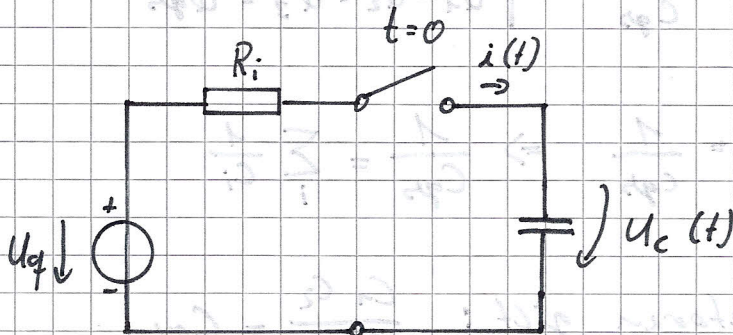

$$U_q = U_1 = U_2 = U_3$$

$$Q = Q_1 + Q_2 + Q_3$$

$$C_{ges} \cdot U_q = C_1 U_1 + C_2 U_2 + C_3 U_3 \quad | \; U_q = U_1 = U_2 = U_3$$

$$C_{ges} = C_1 + C_2 + C_3$$

$$U_o(t=0) = 0 \qquad q(t=0) = 0$$

$$U_q = U_R + U_C \quad \Rightarrow \quad U_q = i \cdot R_i + u_c$$

$$q = C \cdot u$$

$$t = 0: \quad U_c = 0 \rightsquigarrow U_q = i R_i \rightsquigarrow i(t=0) = \frac{U_q}{R_i}$$

$$i = \frac{dq}{dt} = i_V = \frac{d\psi}{dt}$$

$$\uparrow$$

Verschiebungsstrom im Dielektrikum

$$i = \frac{d\psi}{dt} = \frac{dq}{dt} \rightarrow dq = d(u \cdot c)$$

$$i = \frac{d(c \cdot u)}{dt} = \frac{c \cdot du}{dt} + \frac{u \cdot dC}{dt} \rightarrow \frac{dc}{dt} = 0 \Rightarrow const$$

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