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Uncertainty & Reliability Analysis of Structural Dynamical Systems

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ABSTRACT

In this paper various methods to analyze structural systems under stochastic dynamic loading are qualitatively compared. While the Karhunen-Loève expansion proved to be advantageous when uncertainty estimation is required, (advanced) Monte Carlo simulation procedures are recommended for reliability estimates. The computational efficiency of the methods play an important role w.r.t. practical applications. A further quantitative benchmark study is recommend.