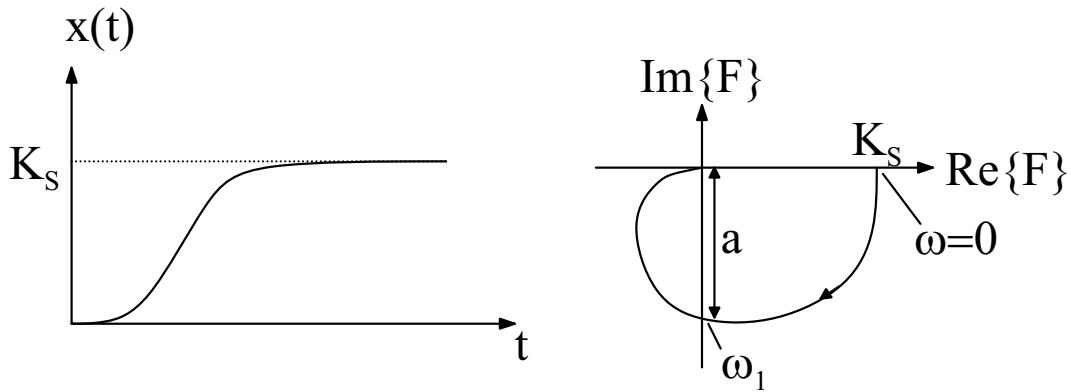


## Drehzahlregelung eines Gleichstrommotors

1.

$$F_S(s) = \frac{K_S}{(1+sT_1)(1+sT_2)}$$



	$ F_S(j\omega) $	$\angle F_S(j\omega)$
2. $\omega = 0$	$K_S$	$0^\circ$
$\omega \rightarrow \infty$	$0$	$-180^\circ$

3.

$$a = K_S \frac{\sqrt{T_1 T_2}}{T_1 + T_2} \quad \omega_1 = \frac{1}{\sqrt{T_1 T_2}} \quad F_S(s) = \frac{K_S}{1 + s \frac{K_S}{a\omega_1} + s^2 \frac{1}{\omega_1^2}}$$

4.

$$F_o(s) = K_P \frac{K_S}{sT_1(1+sT_2)}$$

5.

$$F_W(s) = \frac{K_P K_S}{K_P K_S + sT_1 + s^2 T_1 T_2} \quad F_Z(s) = -\frac{K_S s T_1}{(1+sT_1)(K_P K_S + sT_1 + s^2 T_1 T_2)}$$

stationär genau

$PT_2$ -Strecke:  $K_S = 0,75$   $T_1 = 2,76$   $T_2 = 0,55$

PI-Regler nach dynamischer Kompensation:  $K_P = 6,7$   $T_N = 2,76$