

高维多目标灰色稳健优化设计及其Matlab实现

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关键词: 稳健设计 灰色绝对关联度 优化 灵敏度分析

摘要: 提出了一种基于设计变量敏感度的高维多目标稳健性设计方法,建立了基于灵敏度分析产生附加目标函数的2种高维多目标稳健优化设计模型,应用灰色绝对关联度直接求解,并用Matlab语言的优化工具箱和符号工具箱来实现机械零件的稳健优化设计,计算实例证明了所述模型的可行性与实用性。 A general method for robust design was presented based on sensitivity, and two models were established for robust optimization design of mechanical parts based on adjunctive function of sensibility of the high dimension multi-objective or the high dimension multi-objective. Constraint functions of the design parameters and the solutions were founded with absolute degree of grey incidence. Then the robust optimization design was realized with the software of optimization toolbox and symbolic toolbox of Matlab7.4. The design example showed that the model is practical and effective.

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