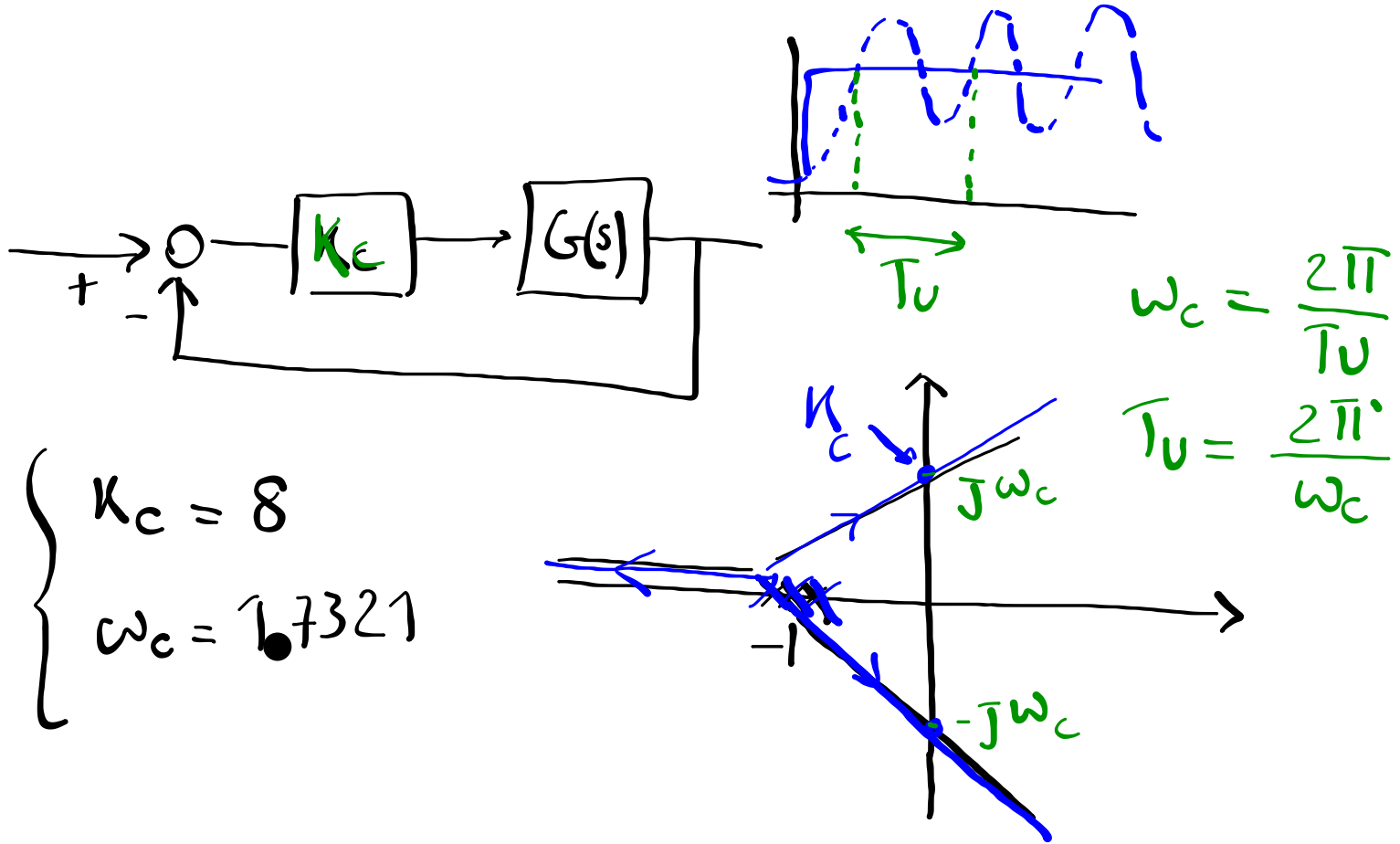


$$G(s) = \frac{1}{(1+s)^3}$$

$$ZN: \begin{cases} K_p = 0.6 \cdot K_c \\ K_i = 2 \cdot K_p / T_u \\ K_d = K_p \cdot T_u / 8 \end{cases}$$

(K_c, T_u) ?



Scelta di T

$$T \approx \frac{T_a}{100}$$

$T = 0.06$

$T_a = 4.9 \text{ s}$
 $T = 0.05 \text{ s}$

T_a dello
sistema di controllo
da discretizzare

PID discreto

- 1) blocco integrale Forward Euler
⇒ Eulero Avanti (EA) $s = \frac{z-1}{T}$
- 2) blocco derivativo Backward Euler
⇒ Eulero indietro (EI) $s = \frac{1-\bar{z}}{T}$