

Dynamic Compensation

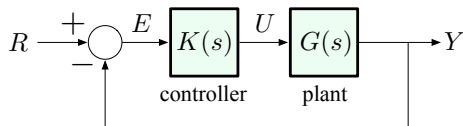
We can use RL to *visualize* the effect of adding D-gain: add a LHP zero, pull the closed-loop poles into LHP — **stabilization!!**

However: we already know that PD control is not physically realizable (lack of causality).

Dynamic compensation (or **dynamic control**): consider controllers more general than just P-gain, but implementable by *causal systems* of the form

$$\dot{z} = Az + Be$$

$$u = Cz + De$$



— so, any proper transfer function is admissible