The synthesis of the theory of relativity and quantum theory
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ABSTRACT
It is said that the theory of relativity and quantum theory are independent of each other. Their relationship is like water and oil. Now, it is very important for modern physics to synthesize them. In Physics and mathematics, Super String theory is studied, but instead of it, the ten-dimensional world appears. Our world is a three-dimensional world. What is the ten-dimensional world? It is more difficult than the string which is of Plank length. In the ten-dimensional world, physics is facing darkness and nothingness which man can not explain with the traditional physical words. The solution depends upon philosophy. I tried to synthesize them and succeeded. The following is an outline of my synthesis. Utility and relativity of mathematical truth Mathematical truth is not absolute but relative. In the universe (outside the solar system), there is no perfect line. Because, by the gravitation of large astronomical bodies, space and lines are curved. Mathematical figure and numeration depend upon the promise of mankind. These are not absolute. Physics, which is grounded upon mathematics in certainty, is also relative. It expresses not the whole of the universe but a part of the universe. Community and difference between the theory of relativity and quantum theory Community is the negation of absoluteness of physical attributes. Difference is the assessment for mathematics. The theory of relativity relies on mathematics but quantum theory does not always rely on it. According to circumstances, Niels Bohr and quantum physicists abandoned a frame of reference. The origin of the theory of relativity. The origin of quantum theory. In short, the theory of relativity and quantum theory are not perfect, they only irradiate a part of the universe. Man can reach the whole of the universe only by the philosophical intuition of nothingness and infinite (the principle of nothingness and love).

Introduction
Thirteen years ago (2002, February), I published The “Philosophy of Nothingness and Love” (Hokkaido company, Tokyo) in which I expounded the movement of “nothingness as reality” which is the stream of life and the motion of the universe and world. From that standpoint, I want, offer a solution to the most important problem in contemporary physics; synthesizing the theory of relativity with quantum theory. My philosophy leads to the synthesis of the two. It has been said that the theory of relativity and quantum theory are utterly independent of each other, that their relationship is like water and oil. However, it is crucial for modern physics to synthesize them. In physics and mathematics, Super String theory is studied, which implies a ten-dimensional world rather than our normal world of three-dimensions. What is this ten-dimensional world? The ten-dimensional world is more difficult to understand than the string of Planck length (10⁻³⁵cm). In the ten-dimensional world, physics is facing a darkness and nothingness that man can not explain with the traditional physical terminology. The solution requires philosophy. At one time, Hajime Tanabe (1885~1962) a renowned philosopher and physicist in Japan attempted to expound this theme in “A suggestion for a new methodology in theoretical physics”(Hajime Tanabe Completely Works, 14th volume, Chikumaschobou) but he could not complete the task. All he could do was propose to physicists that an introduction of a complex variable function provided a hint for the solution of the synthesis. In contrast, I confronted the thesis directly and succeeded in providing a synthesis. The following is the essence of my synthesis. First of all, we need to reconsider mathematics, that foundation on which the certainty of physics depends. First, I ask, What is a mathematical truth? Then, I will go on to synthesize the theory of relativity and quantum theory.

Utility and relativity of mathematical truth
It seems that mathematical truth is universal and absolute, for example 1+1=2, 3+4=7, and according to Euclidean geometry parallel lines continue infinitely until the end of the universe.

But these mathematical truths are realized only in the earth and space which surrounds our earth. Mathematical truth is probably uncertain outside solar system, not to mention the galactic system. Mathematics is a study that explains the world and universe with numerical formulae and numbers. Mathematical signs are the digits, 0 ~ 9, points, lines, curve, flat surfaces. And more, f means a function, ∫ means integration, Σ means a sum total, and U is sign of sets. In short, mathematics is a kind of language that uses these letters, signs, points, curves and surfaces. In mathematics, values that show quantitative relations are always the same. Number and figure never move independently by means of our thought. The theme and aim of mathematics are expressions of quantitative relations. But there is limitation in mathematics: mathematics does not include subjective emotional judgment. For example, “I like lilies, but am ambivalent about roses. Because, roses are beautiful but they have thorns”. Can mathematics express this emotional and ambiguous condition? No, it can not. The subject of
The temple. A watch (measure of time) is divided into school years. The proof was
down, nous venons de
erty", ( "Seeing the universe through the theory of relativity", Genichirou


regagnera en portée et en étendue. Si la mathématique n’est que
la science des grandeurs, si les procédés mathématiques ne s'appliquent qu'à des quantités, il ne faut pas oublier que la
quantité est toujours de la qualité à l'état naissant: c'en est, pourrait-on dire, le cas limite. Il est donc naturel que la
méthaphysique adopte, pour l'étendre à toutes les qualités, c'est-
d'à-dire à la réalité en général, l'idée génératrice de notre
mathématique. La pensée et mouvant, puf. 91°édition, 1975, pp.
214–215

