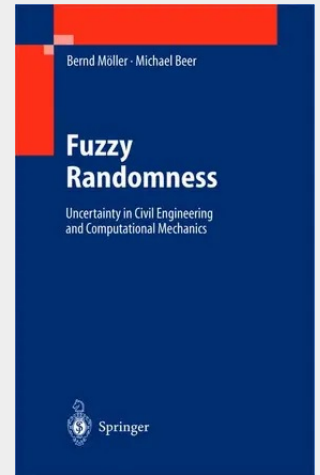


Fuzzy Randomness

Uncertainty in Civil Engineering and Computational Mechanics

sections dealing with fuzzy functions and fuzzy random functions are certain to be of special interest. The reader is expected to be in command of the knowledge gained in a basic university mathematics course, with the inclusion of stochastic elements. A specification of uncertainty in any particular case is often difficult. For this reason Chaps. 3 and 4 are devoted solely to this problem. The derivation of fuzzy variables for representing informal and lexical uncertainty reflects the subjective assessment of objective conditions in the form of a membership function. Techniques for modeling fuzzy random variables are presented for data that simultaneously exhibit stochastic and nonstochastic properties. The application of fuzzy randomness is demonstrated in three fields of civil engineering and computational mechanics: structural analysis, safety assessment, and design. The methods of fuzzy structural analysis and fuzzy probabilistic structural analysis developed in Chap. 5 are applicable without restriction to arbitrary geometrically and physically nonlinear problems. The most important forms of the latter are the Fuzzy Finite Element Method (FFEM) and the Fuzzy Stochastic Finite Element Method (FSFEM).

sections dealing with fuzzy functions and fuzzy random functions are certain to be of special interest. The reader is expected to be in command of the knowledge gained in a basic university mathematics course, with the inclusion of stochastic elements. A specification of uncertainty in any particular case is often difficult. For this reason Chaps. 3 and 4 are devoted solely to this problem. The derivation of fuzzy variables for representing informal and lexical uncertainty reflects the subjective assessment of objective conditions in the form of a membership function. Techniques for modeling fuzzy random variables are presented for data that simultaneously exhibit stochastic and nonstochastic properties. The application of fuzzy randomness is demonstrated in three fields of civil engineering and computational mechanics: structural analysis, safety assessment, and design. The methods of fuzzy structural analysis and fuzzy probabilistic structural analysis developed in Chap. 5 are applicable without restriction to arbitrary geometrically and physically nonlinear problems. The most important forms of the latter are the Fuzzy Finite Element Method (FFEM) and the Fuzzy Stochastic Finite Element Method (FSFEM).



106,99 €

99,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540402947

Medium: Buch

ISBN: 978-3-540-40294-7

Verlag: Springer

Erscheinungstermin: 19.02.2004

Sprache(n): Englisch

Auflage: 2004

Produktform: Gebunden

Gewicht: 694 g

Seiten: 336

Format (B x H): 160 x 241 mm

