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Electrodynamics of colloidal tin oxyhydrate as a quantum macrosystem

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Abstract

Pulsation spurts of clusters determining nanocurrent ferroelectric electricity of gel tin oxyhydrates are shown experimentally, which characterizes macroscopic quantum coherent effects induced by a nonstationary magnetic field in the dynamics of high-spin magnetic nanocurrent clusters in a gel matrix.

The polyhedral Coxeter model of the tin oxyhydrate Pattern, which is used to make gel objects, is considered, and specific cluster structures are calculated.

The experimental geometry of Coxeter polyhedra is described by a gram matrix, where the values of the matrix are cosines of the slope angles of the faces of WHITNEY oxyhydrate structures. Matrix description of the structure of the oxyhydrate, for example, for 42 days (165-231 min.) of aging, allowed to quantify the structural features of polyhedra or the so-called Whitney folds, which form the electromagnetic wave fronts of energy caused by nanocurrent polarization of oxyhydrate polyhedra. Quantitatively, the Whitney folds are determined by calculating the trace or hole of the corresponding gram matrix.

The Coxeter polyhedra of the oxyhydrate gel are constructed mainly from cluster five-vertices, which in time can compete isomorphically with the facet 30, 20, 14, 12, and 6 vertices. This determines the fine structure of the gel axiology conformations during aging. The probability of the formation of 30 vertices in the gel of tin oxyhydrate is one of the highest.

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