

the  $\mathcal{H}_\infty$  norm of the closed-loop system is bounded by  $\gamma$ .

Let  $\mathcal{H}_\infty$  norm of the closed-loop system be denoted by  $\gamma_{\text{cl}}$ . Then

$$\gamma_{\text{cl}} = \sqrt{\lambda_{\max}(\mathbf{P})} \quad (10)$$

where  $\mathbf{P}$  is the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (11)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (12)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (13)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (14)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (15)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (16)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (17)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (18)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (19)$$

Let  $\mathbf{P}$  be the solution of the Lyapunov equation

$$(\mathbf{A} - \mathbf{B}\mathbf{K})^T \mathbf{P} + \mathbf{P}(\mathbf{A} - \mathbf{B}\mathbf{K}) + \mathbf{C}^T \mathbf{C} = 0 \quad (20)$$