

# Nanochemistry and Nanobiotechnology

## Quantum interference transitions and entangling in nanostructures of silicon: in vacancies and divacancies

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Nanostructures, which are formed in materials of solid, or in alive organisms, are the quantum objects on which all formalism of the quantum theory is distributed.

As early as 1935 E.Shrodinger in the famous work « The modern situation in quantum mechanics» [1], published as early as 1935 in connection with discussion between A. Einstein A., and N. Bohr about essence of the phenomena, described in quantum mechanics, especially underlined that entangling makes the essence of quantum mechanics.

The physics of the entangled states, which has arisen as realization of previsions of E.Shrodinger and other of prominent researchers, has opened wide perspectives for researches and for practical applications in the field of quantum and informative technologies; in studying of functioning of nanostructures of alive objects.

In the submitted work for the first time on the basis of analysis of literary data on experimental researches of properties of vacancy and divacancy of silicon, as nanoobjects, it is shown that for these defects can arise up such quantum effects, as the entangling and quantum-interference transitions under the certain conditions, because of existence of Yahn-Teller's effect and other characteristic features of these defects.

It specifies the perspectives of use of these structures, created by a radiating technology, in devices of quantum-informative systems.

1.Schrodinger E. Die Naturwissenschaften, Die gegenwärtige Situation in der Quantenmechanik 1935, V. 23, P. 807-812, 823-828, 844-849.