RELIABILITY ANALYSIS OF STRUCTURE FOR FUZZY SAFETY STATE

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ABSTRACT—Due to the existing of various kinds of uncertainties, predicting structural performance is always a great challenge in practical applications. The reliability of structure under the probabilistic uncertainty has been well studied in the past decade. However, the randomness is not the only attribute of reality. This paper attempts to investigate approach for the structural reliability analysis via the fuzzy safety state which is defined by state variable and fuzzy random allowable interval. The fuzziness of safety criterion, the fuzziness and randomness of generalized stress and generalized strength are considered in the limit state models, and the membership function of the fuzzy structural reliability are derived by the defined fuzzy safety state.