From this, we can understand that mathematics is a science of
quantity and scale. Signs allow it to develop extensively in
pragmatic application. But the use of signs conversely narrows
its subjective field and living reality. As metaphysics is free
from practice and utilitarian convenience, it is not bound by
the use of signs. Therefore it can research a wider field than
mathematics and science.

Nietzsche, like, Bergson, penetrated the essence of
mathematics and logic. The following passage is very suggestive
from the point of view of human life and naked existence.

Die wissenschaftliche Genauigkeit ist bei den
oberflächlichsten Erscheinungen am ersten zu erreichen also wo
gezählt, gerechnet, getastet, gesehn werden kann, wo
Quantitäten constatirt werden können. Also die armeligsten
Bereiche des Daseins sind zuerst fruchtbar angebaut worden. Die
Forderung, Alles müsse mechanistisch erklärt werden, ist der
Instinkt, als ob die wertvollsten und fundamentalsten
Erkenntnisse gerade da am ersten gelungen wären: was eine
Naivität ist. Thatsächlich ist uns Alles, was gezählt und
gegriffen werden kann, wenig werth: wo man nicht hinkommt
mit dem „Begreifen“, das gilt uns als „höher“. Logik und
Mechanik sind nur auf das Oberflächlichste anwendbar:
eigentlich nur eine Schematisir-und Abkürzungs Kunst, eine
Bewältigung der Vielheit durch eine Kunst des Ausdrucks,-kein
„Verstehen“, sondern ein ein Bezeichnen zum Zweck der
Verständigung. Die Welt auf die Oberfläche reduziert denken
heißt sie zunächst „begreiflich“ machen.
Logik und Mechanik berühren nie die Ursächlichkeit.

Nietzsche Sämtliche Werke 12 Nachgelassene
Fragmente 1885–1889 p. 190 dtv de Gruyter Dünndruck
Ausgabe, 1980. Nietzsche insists that simplicity of calculation
and measurement is only superficial and it can not penetrate into
the anxiety, suffering and actuality of human existence.
Mathematics and abstract logic explain only a superficial part of
the world. Therefore, it is impossible to take mathematics as the
foundation for certainty. To do so is to try to explain the whole
by the part. To use a metaphor, the part is Rhode Island in
USA and the whole is the earth (The Crisis in cosmology,
Michael D. Lemonic, translated by Kenichiro Kobayashi, 1998,
Koudansha, Tokyo p. 30.). Our world of certainty is only the
size of Rhode Island (the smallest state in USA), as opposite to
the whole of the earth. Science can only light up Rhode Island,
not the whole world. The rest has no light, it is infinite darkness.
The dark world is infinite in extent, the expanse of the universe
that science can not measure until its limit. This whole is beyond
traditional notions and can only be grasped by intuition.
Therefore, the limit of the universe is such that if one says that
it exists, then it does but if one says that it does not exist, then
it does not. This logic transcends being and nothingness. We call it
Absolute Nothingness. This logic solves the most difficult
problem in contemporary physics.

Commonalities and differences between the theory
of relativity and quantum theory

Against the back drop of Euclidean geometry that
dominated Europe for 2000 years, Descartes and Newton
worked out a three-dimensional spatial system of coordinates.
This system of coordinates was applied to engineering and
architecture. It was the foundation of modern science and
civilization. But it is only effective on the earth and the near
space which surrounds the earth. The system of coordinates is
useful for engineering and architecture, it is true but it does not
express the reality of the universe. As mentioned above Bergson
pointed out the limitation of modern science and mathematics.
Specially, he wrote that a three dimensional coordinate space is
only an abstract space and does not express reality. Einstein
added to the three-dimensional coordinate a time axis, working
out a four dimension space (Riemann space). But this is not
enough to explain the universe. He used axes and three-
dimensional coordinate based upon lines. Well, lines themselves
are ideal, therefore, four dimension space is also ideal space. It is
not perfectly account. Nonetheless, Einstein neglected absolute
static space and abandoned traditional Euclidean geometry. But
he did not give up mathematics and the coordinate notation. He
adopted Riemann space. He relies on mathematics. But using a
coordinate notation is to think of the moving and developing
universe as a static system. To grasp the moving universe by
means of static system means the introduction of some errors,
burring and uncertainty. This is a negation of static system and
absoluteness. The negation of absoluteness is commonality
between the theory of relativity and quantum theory. Niels Bohr
puts it as follows:

