Spectral Projection Method in a Nonlinear Aeroelastic System

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Abstract

The modeling of limit cycle oscillation is important in the testing and design of an aircraft. The most commonly used methodology is the Monte Carlo simulation technique with direct numerical integration. However, the involved computational power is usually expansive. One way to reduce the computational time is to use the spectral projection in which the output response is treated as the linear combination of the time and input random variable dependent terms. In this paper, we discuss this spectral projection method in a non-linear dynamical system which is described by stochastic differential equations.