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# **THE PARTICIPATIVE-INTERFACE LOGIC IN THE DIALOGUE BETWEEN THE EPISTEMOLOGY OF QUANTUM PHYSICS AND ECCLESIAL KNOWLEDGE**

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## **Abstract**

The paradigm of contemporary science offers the proper place for a real encounter between the perspective of Science and Theology on the world. The epistemological implications of Quantum Physics assume the impossibility of Science to achieve and reveal the truth of the world by means of pure analytical and empirical research. By recognizing and assuming the limits of human possibilities in the act of knowledge and of man, the scientist is closer to the Truth than in the case of a demiurgical knowledge that is said to know and predict everything in a discursive manner. In such a context, it is possible for Science and Theology not to be considered irreconcilable.

*Keywords:* apophatism, Physics, Patristic tradition, natural sciences

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## **1. The relationship between the knowing subject and the object of knowledge in the epistemology of Quantum Physics**

In its classical sense, Physics has been considered the science that studies the laws of the sensitive world based on empirical observations and measurements. In other words, knowledge depended on the experiments focused on the visible facts of nature that were the object of study for the physician. The sensitive world appeared as the object of knowledge with an independent existence from that of the researcher. But Quantum Physics introduces another change of attitude in scientific epistemology, which becomes essentially different from the one in classical Physics.

Quantum Physics does not suppose only finding answers to the mysteries of the sensitive reality, but also another approach to it. Not only does the physician propose his image of the world, image that he tries to impose using different mathematical demonstrations, but he also develops a new theory within

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the object of study, in order to model the studied phenomenon using a more abstract mathematical device. Both the Theory of Relativity and the Quantum Theory had a major impact on the change of mentality in the research of the physical world.

For example, let us take the reality of the material point in classical Physics and in Quantum Physics. In classical Physics, a system of material points situated in a force field is governed by the principle of energy conservation, every material point is considered to be separated by all the other points, having its own velocity and position that can be measured in any situation. In Quantum Physics, the position and the velocity of the material point can't be measured simultaneously, according to Werner Heisenberg's indeterminacy principle. Moreover, the material point cannot be conceived as independent from the rest of the material points in the system, it has both the potentiality of finding itself in all points of its system of reference. Consequently, Quantum Physics proposes a vision that makes us aware of the impossibility to perceive reality as fragmentary, therefore fractional, fragmentary knowledge possible in classical Physics being here unviable. The Epistemology of Quantum Physics implies the development of a unified knowledge, in which the part-whole relationship is tight and dynamic.

The Epistemology of Quantum Physics is more intuitive than that of classical Physics because the mind of the scientist is forced to raise itself from the immediate, material character of the world. The whole knowledge in natural sciences developed in modernism was based on the corpuscular character of the world. To analyse the movements of an object, classical Physics decomposed it in a multitude of material points and studied the law of movement of every material point in turn, then totalising all to find out the law of movement of the whole object. Starting from its basic equation that defines the relationship between energy and frequency, Quantum Physics does not insist on the corpuscular aspect, but on the curving one. The physical system is seen as a resultant of some waves that need studying from this perspective. If for classical physics the elementary movement is that of an isolated object, for Quantum Physics it is that of a periodical simple wave. The physical phenomena of the atomic world can be explained only with the help of the laws in Quantum Physics.

Accepting the curving nature in order to explain the phenomena of the atomic world leads to the impossibility of describing rigorously and completely the physical system. According to Heisenberg's indeterminacy principle, it is impossible to determine simultaneously the exact place and impulse of a particle. This revolutionary principle in epistemology proved itself to be a terrible blow for any determinist and absolutist tendency manifested by scientific knowledge.

The perspective given by the results of Quantum Physics will overpass the separation subject-object in the act of research, separation that exists in the mechanistic paradigm dominated by Cartesian Philosophy. At the same time, the Universe affirms its internal order at the level of microphysics. Order is no longer understood as an external arrangement or a regular disposal of the events, but as a total order involved in every spatial-temporal reality.

In the knowledge of the world offered by Quantum Physics, the relationship between the observer and the observed phenomenon is essential in elaborating the theoretical models. A self-knowledge based only on measurements separated by the observer cannot be obtained. Quantum Physics is based on the engagement of the knowing subject in the analysis of the object of study.

