基于信息公理和模糊数学的设计方案评价方法

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关键词： 信息公理 模糊数学 隶属函数 设计方案 评价方法

摘　要： 将信息公理和模糊数学中的隶属函数相结合，提出了一种模糊信息公理方案评价方法。该方法不需要决策者给定评价指标权重，避免了因设计者主观认识对评价结果的影响；同时，对各种方案评价情况进行分类，利用模糊数学原理计算了定性指标的信息量，解决了一般的利用信息公理进行方案评价时不能计算定性指标信息量的问题。最后，利用对减速器机械传动系统设计方案评价的实例，验证了该方法的有效性。 A novel evaluation method for design schemes was presented by combining information axiom and fuzzy membership function. The presented method did not have to give the weight of evaluating indicator, and thus the effect of subjective consciousness of the designer to the result of evaluation could be avoided. At the same time, the scheme evaluations were classified according to the true instances. The information content of qualitative indicators are hard to calculate when just applying the general information axiom, but was solved by using the fuzzy mathematic theory for design schemes evaluation. At last, the scheme evaluation of the mechanical driven system of decelerator was presented to illustrate the effectiveness of the proposed approach.

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