(1) In fact this new feature of natural philosophy means a
radical revision of our attitude as regards physical reality, which
may be paralleled with the fundamental modification of all ideas
regarding the absolute character of physical phenomena, brought
about by the general theory of relativity. Can Quantum-
Mechanical Description of Physical Reality be Considered

(2) In spite of all differences in the physical problems concerned,
relativity theory and quantum theory possess striking
similarities in a purely logical respect. In both cases
We are confronted with novel aspects of the observational
problem, involving a revision of customary ideas of physical
reality, and originating in the recognition of general laws of
nature which do not directly effect practical experience. The
impossibility of an unambiguous separation between space and
time without reference to the observer, and the impossibility of a
sharp separation between the behavior of objects and their
interaction with the means of observation are, in fact, straight
forward consequences of the existence of a maximum velocity of
propagation of all actions and of a minimum quantity of any
action, respectively. The ultimate reason for the unavoidable
renunciation as regards the absolute significance of ordinary
attributes of objects, ...... The Causality Problem in Atomic
Physics, New Theories in Physics, Warsaw, Joseph Pilsudski
university, 1938 p. 25

(3) Notwithstanding all differences between the physical
problems which have given rise to the development of relativity
theory and quantum theory, respectively, a comparison of purely
logical aspects of relativistic and complementary argumentation
reveals striking similarities as regards the renunciation of the
absolute significance of conventional physical attributes of
objects. Discussion with Einstein on Epistemological Problems
in Atomic Physics, Niels Bohr Atomic Physics and Human
Knowledge, 1958, p.64

(4) From the above considerations it should be clear that the
whole situation in atomic physics deprives of all meaning such
inherent attributes as the idealization of classical physics would
ascribe to object. Causality and Complementarity, Philosophy of
Science, Vol.4, 1937, p.293 From quotation (1), it is apparent that the general theory of relativity provides a radical revision of physical reality and the absolute character of physical phenomena. From quotation (2), we gather that the theory of relativity and quantum theory possess striking similarities in a logical respect and that it is necessary to renounce the absolute significance of the ordinary attributes of objects. From quotation (3), we see that we must renounce the absolute significance of conventional physical attributes of objects. From all three, we find it necessary to negate the absoluteness in physical phenomena. In respect of the negation of the absoluteness, the theory of relativity resembles quantum theory. Niels Bohr went no further than pointing out the logical commonality of both, but the negation of the absoluteness is very important and connects the theory of relativity with quantum theory. The negation of absoluteness of physical phenomena means that things are not independent but interdependent. Things do not exist by themselves absolutely, they exist with other things. For example, I sit on a chair but the chair rests upon the floor. The floor is part of a building. Furthermore, the building stands upon the earth. All things are not independent, but interdependent. I termed the negation of absoluteness as 'nothingness as a lack of subsistentia' ("Philosophy of Nothingness and love", Chapter II nothingness as the root of Kuu or enlightenment). Through the intuition of nothingness, Niels Bohr, Einstein and Heisenberg reached the standpoint of the negation of absoluteness. Niels Bohr expresses what I term 'nothingness as a lack of subsistentia (substance)' when he says that the whole situation in atomic physics deprives of all meaning such inherent attributes as the idealization of classical physics would ascribe to objects. The expression of 'deprives of all meaning' refers to meaninglessness, nothingness as a lack of meaning. Is this striking similarity only an accident? No, it is not. The intuition of nothingness provides the ground for one to make this striking similarity. The negation of absoluteness through the intuition of nothingness is the common foundation of the theory of relativity and quantum theory. Against the commonality of both, the differences are quite simply proposed.

