

Errata List

Please email error reports to shuxiatang.control@gmail.com.

1. Delete the sentence before Lemma 1, and put Lemma 1 including the proof after the 1st paragraph of Section 4.
2. Section 4: Add “Assume that the pair

$$\begin{pmatrix} A & C(I & 0)e^{Fl} \begin{pmatrix} I \\ 0 \end{pmatrix} G^{-1} \end{pmatrix}$$

is observable.” to the very beginning of the line above the equation (36).

3. Change the equation (31) to

$$X(t) = e^{(A+BK)t}X(0) + \int_0^t e^{(A+BK)(t-\tau)}Bw_x(0,\tau)d\tau$$

4. Proof of Theorem 1.

- Change the Lyapunov function on the 2nd line of the proof to:

$$V(t) = X^T P X + \frac{a_1}{2} \|w(\cdot, t)\|_{L^2(0,l)}^2 + \frac{a_2}{2} \|w_x(\cdot, t)\|_{L^2(0,l)}^2$$

- Change the 6th and 7th lines of the proof to:
“for some $Q = Q^T > 0$, and the parameters $a_1, a_2 > 0$ are to be chosen later.”
- Change the 4th and 5th lines to

$$\begin{aligned} \bar{\delta} &= \max \left\{ \lambda_{\max}(P) + \frac{a_1 \alpha_2}{2} + \frac{a_2 \alpha_5}{2}, \frac{a_1 \alpha_1}{2} + \frac{a_2 \alpha_4}{2}, \frac{a_2 \alpha_3}{2} \right\} \\ \underline{\delta} &= \frac{\min \left\{ \frac{a_1}{2}, \frac{a_2}{2}, \lambda_{\min}(P) \right\}}{\max \{ \beta_3, \beta_1 + \beta_4, \beta_2 + \beta_5 + 1 \}}. \end{aligned}$$

respectively.

- Change the inequality on the 8th lines of the right column of Page 542 to

$$\dot{V} \leq -\frac{\lambda_{\min}(Q)}{2}|X|^2 + 2\frac{|PB|^2}{\lambda_{\min}(Q)}w_x(0,t)^2 - a_1\|w_x\|^2 - a_2\|w_{xx}\|^2.$$

- Change the “Agmon’s” on the 8th line of the right column of Page 542 to “Young’s”.
- Change the inequality on the 13th and 14th lines of the right column of Page 542 to

$$\dot{V} \leq -\frac{\lambda_{\min}(Q)}{2}|X|^2 - \left(a_1 - \frac{1+l}{l}a_2 \right) \|w_x\|^2 - \left(a_2 - 2\frac{|PB|^2}{\lambda_{\min}(Q)} \right) w_x(0,t)^2.$$

- Change the inequality on the 16th line of the right column of Page 542 to

$$a_2 > 2\frac{|PB|^2}{\lambda_{\min}(Q)}, a_1 > \frac{1+l}{l}a_2.$$

- Change the equation on the 20th line of the right column of Page 542 to

$$b = \min \left\{ \frac{\lambda_{\min}(Q)}{2\lambda_{\max}(P)}, \frac{2}{4l^2 a_1 + a_2} \left(a_1 - \frac{1+l}{l}a_2 \right) \right\}.$$