

Evolution of a Quantum System: New Results.

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A description of the evolution of a quantum system is considered. Within the framework of the path integration method, the probability of a system transition between quantum states is determined as a double functional integral of a real functional. Its interpretation from the point of view of probability theory is given. The transition probability is the sum of the probabilities of pairwise joint random events (virtual trajectories between states). A model of quantum processes in the extended space of random joint events is proposed. Within the framework of the proposed model, the probability of a system transition is represented by a series of twofold, threefold, etc. integrals of real functionals of joint event trajectories. The expression coincides with the transition probability in quantum theory if only pairwise joint random trajectories are taken into account in the model.

Primary author(s) : Prof. ALEXANDR, Biryukov (Samara State University of Railway Transport.)

Presenter(s) : Prof. ALEXANDR, Biryukov (Samara State University of Railway Transport.)

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