(5) Demengegenüber bedeutet die Aufrechterhaltung der Kausalität in Form in den einzelnen, durch die Wirkungsquantum gekennzeichneten Lichtprozessen einen Verzicht hinsichtlich der raum-zeitlichen Verhältnisse. Das Quantenpostulat und die neuere Entwicklung der Atomistik; Die Naturwissenschaften, Vol.16, 1928, p. 246


(7) Seinem Wesen nach setzt schon die Formulierung des Relativitätsarguments die den klassischen Theorien eigentümliche Vereinigung der Raum-Zeitkoordination mit der Kausalitätsforderung voraus. Wir müssen deshalb bei der singenmäßigen Anpassung der Relativitätsforderung an das Quantenpostulat auf einen noch weiter gehenden Verzicht auf Anschaulichkeit im gewöhnlichen Sinne gefaßt sein, als bei den hier besprochenen quanten theoretischen Methoden. ibid. p. 257

(8) The causal mode of description has deep roots in the conscious endeavours to utilize experience for the practical adjustment to our environment, and is in this way inherently incorporated in common language. By the guidance which analysis in terms of cause and effect has offered in many fields of human knowledge, the principle of causality has even come to stand as the ideal for scientific explanation. On the notions of causality and complementarity Dialectica, Vol. 2 p.312 Presses Universitaires de France From quotation(5),(6),(7), we can find differences between the two easily. The first difference lies in the negation of spatial coordinates. As the position and momentum of a particle have small errors, variation and indefiniteness to some extent, there is uncertainty in the variation and errors. Uncertainty is the nothingness of indetermination. In the nothingness of uncertainty, a system of coordinates does not function. Spatial coordinates which is the most certain tool of mathematics is not useful in such a context. Einstein negated Euclidean geometry and instead introduced Riemann space. Einstein relied on mathematics also. Bohr did not neglect mathematics but placed more emphasis on facts. As the result of that, he gave up the description in terms of coordinate space. This means freedom from mathematics. Afterward, Alexander Vilken and Einstein were taking the same approach. He wrote the report, 'Creation of universes from nothing' (Physics Letters. Sect. B 1982) with only a few numerical expressions. The second difference between the theory of relativity and quantum is the negation of continuity. In the nothingness of indetermination, there is no continuity of space this is a quantum-jumping for example. This means a negation of the law of causality. We can not find the law of causality in the nothingness of uncertainty. We can find the law of causality only in the continuity and limited space. According to Bohr quotation(8), the law of causality has its roots in the only conscious endeavor which we use to adjust our experiences and have become a fixed element in our language and thought through experience a posteriori. After human acquired the cognitive thought custom, the principle of causality came to stand alone as the ideal for scientific explanation. This is the sort of thinking, we find in philosophy. For example, Kitarou Nishida, Japanese original philosopher, says that the law of causality is only a custom of our thought ("Nishida Kitarou complete works", 1. vol. An Inquiry into the Good pp 56–57, Iwami Shoten). Bergson has a similar view (Henri Bergson Mélanges, PUF, 1972, p.423). Instead of the law of causality, Bohr insisted on talking about complementarity. This is a quality which makes natural phenomena complement each other. Thought the result of experiments yields what looks like a contradiction. Even though there are so many contradictions on the surface, natural phenomena and conditions are realized in the whole. Kitarou Nishida called this the self-identity of absolute contradictions (Nishida complete works, X vol. pp. 398–400). Einstein coined the term Relativity. In contrast, Bohr came up with the term Complementarity.

Thus I have discussed the commonality and differences between the theory of relativity and quantum theory. As a result, the burden of our work must be done on a dimension that transcends mathematical truth. The dimension free from mathematics is philosophy. Synthesizing the theory of relativity and quantum theory is the problem and mission of philosophy.
The origin of the theory of relativity

The theory of relativity is the negation of the absoluteness of physical phenomena and a lack of subsistencia from a philosophical view. As the world and the universe are moving, there is no absolute condition of rest and no absolute fixed space. As I remarked above, it seems to me that I am at rest, yet I am moving because of rotation and revolution of the earth. I can only understand myself in the moving world with all bodies moving each other. As the absolute fixed space is negated, there is no absolute center of the universe. My position in the universe is not determined. I only know my relative position in the universe. Such a negation of absoluteness expresses nothingness as a lack of subsistencia. A thing can’t exist by itself but things exist interdependently with other things. We can only understand the universe relatively, as the negation of absoluteness. One of the methods of getting relative understanding is the three-dimensional coordinate space of Descartes and Newton. As there is no absolute position in the universe, every individual would be at the center of the universe. Everybody would be center of the universe. This is thoroughgoing subjectivism. Bohr also expounded such subjectivism. From the point of view of quantum theory, there is no distinction between subjectivism and objectivism. We must be both spectators and actors (Discussion with Einstein: Atomic Physics and Human knowledge. P.63).

