

### 三参数区间灰数信息下的动态多属性决策方法

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### Dynamic multi-attribute decision-making methods with three-parameter interval grey number

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#### 摘要

针对方案属性值为三参数区间灰数的动态多属性决策问题, 提出一种基于前景理论的动态多属性决策方法. 定义了三参数区间灰数距离测度和排序方法; 鉴于被评价对象在时序上的差异信息和波动性, 建立基于方差和时间度的确定时间权重的优化模型; 以两两方案互为参考点确定前景价值函数, 由此构建求解最优权向量的优化模型, 并通过求解方案的综合前景值对方案进行排序. 实例研究表明了该方法的合理性和有效性.

**关键词:** 三参数区间灰数, 时间度, 前景理论, 前景价值函数

#### Abstract:

For dynamic multi-attribute decision-making problems, in which the attribute value of alternatives is threeparameter interval grey number, a dynamic multi-attribute decision making method based on the prospect theory is proposed. The distance measure and ranking method of three-parameters interval grey numbers is defined in view of differences and volatility of the evaluation objects in the timing, an optimized model based on the variance and time degree is built to determine the time weight. The prospect value function is determined with reference to each other alternatives, and a multiindex optimization model can be built to solve the optimum weight vector, and the alternatives are ranked based on integrated prospect values. An example is presented to illustrate the usefulness and effectiveness of the proposed method.

**Key words:** three-parameter interval grey number time degree prospect theory prospect value function

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