Курсовая

- Илья
- Ксюша
- Саша
-

$$\chi(\lambda) = (-1)(\lambda^3 + \lambda^2(\frac{1 + K\tau_{z_1}\tau_{z_2}}{\tau_p}) + \lambda K(\frac{\tau_{z_1} + \tau_{z_2}}{\tau_p}) + \frac{K}{\tau_p})$$

$$\dot{x}_1 = \sin\theta_e$$

$$\dot{x}_2 = -\frac{1}{\tau_p}x_2 + \frac{(\tau_{z1} - \tau_p)(\tau_p - \tau_{z2})}{\tau_p^2}\sin\theta_e$$

$$\dot{\theta}_e = \omega_e^{free} - K(x_1 + x_2 + \frac{\tau_{z1}\tau_{z2}}{\tau_p}\sin\theta_e)$$

$$\begin{cases} \tau_{z_1} + \tau_{z_2} < \tau_p \\ \frac{\tau_p - (\tau_{z_1} + \tau_{z_2})}{(\tau_{z_1} + \tau_{z_2})\tau_{z_1}\tau_{z_2}} = K \end{cases}$$

$\text{grad}: \left(k x_1 - w e^{\sin\theta_e}, \quad , \sin \right)$

$\sin := \sin \theta_e$ def

$$\dot{V} = -k \sin x_2 - k \frac{\tau_1 \tau_2}{\tau_p} \sin^2$$

$$\left(-\frac{1}{\tau_p} x_2 + \frac{(\tau_1 - \tau_p)(\tau_p - \tau_2)}{\tau_p^2} \sin\theta \right) A$$

критерий Сильвестра

$$\begin{vmatrix} -\frac{1}{\tau_p} A & -k \sin \\ \frac{(\tau_1-\tau_p)(\tau_p-\tau_2)}{\tau_p^2} \sin\theta A & -k \frac{\tau_1 \tau_2}{\tau_p} \sin^2 \end{vmatrix}$$

$A > 0$

$\tau_1 \tau_p - \tau_1 \tau_2 - \tau_p^2 + \tau_p \cdot \tau_2$

$$\frac{k \tau_1 \tau_2}{\tau_p \ldots} \sin^2 A + k (\tau_1 - \tau_p)(\tau_p - \tau_2) \sin^2 A$$

$$\frac{\dots}{\tau_p^2}$$

$$\frac{k \sin^2 \vartheta A}{\tau_p^2} \left(\tau_1 \tau_2 + \left(-\tau_1 \tau_2 + \tau_p (\tau_1 + \tau_2 - \tau_p) \right) \right)$$

критерий не выполн.

$$\frac{k \sin^2 \vartheta A}{\tau_p^2} \cdot (\tau_1 + \tau_2 - \tau_p) < 0$$

$\forall A > 0$

если $A < 0$

$\Rightarrow$ нет отр. опред $\dot{V}$.

$A = 0$ – видимо.

Если $A = 0$ $\Rightarrow$

$$-k \sin x_2 - k \frac{\bar{I}_1 \bar{I}_2}{\bar{I}_p} \sin^2 =$$

$$= -k \sin\left(x_2 + \frac{\bar{I}_1 \bar{I}_2}{\bar{I}_p} \sin\right)$$

$$\Rightarrow k = 0$$

$$\Rightarrow \bar{I}_p = \bar{I}_1 + \bar{I}_2$$

$$\mathrm{grad}: \Big(\underbrace{kx_1}_{\text{необходим}} \underbrace{- \omega_e^{\delta,\infty\infty}, \ldots, S_{in}}_{\text{фиксиров.}}\Big)$$

иначе V имеет ветви вниз и не может быть полож. определен.

! НО тогда не выполн. Рауса-Гурвица

Т.к. $K = 0 \ldots = P(x \ldots)$