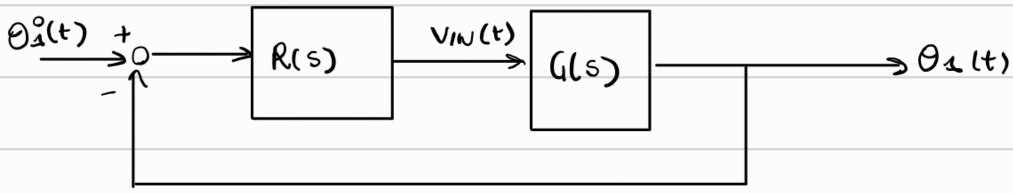
CONTROLLO ASTA

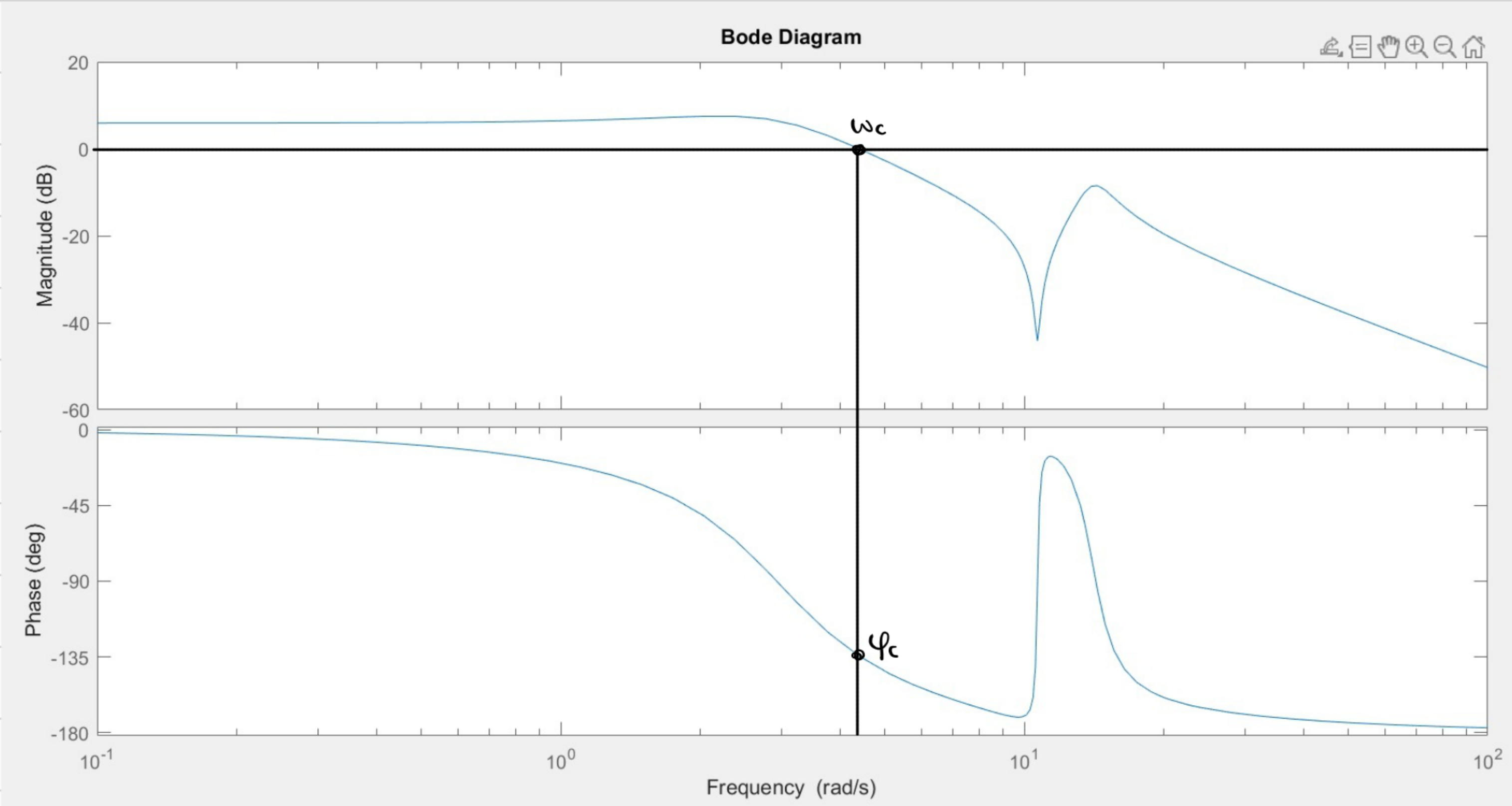
SISTEMA

$$\frac{\theta_1}{V_{IN}} = \frac{k_4(k_6 s^2 + k_7 s + k_8)}{\alpha s^4 + \beta s^3 + \gamma s^2 + \delta s + \varepsilon} = \frac{7,198 \cdot 10^{-7} s^2 + 1,319 \cdot 10^{-7} s + 8,211 \cdot 10^{-5}}{2,379 \cdot 10^{-8} s^4 + 1,236 \cdot 10^{-7} s^3 + 5,073 \cdot 10^{-6} s^2 + 1,33 \cdot 10^{-5} s + 4,148 \cdot 10^{-5}}$$

