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研究论文

基于指标规范值的环境质量引力普适指数公式

Gravitational universal index formulae of environmental quality based on normalized index value

关键词： 环境质量 规范变换 指标规范值 万有引力定律 普适指数公式

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摘要：为了建立物理意义明确、科学合理、计算简单和普适通用的环境质量评价模型，借鉴自然界普遍存在的万有引力现象和物理学中的规范对称性（不变性）原理，提出环境样本之间也存在类似万有引力的聚类相互作用引力，并在适当设定指标参照值和指标值的规范变换式及"参照级"样本基础上，定义了环境样本的"规范质量"和"规范坐标"的概念，进而分别建立了基于指标规范值的水环境质量和空气环境质量的引力普适指数公式.通过若干实例对公式的实用性进行了效果检验，结果表明，基于指标规范值的环境质量的引力普适指数公式具有形式简洁、规范统一、计算简便和普适通用的特点.

Abstract：This study aims to set up a model of environmental quality evaluation, which is clear in physical meaning, scientific, reasonable, universal, and simple to calculate. In reference to the universal gravitation existed commonly in nature and the gauge symmetry principle in physics, it is argued that there are also the interactive gravity of cluster among environmental samples that are similar to the universal gravitation. This study sets the proper reference values and normalized transformation forms as well as "reference grade samples" for all indexes, and proposes the concepts of "normalized quality" and "normalized coordinate" for environmental samples. Therefore, it is possible to build the gravitational universal index formulae of water quality and air quality, respectively, based on normalized index values. The applicability of the formulae were verified by some samples. The results shows that the gravitational universal index formulae of environmental quality based on normalized index values exhibits the characteristics of simplicity in form, normalization and unity, convenience during calculation, universality and commonness.

Key words： environmental quality normalized transform normalized index value universal gravitation law universal index formula