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Abstract A fuzzy Minkowski norm Info-Gap model was proposed by introducing a fuzzy parameter in Minkowski norm based on Info-Gap theory. Then the model was applied to Info-Gap reliability analysis, and the fuzzy Info-Gap reliability model for structures was proposed based on binary failure assumption. The calculation method of the reliability index was also studied by utilizing fuzzy sets theory. The new fuzzy Info-Gap model integrated the interval convex model and ellipsoidal convex model. The new reliability model fixed inconsistencies between the both convex models in non-probabilistic structural reliability analysis. Numerical example verified the rationality and applicability of the proposed method.

Keywords Fuzzy sets, Info-Gap theory, Minkowski norm, Non-probabilistic reliability, Structural reliability.