

On Quantitative Information Measures For State Spaces Of Complex Systems

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Abstract:

An approach to the study of the information phenomenon is proposed on the basis of the use of information measures in creating models for describing temporal data characterizing complex systems. A theoretical and experimental substantiation for the validity of the conservation law for an information quantity measure has been carried out on the basis of using the existing natural-science concepts on the continuity of the state spaces of systems. System-wide provisions related to the principles of the existence of entropy and potential in state spaces were formulated. As an example, the possibilities of using the proposed method in the description of experimental data characterizing the physical and biological systems are presented.

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