基于未确知测度理论的高等级公路交通安全评价

Traffic Safety Assessment of High-grade Highway Based on Uncertainty Measurement Theory

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中文摘要

基于未确知测度理论, 建立高等级公路安全性等级评价和排序模型. 首先, 以影响高等级公路安全性的主要因素来确立评价指标体系和评价标准; 然后, 根据实测数据建立各影响因素的未确知测度函数, 并利用信息熵理论计算各影响因素的指标权重, 依照置信度识别准则判定等级; 最后, 得出高等级公路安全性评价结果. 评价方法能解决高等级公路安全性评价中诸多因素不确定性问题, 还可以按安全程度排序. 将该方法应用于新疆4条高等级公路的安全性评价并与传统的模糊综合评价法比较, 结果表明, 该方法科学合理, 意义明确, 可以在实际工程中推广应用.

英文摘要

Based on the uncertainty measurement theory, a safe grade-assessment and order-arrangement model of high-grade highway was established. First, the main factors influencing the safety of high-grade highway were taken into account to construct evaluation index system and appraisal criterion, and then uncertainty measurement functions for the main indexes were achieved according to the field data. Information Entropy theory was adopted to calculate the weight coefficients of these influencing factors, and then safe assessment grade was determined by credible degree recognition criteria. Finally, the results of safety evaluation for high-grade highway were obtained. The evaluation method can not only solve many uncertainty problems affected by various factors in highway safe aspect, but also can rank the order of safe degree. This method was adopted to evaluate safety level of four high-grade highways in Xinjiang Uygur Autonomous Region of China. Compared with the results of fuzzy synthetic evaluation method, the study results show that uncertainty measurement method is reasonable and can be applied to the actual engineering.

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