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TIME AND QUANTUM BEHAVIOR

The paper presents an abstract of my talk at the Russian Interdisciplinary Temporology Seminar (23 of May, 2006th). Many of presented results were published in my book "Variations on Quantum Theory" (in Russian), Editorial URSS, Moscow, 2004 (See also http://www.chronos.msu.ru/RREPORTS/shulman_variatsii.pdf). The following statements are argued:

- The World time-space structure including its relativistic features are due to the quantum object features. Thanks to de Broglie we understood that each quantum object corresponds with some wave. A wave length presents a kind of built drawing scale, and a length period just presents an individual clock of the object. Therefore, if relativistic laws are valid for this object , then and only then these laws are also valid for every elementary quantum objects combination. The objects community having common time features is just as the economic subjects community, where each of subjects have some money.
- A mathematic "exotics" of the quantum physics consists in two components. The first one is due to essentially oscillating characteristics of quantum objects; in fact, it has adequate classical analogies. However, the second one is due to the space unlocality, it has not any classical analogy. My book "Variations on the Quantum Theory" contains an endeavour to make a step from simple declarations like N. Bohr "correspondence principle" to some plain and profound real correspondencies between quantums and classic theories. The book attempts to show that the bridges between the quantums and classic physics may be built really. Quantum commutation relationships, and limitations for simultaneous measurements (like coordinate and pulse), and spin phenomenon have some analogues in classic mechanics.
- J. von Neumann stated (see Jonh v. Neumann. *Mathematische Grundlagen der Quantenmechanik*. Berlin, Verlag von Julius Springer, 1932) that "hidden parameter theories" contradict to Quantum Mechanics. In fact, he proved only a half of the statement: if a theory is stochastic, then it leads to the uncertainty relation (see also Kennard's and Robertson's results). However, the uncertainty relation can hold true for deterministic theory, and I give in my book the simple examples for the classical oscillators. And what is more, I state that such "hidden parameter" really exists in Quantum Mechanics – this is the phase of a wave function, a frequency of which is more than 10^{17} Hz. (This "hidden parameter" has not any relation to the Locality Condition and Bell's Theorem).
- In my book I show also that the Planck's constant is proportional to the (finite) Universe perimeter and increases proportionally to the Universe age.
- J. von Neumann proposed also a measurement model that he associated with the psycophysical parallelism principle, and with a measurement subject necessary existence. I think this model is redundant, because an irreversible registrator existence is enough not only for measurement, but for a system following reaction too.
- A wave function reduction is not due to a reality splitting into the differential worlds (as H. Everett stated), and is not due to a consciousness action too. A wave function collapse followings some momentum changing between a system and an environment element (for instance, at a measurement). During a pause between this changing the quantum objects are in principle insulated from the "usual" world and have another metrics that assures an unlocality mechanism.
- A quantum object superposition state presents physically some well-ordering in time succession of transitions between basic states, and the transition intensity specifies the interference degree. A measurement and wave function reduction correspond with an instantaneous break of a transitions succession at a randomly selected time. This situation admits a precise analogy in the classic area.