

Approximate PI via Dynamic Compensation

PI control achieves the objective of stabilization and perfect steady-state tracking of constant references; however, just as with PD earlier, we want a *stable controller*.

Here's an idea:

replace $K \frac{s+1}{s}$ by $K \frac{s+1}{s+p}$, where p is small

More generally, if $z = K_I/K_P$, then

replace $K \frac{s+z}{s}$ by $K \frac{s+z}{s+p}$, where $p < z$

This is **lag compensation** (or **lag control**)!

We use **lag controllers** as dynamic compensators for approximate PI control.