In contrast to Bohr, Einstein originated the four-dimensional space. He added the three-dimensional coordinate to a time coordinate and introduced Riemannian Space. But Einstein’s theory of relativity is only a partial explanation of the universe and it is not whole of explanation of the universe. Above I demonstrated the relativity of mathematical truth, it is a limitation on the theory of relativity that it depends upon mathematics. Einstein liked elegant mathematical systems, order and harmony. But an elegant mathematical system is an ideal system that is separated from the reality by the continuous abstraction. This means that he upheld the value of classical physics and mathematics. Einstein’s view could take him no further on this point. Therefore, there are two conflicting appraisal of his work. One sees him as a destroyer of classical physics and the other as a supporter of classic physics. Einstein moves between these two evaluations. Nonetheless he really did create the theory of relativity through an intuition of nothingness as a lack of subsistencia.

At one time, Nietzsche intuited nothingness and denied the existence of God, the Absolute. Similarly Einstein intuited nothingness and rejected the absoluteness of space and time. Nietzsche and Einstein are not directly connected. But they are related through the negation of absoluteness and nothingness as a lack of subsistencia. Nietzsche denied God, the Absolute that dominated world for three thousand years. Through his declaration of the death of The God, he insisted on relativity and individuality. Corresponding to this philosophical movement (Nietzsche’s negation of absoluteness), Einstein intuited nothingness in the relation of physics and then proposed the theory of relativity that negated the absoluteness. Here, one might argue. “Einstein did not insist on nothingness. He did not mention the intuition of nothingness. “I think that I can overcome this objection.

First, in the negation of absoluteness, nothingness functions as a negative word in our thought. No–thing is not–thing. And then not–thing is nothingness. This means nothingness functions pre-logically in our thinking. In Einstein’s thought, nothingness functioned as a result of his intuiting nothingness.
great synthesizer of European philosophy intuited nothingness as
death and published his book, "Sein und Zeit". This is not an
accident but is the inevitable result of philosophical intuition.
Intuition is not limited to philosophy. It extends to every
domain. Heisenberg intuited nothingness in physics and
expressed it as the degree of freedom("Der Teil und das Ganze",
Werner Heisenberg, PIPER Verlag,p.75) and uncertainty.
Nothingness slips into mathematics and coordinates in space.
Therefore, in quantum theory, one can not be bound by
numerical expression or mathematics. Often one admits of logic
jumps in quantum theory. If the results are good, then I have
no problem in accepting them.

In a famous study of black radiation by Planck, he inserted
minus 1 into the denominator of Wien’s formula. He did not
insert the minus 1 into the denominator because of theoretical
proof. The only reason was that he allowed him to find an ideal
graph. This operation is not admitted in mathematics. It is not
sort of mathematics that one may intentionally insert minus 1
into the denominator in order to get an ideal graph. This ignores
a serious rule of mathematics. Quantum theory uses mathematics
as a convenience. Spatial system of coordinates is already
negated. From the quotation (6), we can not neglect the
interaction between observer and the devices of measurement.
This means that the use of light always gives rise to some
variation and observation always includes some uncertainty,
blurring and error.

Still more, if one expands this error, uncertainty and
indetermination, one can not definite coordinates in the error,
inindetermination and nothingness. It is when one tries to draw
a line in a vibrating car. Therefore man can’t make coordinates.
In this indetermination and nothingness, the spatial system of
coordinates can not be fixed. If one enlarges the scope of
indetermination and nothingness to the size of the universe, the
whole of the universe corresponds to the indetermination and
nothingness. Outside the solar system, in the galaxy, a straight
line would actually be a curve and a plane would be a curved
surface. One can not measure this curvature. Therefore, a spatial
system of coordinates can not be realized. From Mathematics
and traditional physics, it seems that quantum theory lacks
mathematical definition and is imperfect. However, in reality it
is the reverse. The field mathematics and traditional physics is
limited narrowly, as mentioned above. Bohr also says that
however useful traditional physics and philosophy are, they are
too narrow to comprehend new experience.

