

Model reduction and moment matching.

ABSTRACT

In this paper, we proposed a simple way to find model reduction of dynamical system $\{d/dt x(t)=Ax(t)+Bu(t) y(t)=CTx(t)\}$ where $x: \mathbb{R} \rightarrow \mathbb{R}^n$ is a state vector, $u: \mathbb{R} \rightarrow \mathbb{R}^p$ is input function, $y: \mathbb{R} \rightarrow \mathbb{R}^q$ is a output function, $A \in \mathbb{R}^{n \times n}$, $B \in \mathbb{R}^{n \times p}$, and $C \in \mathbb{R}^{n \times q}$ are the system matrices. Furthermore, we show that error output of single input single output system can be estimated over a certain class of input functions.

Keyword: model reduction; Krylov subspace; Arnoldi algorithm and moment matching.