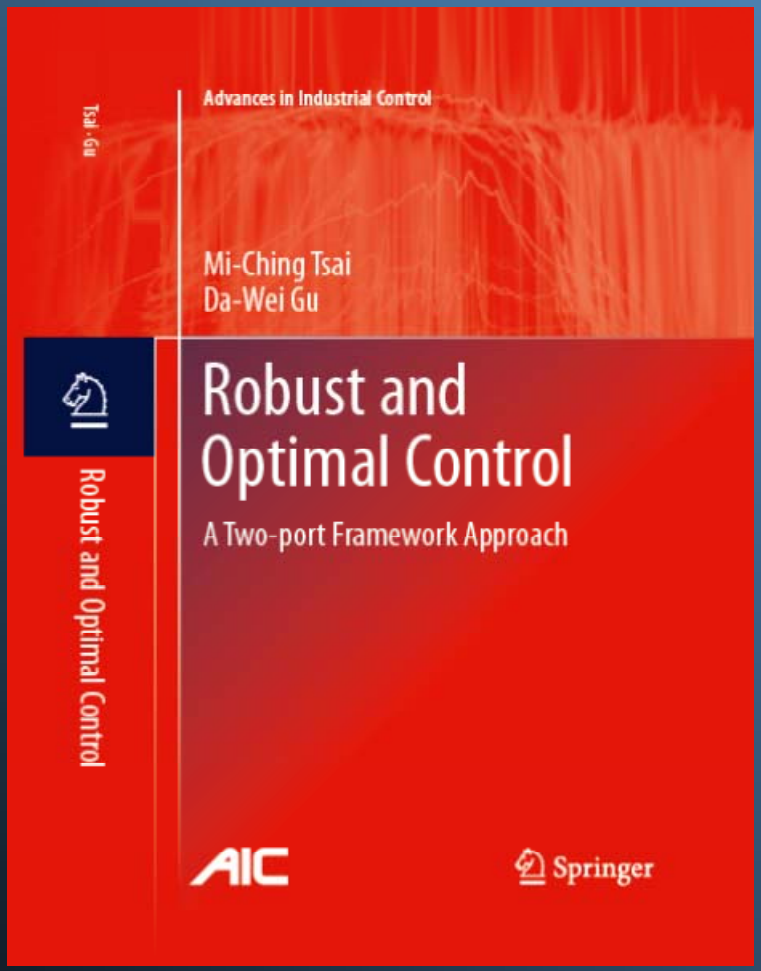


Robust and Optimal Control

A Two-port Framework Approach

Examples of Useful Mathematic Tools and Examples of norm

Content

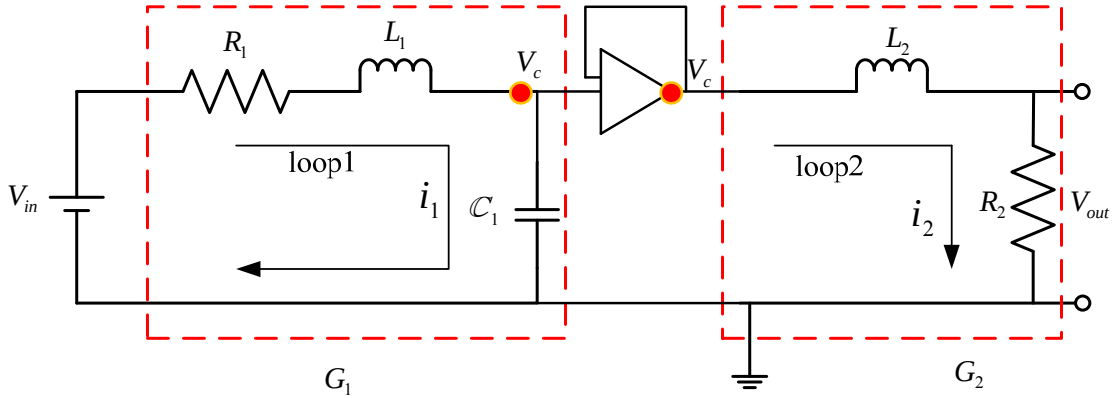
Examples of Useful Mathematic Tools

- Multiplication
- Addition

Example of norm

- 1-norm
- 2-norm
- ∞-norm
- Hankel norm
- Matlab of norm

Multiplication of series RLC systems

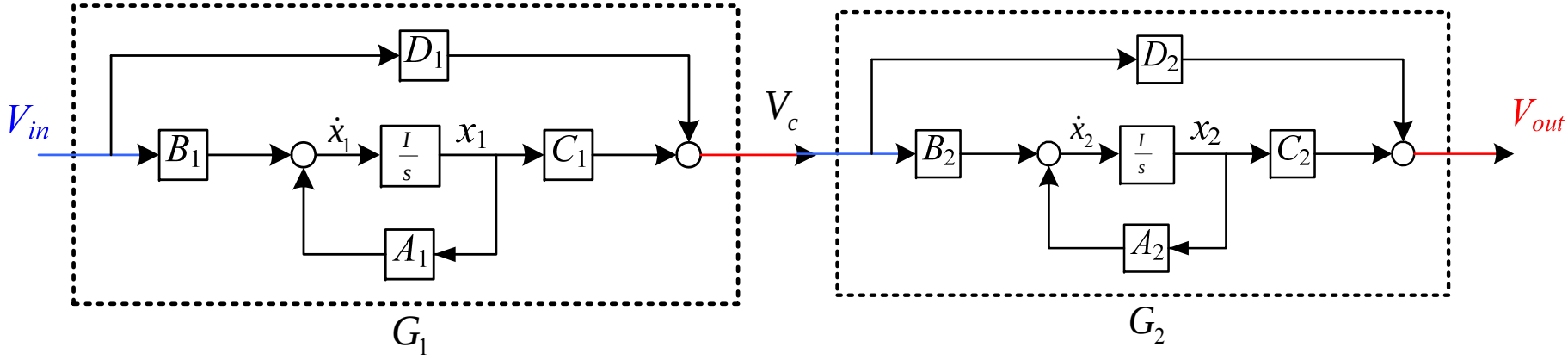


Let V_{in} is input and V_{out} is output

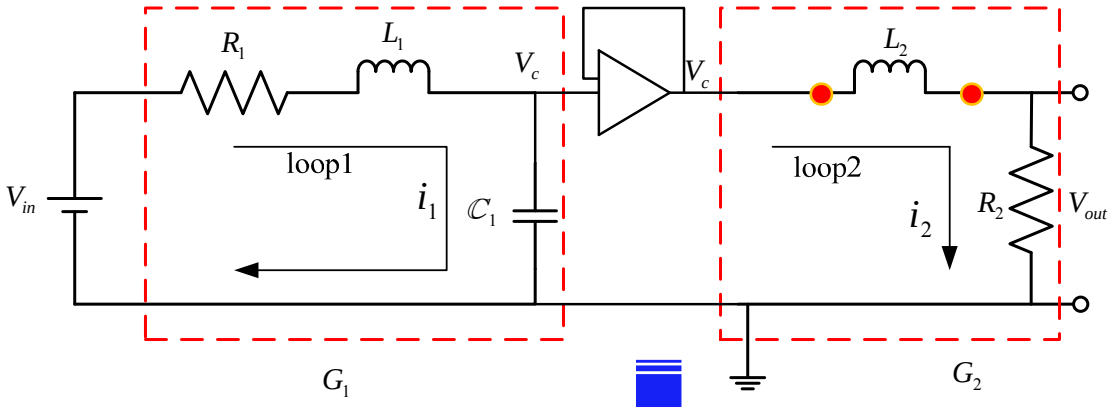
Find the corresponding state space matrix

RLC system can be considered as two part, $G_1(s)$ and $G_2(s)$, respectively.

Let $V_{out} = G_2(s)G_1(s)\ V_{in}$ with $G_1(s) = \left[\begin{array}{c|c} A_1 & B_1 \\ \hline C_1 & D_1 \end{array}\right]^s$ and $G_2(s) = \left[\begin{array}{c|c} A_2 & B_2 \\ \hline C_2 & D_2 \end{array}\right]^s$ as shown below



Block diagram of series RLC systems



The relation between V_{in} and V_{out} is as Shown in block-diagram.

State-space representation of the system is obtained by cutting off integrator.