

Example 4.5

Q:  $\bar{x}(k+1) = ?$  当前状态

$$\alpha_0(A) = A^2 - 1.638A + 0.671I_2$$

$$= \begin{bmatrix} 0.033 & 0.0254 \\ 0 & 0.00763 \end{bmatrix}$$

$$\begin{bmatrix} CA \\ CA^2 \end{bmatrix}^T = \begin{bmatrix} 1 & 0.0952 \\ 1 & 0.1814 \end{bmatrix}^{-1} = \begin{bmatrix} 2.104 & -1.104 \\ -11.6 & 11.6 \end{bmatrix}$$

$$L_c = \alpha_0(A) \begin{bmatrix} CA \\ CA^2 \end{bmatrix}^T \begin{bmatrix} 0 \\ 1 \end{bmatrix} = \begin{bmatrix} 0.258 \\ 0.0885 \end{bmatrix}$$

$$\bar{x}(k+1) = [A - L_c C A] \bar{x}(k) + [B - L_c B C] u(k) + L_c y(k+1)$$

$$\bar{x}(k+1) = \begin{bmatrix} 0.742 & 0.0766 \\ -0.0885 & 0.897 \end{bmatrix} \bar{x}(k) + \begin{bmatrix} 0.00359 \\ 0.0948 \end{bmatrix} u(k)$$

$$+ \begin{bmatrix} 0.258 \\ 0.0885 \end{bmatrix} y(k+1)$$