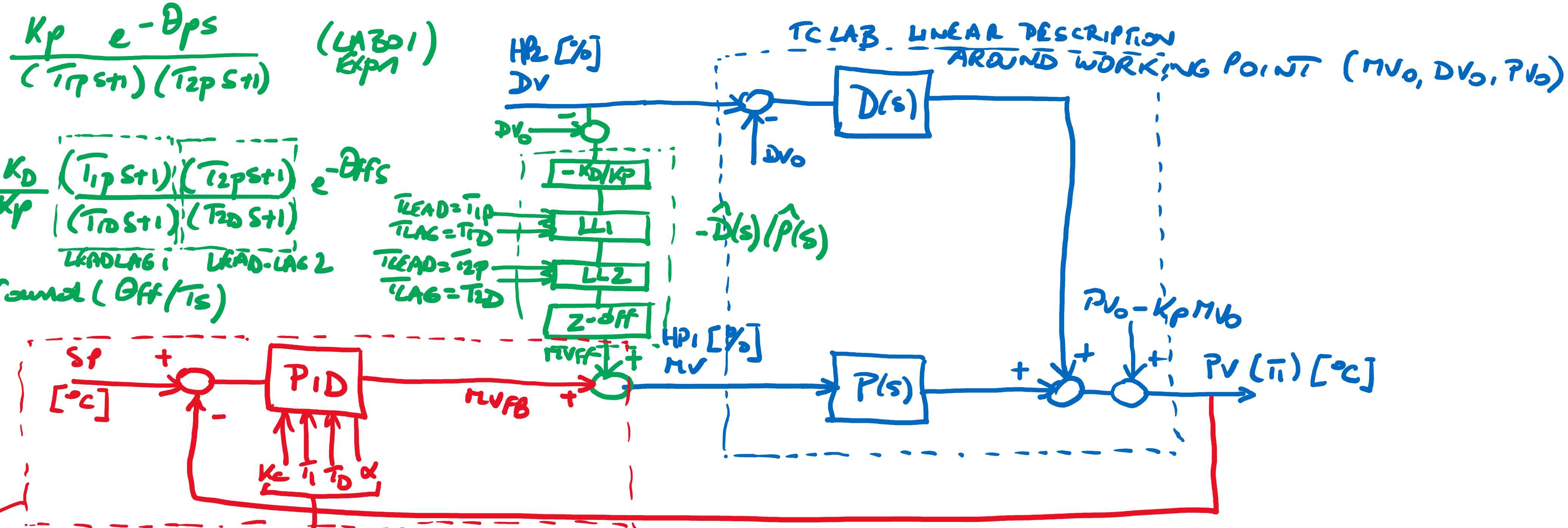
$$\hat{D}(s) = K_D \frac{e^{-\theta_D s}}{(T_{1D}s+1)(T_{2D}s+1)} \quad \text{(LAB01 EXP 2)}$$

$$\theta_{FF} = \max(0, \theta_D - \theta_P)$$

$$\hat{P}(s) = K_P \frac{e^{-\theta_P s}}{(T_{1P}s+1)(T_{2P}s+1)} \quad \text{(LAB01 EXP 1)}$$

$$-\frac{\hat{D}(s)}{\hat{P}(s)} = -\frac{K_D}{K_P} \underbrace{\frac{(T_{1P}s+1)}{(T_{1D}s+1)}}_{\text{LEADLAG 1}} \underbrace{\frac{(T_{2P}s+1)}{(T_{2D}s+1)}}_{\text{LEAD-LAG 2}} e^{-\theta_{FF}s}$$

$$d_{FF} = \text{round}(\theta_{FF}/T_S)$$



→ IMC TUNING (TABLE)

→ PROCESS SOPDT ~> LINK I ($T_3 = 0$)

→ $T_{CLP} = T_C = \gamma T_{1P}$

$\gamma = [0.2 \ldots 0.9]$

AGGRESSIVE

INVESTIGATE INFLUENCE OF γ

→ K_C, T_I, T_D

→ INVESTIGATE INFLUENCE OF α

$$\frac{T_D s}{T_{FD}s+1} \qquad T_{FD} = \alpha T_D$$

STABILITY (GAIN & PHASE) MARGINS