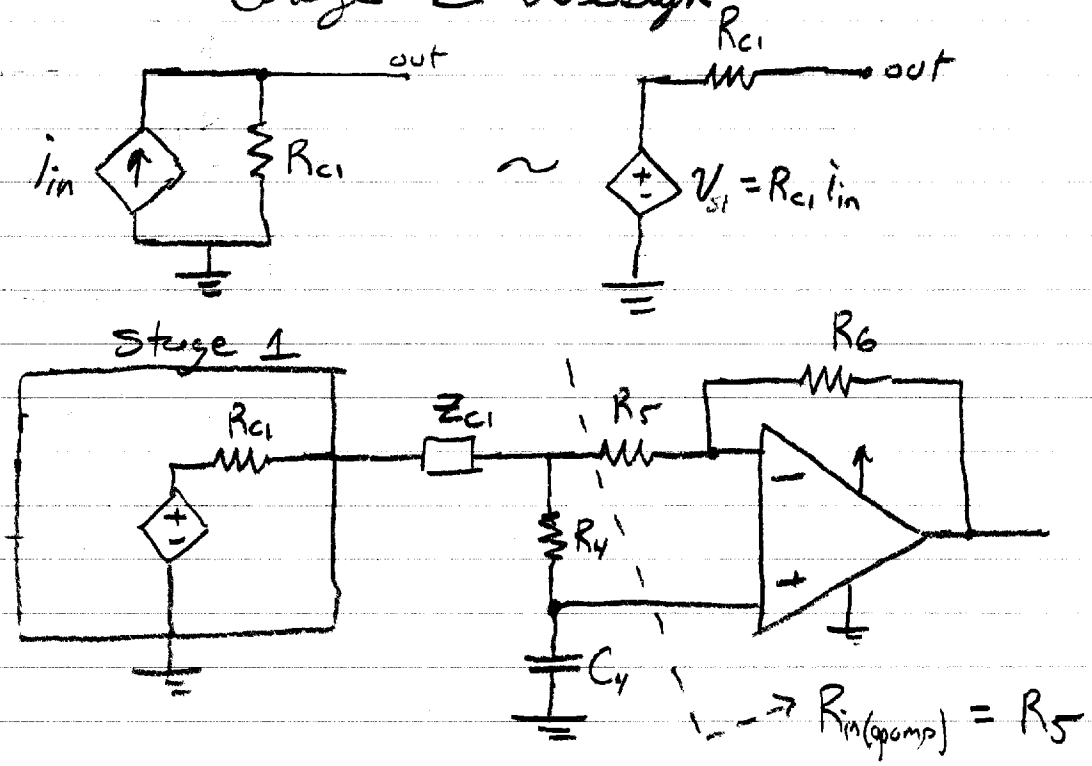
Stage 2 Design



For now, let Z_{C1} be a short. In the future we may want a ferrite bead for noise.

$$Z_{C1} = \emptyset$$

The parallel combination of the R_4, C_4 low pass filter and the op amp input resistance R_5 should not significantly load stage 1.

$$R_5 \| R_4 \geq 10 R_{C1}$$

The R_4, C_4 low pass filter should filter out the operating frequency to provide a stable reference voltage to the op-amp.

$$\omega_4 \leq \frac{1}{10} \omega_{op}$$

$$\omega_4 = \frac{1}{R_4 C_4} \leq \frac{1}{10} \cdot 2\pi f_{op}$$

where f_4 should be set well below the signal freq

If we design $R_4 = 10 R_5$, then

$$R_5 = 10 R_{C1}, \quad R_4 = 100 R_{C1}, \quad C_4 \geq \frac{5}{\pi R_4 f_4}$$