

论文

结构安全系数和非概率可靠性度量研究

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摘要:

研究了用区间变量描述不确定参数时, 结构安全系数和非概率可靠性度量及其相互关系. 讨论了中心、非概率及区间三种安全系数的关系. 对可靠性指标、集合可靠度两种非概率可靠性度量进行了对比分析. 最后建立了安全系数和非概率可靠性度量的函数关系. 研究结果拓展了结构非概率设计理论.

关键词: 安全系数 非概率可靠性 可靠性指标 集合可靠度 区间变量

Study of safety factors and non-probabilistic reliability measures of structures

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Abstract:

The safety factors, the non-probabilistic reliability measures and their interrelations are investigated, when interval variables are utilized to describe the uncertain parameters of structures. First, three kinds of safety factors named central, non-probabilistic and interval factors are discussed. Then a comparison between two kinds of non-probabilistic reliability measures, which are reliability index and set-theoretic reliability measure, is made. Finally, the functions of the safety factors and the non-probabilistic reliability measures are established. The results extend the non-probabilistic design theory of structures.

Keywords: safety factor non-probabilistic reliability reliability index set-theoretic reliability measure interval variables

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