

EE 105 **Feedback control systems**

Compensation in the frequency domain

Steven Bell

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Let's play with an op-amp circuit

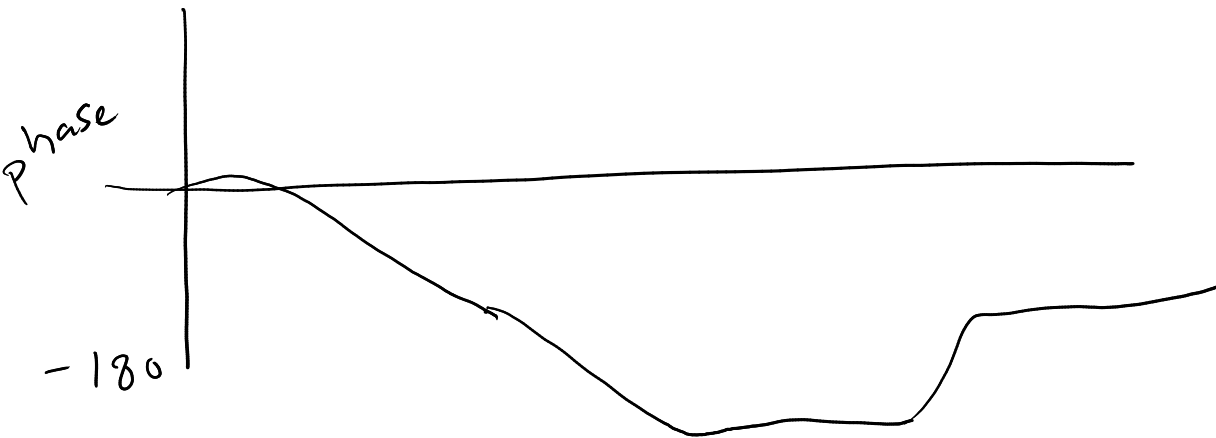
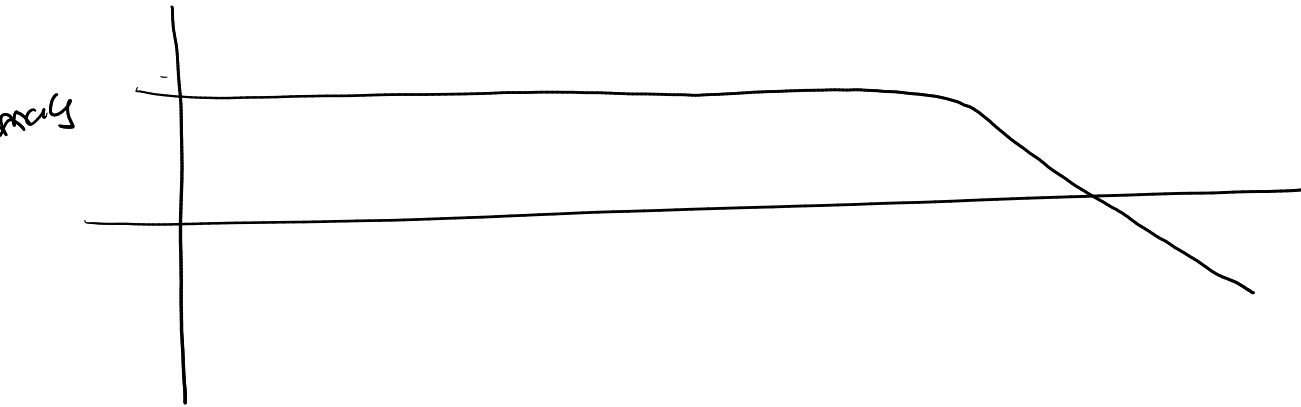
What if there's a capacitor or inductor in the mix?

Network analyzer on Analog Discovery

Show and tell with a real LM741...

How would we fix this?

If I could just improve the phase margin...



What if we're close to being unstable?

A derivative term might help? (PD control)

$$K_d \left(s + \frac{k_p}{k_d} \right)$$

But a PD controller has infinite gain...

What if we have steady-state error?

Our low-frequency gain is too low... maybe an integral term would help?