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Sommario/riassunto

"The parallel developments of the Finite Element Methods in the 1950's and the engineering applications of stochastic processes in the 1940's provided a combined numerical analysis tool for the studies of dynamics of structures and structural systems under random loadings. In the open literature, there are books on statistical dynamics of structures and books on structural dynamics with chapters dealing with random response analysis. However, a systematic treatment of stochastic structural dynamics applying the finite element methods seems to be lacking. Aimed at advanced and specialist levels, the author presents and illustrates direct integration methods for analyzing the statistics of the response of structures to stochastic loads. The analysis methods are based on structural models represented via the Finite Element Method. In addition to stationary linear problems the text also addresses non-stationary excitation and systems with spatially stochastic property variations"--