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一种基于模糊重要度的多目标优化设计方法

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MULTIOBJECTIVE OPTIMUM DESIGN APPROACH BASED ON FUZZY IMPORTANCE

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摘要 针对工程设计中经常出现的多目标问题，对目标的重要度进行了模糊性描述，使权重系数的选取建立在重要度这个模糊概念之上。在此基础上提出了一种基于模糊评判的多目标折衷策略，并与遗传算法相结合，发展了一套多目标模糊折衷优化设计算法，通过包括损伤容限目标在内的多目标复合材料层板优化设计的算例，证明了该方法能给出指定设计要求下可能获得的最满意解。

关键词：

Abstract： For multiobjective optimization the importance degree of design objectives and the fuzzy description of importance degree are presented in this paper. The weight factors for design objectives are chosen on the basis of importance degree defined by the decision makers in fuzzy environment. Based on the fuzzy importance degree and some compromise strategies, an effective multiobjective optimum design approach, combined with the genetic algorithm, is developed to implement the multiobjective optimum design of composite laminates with damage tolerance. It is shown from the illustration examples that this approach can give the most satisfactory design.

Keywords：

Service

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