## PDT1-de anticipatie

$$H(S)=\frac{K(T_D S+1)}{T_i S+1}$$

$T_D > T_i - conditie\ de\ anticipatie$

## PDT1-de intarziere

$$H(S)=\frac{K(T_D S+1)}{T_i S+1}$$

$T_D < T_i - conditie\ de\ \text{int}\ arziere$

## PD2T2-de anticipatie intarziere cu bucla simetrica

$$H(S)=\frac{S^2+(a_1+b_2)S+a_1 b_2}{S^2+(a_2+b_1)S+a_2 b1}$$

*sau*

$$H(S)=\frac{K\left(T_{D_2} S^2+T_{D_1} S+1\right)}{T_{i_2} S^2+T_{i_1} S+1}$$

$a_1 b_2 = a_2 b_1$

$(a_1+b_2) > (a_2+b_1)$

## PD2T2-de intarziere anticipatie cu bucla simetrica

$$H(S)=\frac{S^2+(a_1+b_2)S+a_1 b_2}{S^2+(a_2+b_1)S+a_2 b1}$$

$a_1 b_2 = a_2 b_1$

$(a_1+b_2) < (a_2+b_1)$

*arii egale la caracteristica Nyquist*

## PD2T2- de anticipatie intarziere cu bucla nesimetrica

$$H(S)=\frac{S^2+(a_1+b_2)S+a_1b_2}{S^2+(a_2+b_1)S+a_2b1}$$

$a_1b_2 = a_2b_1$

$(a_1+b_2) > (a_2+b_1)$

$a > b$

*bucla nesimetrica preponderent*

*anticipativa*

## PD2T2- de anticipatie intarziere cu bucla nesimetrica preponderent derivativa

$$H(S)=\frac{S^2+(a_1+b_2)S+a_1b_2}{S^2+(a_2+b_1)S+a_2b1}$$

$a_1b_2 = a_2b_1$

$(a_1+b_2) > (a_2+b_1)$

$a < b$

*bucla nesimetrica preponderent*

*derivativa*

$$H(S)=\left(1+T_DS+\frac{1}{T_iS}\right)K$$

$T_DT_iS^2+T_iS+1=0$

$$Z_{1,2}=\frac{-T_i\pm\sqrt{T_i^2-4T_{di}}}{2T_dT_i}$$

$$\frac{1}{T_{d_1}}=\frac{T_i}{2T_dT_i}=\frac{1}{2T_d}$$

$4Td > Ti$ – *conditia pentru a exista zerouri conjugate*

Se folosesc in corectarea comportarii dinamice a elementelor si sistemelor (regulatoare PID)
Se regleaza KiTi si Td

## PID-proportional integral derivative

PIDT1- inertie de ordin 1

$$H(S) = K\left(1 + T_d S + \frac{1}{T_i S}\right)\frac{1}{T_{i_1} S + 1}$$

PIDT2- inertie de ordin 2

$$H(S) = K\left(1 + T_d S + \frac{1}{T_i S}\right)\frac{1}{T_{i_2} S^2 + T_{i_1} S + 1}$$