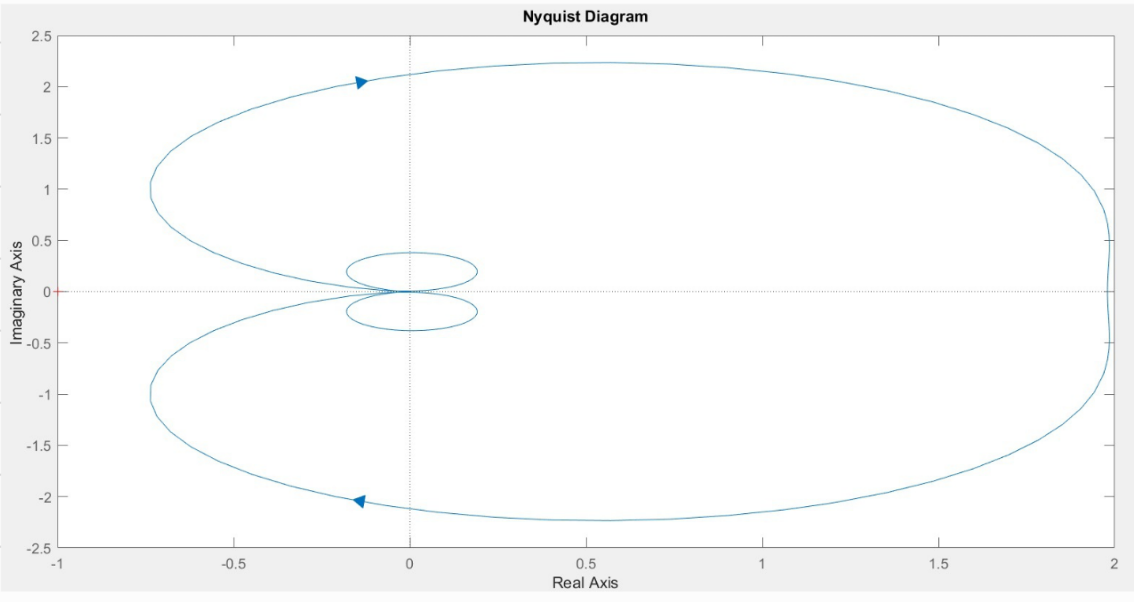
$$G(s) = \frac{\theta_1}{V_{IN}}$$



BODE DI G(s)



NYQUIST DYAGRAM OF G(s)



POLES T.F.