Heisenberg declared: "If we can talk about an image of nature according to the exact sciences of nature in our time, then we must understand through it, not the image of nature, but the image of our relationship with nature...Therefore, the classification of Descartes in *res cogitans* and *res extensa* does not correspond to the starting point for understanding the science of nature. Within this science, the relationship of man with nature is on the first place. No longer a spectator of nature, science assumes its role in the dual actions between man and nature." [1]

The results given by scientific epistemology founded on Quantum Physics are relevant only for someone who is the bearer of a personal interaction and interpreting authority, a dimension that is practically equivalent to the concept of conscience. Besides conscience, research is not relevant. Implying the conscientious process of human mind in representing the world from the perspective of Quantum Physics renders a coherent vision of the Universe that articulates both conscience and nature. "By including a representation of the conscientious process in representing the brain process made by the physician, a new Quantum theory of interpretation is born, coherently integrated in a broad representation of nature which includes both mind and nature, automatically providing for the structural connexions between the mind and the brain". [2]

Quantum Physics does not show only a relationship between human conscience and physical phenomena, but also the interconnection between the physical phenomena. There is no local, fragmentary knowledge of the physical phenomena. Knowledge based on Quantum Physics involves the non-localizing theory by which the analysis of the A particle offers information about the behaviour of the B particle. In this way, Quantum epistemology has an integrative dimension that highlights the levels of reality that cannot be reduced to the dimension of a crude reality.

Quantum Physics leads to the reconsideration of the objectivity and the subjectivity shown in science by means of an intrinsic relationship between the scientist and the object of study. From this point of view, the object of study cannot be considered as totally separated by man. The problem of what reality actually means becomes more and more serious: "According to the objectives of Science, only reality can be called object of scientific research, but it is still very

difficult to define this reality. It is easier in the case of Biology and Astronomy. The object of the Biology of species is closer to what can be seen day by day; Palaeontology and Geology refer to certain materials when describing the state of our planet millions of years ago, materials that can offer a picture of what happened then. But Quantum Physics implies virtual experience because it deals with the potentiality of nature and here the internal relationship between subject and object can be recognized.” [3]

Classical Physics offered a unitary representation of the world. By means of the laws of Mechanics applied to the whole Universe, the world seemed unitary and subjected to the same laws. Once with the contemporary specialisation in science, neither Physics, nor Science could offer a unitary vision of the world or render a unitary vision of reality. It can be said that in Physics, the unity of the world can be rediscovered starting from the atomic world and not from the macroscopic one. Indeed, microphysics is needed to give a unified representation of the world from the part of natural sciences, thus being a real bridge between microcosm and macrocosm.

Even though the laws of Physics accustomed us to follow the factual truth based on quantity criteria, empirical experiments and measurements, microphysics breaks with the perception offered by classical Physics from this perspective. For instance, the atom cannot be seen like a material point in space and time, measured or subjected to empirical experiments. Microphysics invites us to the fascinating world of microcosm, which develops more of an intuitive and integrative knowledge; even if it cannot be deduced from experiments, it has an important role in a unified vision of the world.

Understanding the world starting from microphysics cannot be complete. Atomic physics favours interdisciplinarity by the questions it asks: “Which is the role of Physics and microphysics in developing knowledge? It asks many questions and gives only few incomplete answers. It is certain that in the future microphysics will be broader and give more answers to the mysteries of our existence, but a scientist or science itself will never have a complete answer to human knowledge. Essential questions that atomic physics asks make microphysics and philosophy come together. So, our questions in microphysics give rise to problems that overpass the boundaries of science and need a dialogue with other forms of knowledge in order to help us become aware of our own limits and be open to other forms of knowledge besides the scientific one. In this way, we discover both the unity of knowledge and the boundaries of our own knowledge. The results of contemporary atomic physics make us open our heart because knowledge can belong neither to a scientist nor to a single science. The implications in contemporary physics force us to cooperate.” [4]

It is very important that contemporary physics takes back the symbolic dimension of the act of knowledge:

“Contemporary physics teaches us a lesson about knowledge. A representation of the world cannot be exclusively scientific. To render the whole complex reality of the world, a symbolic understanding is needed. Knowledge based on the symbolic function leads us more to an act of faith than to a knowledge based on the scientific fact.” [4, p. 36]

Symbolism is present in any knowledge anchored in a religious tradition, because the object of knowledge is not reduced to its pure materiality, but structured and correlated with a much more profound reality. Moreover, the relationship between subject and object is inherent and a separation between the theory of knowledge applied to the object of study and the subject who studies is impossible. From this point of view, any symbolic knowledge is participative and integrative, but it does not remain outside the object of study.

