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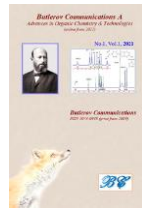

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Characteristics of quantum macrosystem as principal specific feature of colloid gel oxyhydrates

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Abstract

The authors introduced the concept of the so-called Liesegang operator, which is a periodic dependence that specifies an increase in concentration if the concentration has not reached some upper critical value and specifies a drop in concentration if the upper critical value at a given point has already been reached; the decrease in concentration will continue until the point when the lower critical value is reached. Then the process is repeated. The Liesegang operator thus reflects the characteristics of the colloidal system.

It turns out that the colloidal system behaves *nonclassically* due to fundamentally complex transcendental chemical reactions. For this reason, we cannot offer an adequate observable classical model and are forced to declare this behavior as a colloidal "characteristic" of many-particle interactions, which is nevertheless observed experimentally. Such chemical reactions of course involve multiparticle interactions of molecules and even mesomolecules of the colloid. The concept of "entanglement" of states is much more relevant here than anywhere else.

At the same time, the concept of the "Liesegang operator" introduced axiomatically as "the general property of entanglement of gel systems" needs both research and proof.

A mathematical proof of the LEMMA concerning the description of the quantum characteristics of such colloidal macrosystems is presented.

LEMMA. If colloidal chemical experimental data are in accord with the Liesegang operator distribution, then the system in question is a macroscopic quantum correlation system that is describable by the Schrödinger-Batanov equation.

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