

# Foreword

“A Law of Minimization of Mystery:  
consciousness is mysterious and quantum  
mechanics is mysterious, so maybe the  
two mysteries have a common source.”

David Chalmers

The specific quantum approach to the phenomenon of consciousness (including its mystical abilities) is called Quantum Concept of Consciousness (QCC). More general considerations concerning the phenomenon of life are denoted by the term Quantum Concept of Life (QCL). Nevertheless, when exposing these subjects for physicists with elements of mathematical formalism, we prefer to use the term Extending Everett’s Concept (EEC) in order to underline that the whole approach appeared as a generalization of the known interpretation of quantum mechanics proposed by Everett.

The interrelations of the three terms may be presented by the following scheme:

$$\text{QCC} \subset \text{QCL} = \text{EEC}$$

Most of the material presented in the book is available for people having no special knowledge. Some chapters are oriented on professional physicists, but we tried to make this clear from the titles and introductory words of these chapters. These chapters may be skipped (even by physicists) without detriment for understanding the main points of the theory.

Because of the attempt to make the book available and interesting both for professional physicists and general audience, some considerations are exposed repeatedly. In these cases the style of presentation, its level and

context are different in different parts of the book, so that the repetition should make understanding of difficult ideas easier.

The present Foreword briefly explains the specific features of the author's approach for the readers-physicists. Those who are not professional physicists may skip the Foreword and go over to Introduction.



This book is about connection between quantum mechanics at one side and the phenomena of consciousness and life at the other side. Assumption about the connection of such different objects as quantum mechanics and consciousness, seems strange and for many people even impossible. Yet it has been discussed from the very moment of creation of quantum mechanics and became very popular in the last decades.

Most of those who in our time discuss the connection of consciousness with quantum mechanics, look for some quantum effects in the brain that could play a role in the phenomenon of consciousness. For example they may consider the hypotheses that some material structures in the brain operate in fact as a quantum computer. Such an approach is explicitly or implicitly based on the conviction that consciousness is a product of the brain. But is it? What do we know about the nature of consciousness? The thorough analysis shows that we know nothing at all about this important issue.

The idea underlying the author's approach is to make no a priori assumption about the nature of consciousness, but rather to describe functions of consciousness in terms which are characteristic of quantum theory (deriving this description from the logical analysis of the concept of "quantum reality") and only after this, a posteriori, to judge about the nature of consciousness.



The question about the nature and characteristic features of consciousness became important nowadays. The issue of consciousness has been attacked from various directions, but without great success in the important aspects of this issue. The most evident way to clarify the nature of consciousness is investigating the brain that seems to be the origin of consciousness. However, just now, when the instruments for the investigation of the brain became very efficient, it is becoming more and more clear that this direction of research cannot discover the actual nature of consciousness.

Unexpectedly for many people, the problem of consciousness has been attacked from the viewpoint of quantum mechanics and was connected with the conceptual problems of the quantum mechanics itself. In the course of the research it became clear that this direction is not at all novel. It was initiated as early as in the first quarter of the 20th century by the founding fathers of quantum mechanics, Niels Bohr, Werner Heisenberg, Erwin Schrödinger, Wolfgang Pauli and others. However, these genius thinkers had no adequate instruments in their disposal.

Such instruments appeared later in the works of Albert Einstein (Einstein–Podolsky–Rosen paradox), John Bell (Bell’s theorem), and especially Hough Everett (Everett’s, or “Many-Worlds” interpretation of quantum mechanics).

The proposal of Everett is especially important because it supplies an adequate language for the strange concept of *quantum reality*, counter-intuitive and yet proved to be valid in our world. After Everett, one may say that actual (quantum) reality may be expressed in terms of many co-existing (parallel) classical worlds. This essentially simple (although not very easy for accepting it because of the classical prejudice) presentation of quantum reality allows one to naturally include it in the consideration.



Most attempts to give quantum explanation for consciousness reduce to looking for the material structures in the brain that could work in quantum coherent regime. This is difficult (and probably impossible) to do because quantum coherence is rapidly destroyed by the process of the inevitable decoherence.

The approach proposed by the present author and supported in the present book radically differs from this. We do not make any definite assumption about the nature of consciousness beforehand, particularly we do not assume that consciousness is produced by the brain. Instead we start with the analysis of the logical structure of quantum mechanics and make use of the fact that the concept of “consciousness of an observer” necessarily arises in quantum mechanics (in the analysis of the concept of quantum reality) and is adequately formulated in the Everett’s “Many-Worlds” interpretation of quantum mechanics. Then, on the basis of this logical structure, we make an additional assumption that allows us to formulate the phenomenon of consciousness in terms of the concepts typical for quantum mechanics and simultaneously simplifies the logical structure of quantum mechanics itself.

Only after this the question of the nature of consciousness may be posed and resolved. It turns out that the brain does not produce consciousness but is rather an instrument of consciousness. Important processes (first of all super-intuition), that are starting and finishing in consciousness, are performed nevertheless in the unconscious state. Quantum coherency is achieved in these processes because they deal with the quantum reality, i.e. with the whole quantum world. The obstacle of decoherence does not appear in this case because the quantum world as a whole has no environment that could cause decoherence.

Therefore, starting from functions rather than material carriers of functions turns out the only efficient approach. One of the astonishing conclusions is that some functions have no concrete material carriers or, alternatively, have the whole world as their carrier. This leads in fact to the unification of the sphere of material with the spiritual sphere.



The idea that this approach may be fruitful appeared during the preparation of the review at the famous Ginzburg's seminar in Moscow. The aim of the review was the novel applications of quantum mechanics called quantum information. However, this issue is closely connected with the foundations of quantum mechanics. In the process of work on this topic it unexpectedly occurred to me that the main features of consciousness including its mystical abilities are explained if a simple logical construction is added to conventional quantum mechanics. Especially exciting was that this additional assumption actually simplified the logical structure of quantum mechanics.

This was astonishing and led to further investigations that revealed the deep interconnection between the concept of quantum mechanics and the phenomena characteristic for life. It turned out that mysterious character of life explains those features of quantum mechanics that are counter-intuitive and vice versa. The most deep theory of inanimate matter expressed in the form of quantum mechanics supplies just those notions and abilities that are necessary for understanding of the (otherwise mysterious) phenomena of consciousness and life.

The central role in this internal connection is the so-called "quantum reality". This counter-intuitive concept was investigated in various ways beginning from the famous Einstein–Podolsky–Rosen paradox and ending by Everett's interpretation.

The Everett's picture of actually quantum world as the set of many coexisting parallel worlds (alternative classical realities) expresses the concept of quantum reality in the most transparent way. If one thinks about consciousness, keeping in mind that actual reality is not a single classical world but many equally real (although subjectively seeming to be alternative, excluding each other) classical worlds (as alive and dead Schrödinger cat), he/she understands what is consciousness including its mystical features (super-intuition, or direct vision of truth, and even how one may "manage reality").

This conclusion appeared unexpectedly, but actually it has been prepared by the long history of insights of genius physicists into the internal sense of quantum mechanics. It seems that now we are also close to the better understanding of what is quantum mechanics. It is exciting that this new level of understanding is directly connected with the phenomena of life and consciousness.

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