## **2. The participative logic of ecclesial knowledge**

The idleness of the non-participative way of thinking about the ecclesial reality is equivalent to the failure of Theology making on the personal field. It can be overpassed only by courage in assuming the ecclesial requirements of intelligence, in the spirit of theological understanding. Father Dumitru Staniloae shows that a real Theology must be faithful to the Revelation of Christ, to experience continually the life of Church, to be responsible for the believers in any century and be open from an eschatological perspective.

Theological knowledge faithful to patristic Gnoseology always keeps alive the divine condition of humanity practiced in ecclesial life, and especially during the Holy Liturgy. This path of knowledge is essentially participative, so that the principles and the results of knowledge are not *possessed*, but they are expressions of the *participation* to the Truth of the divine humanity of Christ extended by the Holy Spirit in the life of Church. Participation, as principle of knowledge, puts the love of God as a standard for true knowledge in the centre of theological knowledge. The one who loves more in Christ comes to a more profound and truthful knowledge (1 John 4.7-8). Love as the supreme base of Christian knowledge, often mistaken for an individual cheap piety, must not be reduced to a psychological feeling. Love comes from the complete ecclesial community between all saints and the divine powers. (2 Efes 3.19) This love is stronger than the human powers and is continually received and empowered within the ecclesial experience.

Theological knowledge in accordance with patristic Gnoseology is founded on the reality of faith. Knowledge by faith transgresses any formal conception because beyond formal logic, it implies a participative logic at something that is superior to immanent reality. The one that feels the lively power of knowledge given by faith will use the formal argumentation only as iconomy:

“Formulation is necessary and compulsory because it reveals the truth, separates it and distinguishes it from any deformation or alteration [...] The conventional logic of everyday language and its theoretical concepts of operation easily give man the illusion of a safe knowledge which he consumes, once possessed with the intellect.” [5]

Faith is not a mere psychological feeling given by the trust in something or someone, but the certitude revealed in the ontological participation at the event of the communion with God. By this participation, the believer contemplates the divine realities beyond the possibilities of discursive knowledge. This experience can be felt starting from here and now, and ending in the eternal life of the kingdom of God. From an ecclesial perspective, we are dealing with a participative knowledge by which we understand that reality is not known by wisely manipulating the formal affirmations about the respective reality, but by a gesture of sharing. For instance, not only an atheist but also a formally declared believer who does not practice its religion, both not being engaged in the ecclesial experience, do not have real access to the truth of faith. The affirmations about the reality of Incarnation, Holy Trinity and Resurrection are different from the truth of these realities, unless they are felt by the believers.

The paradoxical thought of patristic Gnoseology imposes a knowledge in which truth is shared by the act of life of the ecclesial experience:

“The apophatism of Church truth excludes any objectivising perception of Orthodoxy. Truth does not end in its formulation. Formulation is only the limit of truth, the surface or the guardian of truth. Truth is the reality that does not deny itself – the ultimate truth is life that cannot be vanished by death. Therefore, finding the truth is impossible only by understanding its formulations, taking part in the event of truth is needed, in the truth of life, in the immediate of experience.” [5, p. 186]

### 3. Final remarks

To conclude, one can say that participative logic can become an interface in the dialogue between Science and Theology in the contemporary world. Today science admits the reason and the mystery of the world. An honest dialogue between Science and Theology is possible exploring the comprehensive dimension of the Patristic tradition and starting from the extraordinary epistemological mutations in the paradigm of contemporary science. A profound rationality of the world cannot be finally accomplished without a Person that generates and reviews all the divine reasons of creation. Beyond the requirements of any scientific objectivity, knowing these reasons implies the communion with the divine Logos. From this point of view, knowledge is a *miracle of encounter* that grows in the experience of gift. Thus, the apophatism is not a mere recognition of the mystery of the world, but the experience of the gift that gives more knowledge that man can handle.

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