

II.3.2

$$U_p(p) = 4V \cdot \frac{1}{p(1+p\tau_1)^2}$$

a)

PBZ

$$\rightarrow \frac{A}{p} + \frac{B}{(1+p\tau_1)^2} + \frac{C}{1+p\tau_1}$$

$$\textcircled{I} \quad \frac{4 \cdot p}{p(1+p\tau_1)^2} = A + 0 + 0 \quad \Rightarrow \underline{A=4}$$

alles mal "p"
p=0

$$\textcircled{II} \quad \frac{4 \cdot (1+p\tau_1)^2}{p(1+p\tau_1)^2} = \frac{4 \cdot (1+p\tau_1)^2}{p} + B + C(1+p\tau_1)^2$$

alles mal
"(1+p\tau_1)^2"
p = -\frac{1}{\tau_1}

$$\frac{4}{-\frac{1}{\tau_1}} = \frac{4 \cdot (1 + (-\frac{1}{\tau_1} \cdot \tau_1))^2}{-\frac{1}{\tau_1}} + B + C(1 + (-\frac{1}{\tau_1} \cdot \tau_1))^2$$

$$-4 \cdot \tau_1 = 0 + B + 0$$

$$\Rightarrow \underline{-4\tau_1 = B}$$

$$\textcircled{III} \quad \frac{4 \cdot (1+p\tau_1)}{p(1+p\tau_1)^2} = \frac{4(1+p\tau_1)}{p} + \frac{-4\tau_1(1+p\tau_1)}{(1+p\tau_1)^2} + C$$

$$\frac{4}{-\frac{1}{\tau_1}} = 0 + 0 + C$$

alles mal
"(1+p\tau_1)"

$$\Rightarrow \underline{-4\tau_1 = C}$$

$$\Rightarrow \frac{4V}{p} + \frac{-4\tau_1}{(1+p\tau_1)^2} + \frac{-4\tau_1}{1+p\tau_1} \quad \rightarrow = \tau_1^2 \left(p + \frac{1}{\tau_1}\right)^2$$

$$\Rightarrow \frac{4V}{p} - \frac{4}{\tau_1} \cdot \tau_1 + \tau_1^2 \cdot e^{-\frac{1}{\tau_1}t} - 4e^{-\frac{1}{\tau_1}t}$$

b) Fourier

$$p \Rightarrow j\omega + \sigma$$

$$\text{weil } \sigma < 0 = 0$$

$$p = j\omega$$

$$= \frac{4V}{j\omega(1+j\omega)^2}$$

Nicht sicher