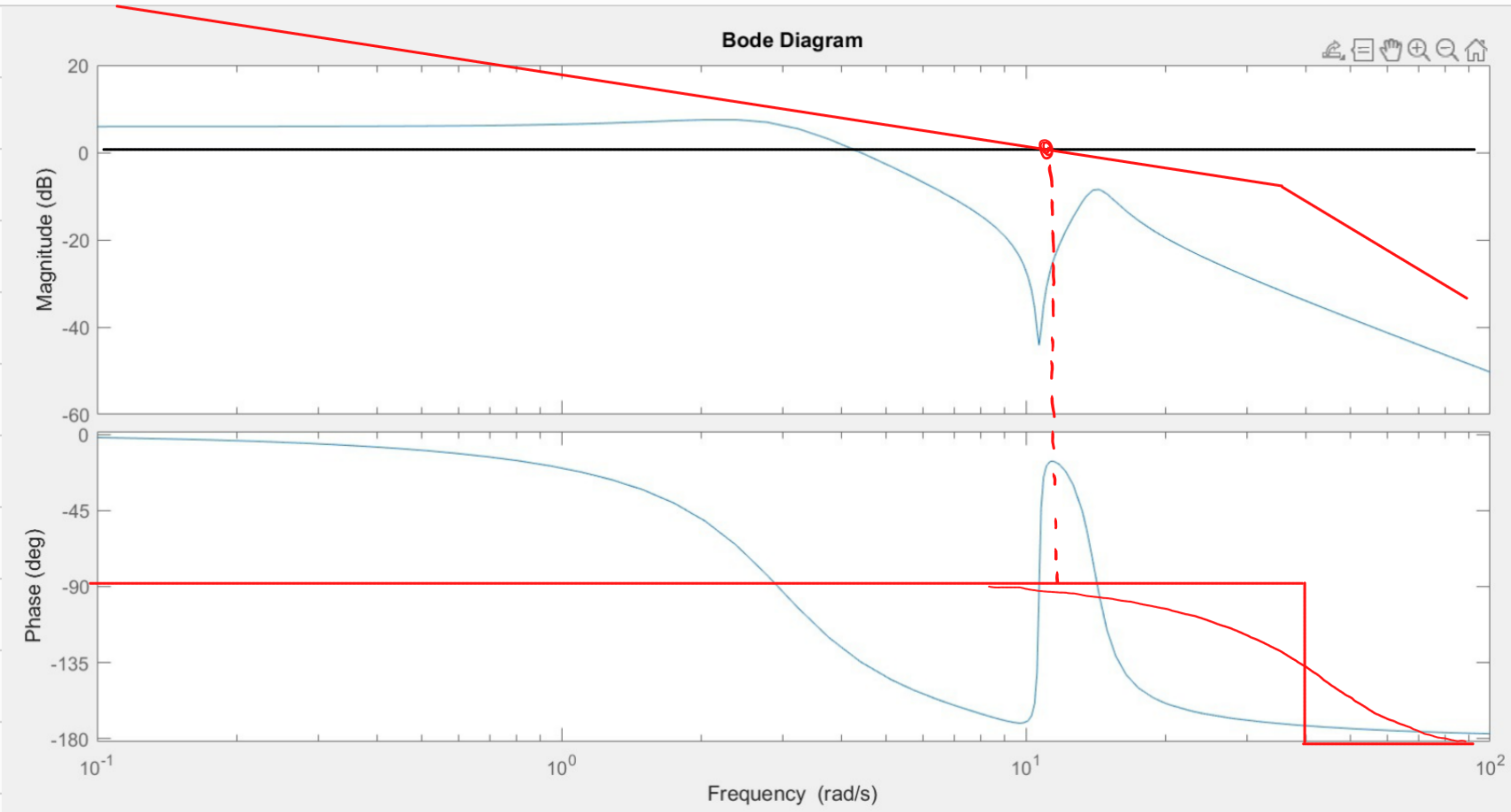
$s_1 = -1.2384 + 14.0067i$
$s_2 = -1.2384 - 14.0067i$ } $\omega = 2{,}97$ rad/s
$s_3 = -1.3590 + 2.6404i$
$s_4 = -1.3590 - 2.6404i$ } $\omega = 14{,}1$ rad/s

$\mathrm{Re} < 0$

ZEROS T.F.

$s_1 = -0.0916 + 10.6800i$
$s_2 = -0.0916 - 10.6800i$ } 10,7 rad/s

CONTROL



$$G(s) = \frac{7{,}198 \cdot 10^{-7} s^2 + 1{,}319 \cdot 10^{-7} s + 8{,}211 \cdot 10^{-5}}{2{,}379 \cdot 10^{-8} s^4 + 1{,}236 \cdot 10^{-7} s^3 + 5{,}073 \cdot 10^{-6} s^2 + 1{,}33 \cdot 10^{-5} s + 4{,}148 \cdot 10^{-5}}$$

$$C(s) = \frac{\mu}{s} \frac{1}{1+s\tau} \frac{2{,}379 \cdot 10^{-8} s^4 + 1{,}236 \cdot 10^{-7} s^3 + 5{,}073 \cdot 10^{-6} s^2 + 1{,}33 \cdot 10^{-5} s + 4{,}148 \cdot 10^{-5}}{7{,}198 \cdot 10^{-7} s^2 + 1{,}319 \cdot 10^{-7} s + 8{,}211 \cdot 10^{-5}}$$

$$L(s) = G(s)C(s) = \frac{\mu}{s} \frac{1}{1+s\tau} = \frac{\mu}{s} \frac{1}{1+0{,}025 s} = \frac{\mu}{0{,}025 s^2 + s}$$

$\omega = 40$
provo con $\tau = 0{,}025$
(alta frequenza)

ammesso che voglio $\omega_c = 10$ rad/s $\quad \mu \approx 10$

$$C(s) = \frac{L(s)}{G(s)}$$

$$\frac{num\_C}{den\_C} = \frac{num\_L}{den\_L} \frac{den\_G}{num\_G}$$