

Potential correlation between uncertainty and certainty in complex systems

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Abstract

The overlap and competition between certainty and uncertainty could be reflected in different complex systems. This article reviews the relevance between certainty and uncertainty in various theories and models. Begin from the nature of the uncertainty principle, the wave function is originated from the uncertainty and implicated the probability, then following the discussion on the details of certainty and uncertainty in the system of folding process of protein, the diffusion limited aggregation model in fractal theory, and a portfolio theory used in super metric space in financial market system. Study on the potential similarity in various theories would help us build more accurate and practical models.

Keywords: uncertainty, competition, complex systems