The lesson we have hereby received would seem to have
brought us a decisive step further in the never-ending struggle
for harmony between content and form, and taught us once again
that no content can be grasped without a formal frame, and that
any form, however useful it has hitherto proved, may be found to
be too narrow to comprehend new experience. Discussion with
Einstein on Epistemological Problems in Atomic Physics

Niels Bohr Atomic Physics and Human Knowledge. 1958
p.65

The traditional form of recognition (philosophy, especially Kant)
of the mathematical and physical world view is limited.
The standard traditional form of recognition is observation.
Things that are clearly observed and determined exist.
Existence is expressed on the coordinates. But, in opposition to that,
from my standpoint, things that can not be observed and defined are
whole of the universe. Existence that is observed and defined is
only a small part of the universe. If we compare the size of the
universe to the earth, we can only draw a map of Nara prefecture
or Rhode Island on the earth. All other areas are in infinite
darkness, width and uncertain nothingness. Niels Bohr intuited
this nothingness. Nothingness escapes definition by equations
and systems of coordinates. Imaginary numbers are only one of
the expressions of nothingness. Definitions, theorems and
formulae are fixed by thought and the practical utility of man.
The world that is defined by abstract rules is limited.

In mathematics, there is big limitation on the starting point.
Certain operations are indefinite and impossible. 0 ÷ 0 is
impossible, 0 X X = 0 is indefinite. As it is difficult to do
mathematical operations on these notions, man excluded them
from mathematics. But the principle of nothingness that I
proposed includes indefiniteness and impossibility. Mathematics
excludes these notions for the sake of convenience. In here, the
values that one can recognize existence surely work firstly.
But from the principle of nothingness that continues to infinity
∞- eternity →transcendental-being, nothingness and infinity are
continuous and all these are inseparably related to each other.
Mathematics can not express this thought. Pascal says that man
can touch infinity and think of the possibility of infinity( numerical
continuity and extent of space), but man can’t grasp
essence of infinity and nothingness. Mathematics can not express
this thought. Pascal says that man
can touch infinity and think of the possibility of infinity( numerical
continuity and extent of space)

For example, there are an even number and an odd number among
the natural numbers. Which is infinite? One can’t express the
sum total with any certainty. Therefore, man introduced the
infinite and the impossible. Mathematics develops with such a
premise. Mathematics that uses numerical formula and the
system of coordinates is limited in its ability to explain
the universe. As the result of that, physics, which usually depends
upon mathematics, has also a limit. Planck length and time are
the proof of the limitation of physics. Physics cannot treat a
smaller length than Planck length (10⁻³⁴cm) or a shorter time
than Planck time (10⁻³⁸sec.). The smaller world than Planck
length is the world of uncertainty. Heisenberg writes about the
limits of science as follows;

To begin with, it is important to remember that in natural
science we are not interested in the universe as a whole,
including ourselves, but we direct our attention to some part
of the universe and make that the object of our studies. In atomic
physics this part is usually a very small object, an atomic particle
or a group of such particles, sometimes much larger the size
does not matter; but it is important that a large part of
the universe, including ourselves, does not belong to the object.

Physics and Philosophy, Werner Heisenberg, 1999. Prometheus
Books, New York p.52

Heisenberg knows the limits of science. Science can only
treat a small part of the universe. In contrast, one can talk of
the whole of the universe as follows. If one says that it is, it exists.
If one says that it is not, it does not exist. Man can’t specify it
definitely. It transcends being and not-being. I call it Absolute
Nothingness. It corresponds to the end of the universe in Macro.
In a sense, quantum theory touched the real facts of the world
and the universe. The world that is observed is the limited world
and the world that is not observed is overwhelming widely.
The world that is not observed is an uncertain area and is the
openness of infinite possibility (nothingness). Then Bohr spoke
of the openness of vast area of experience described by quantum
theory. Mit Hilfe der Quantenmekhanik beherrschen wir ein
ausgedehntes Erfahrungsgesetz, vor allem sind wir imstande,
viele physikalische und chemische Eigenschaften der Elemente
einzelheiten zu beschreiben. Die Atomtheorie und die
Prinzien der Naturbeschreibung: Die Naturwissenschaften,
Vol. 18, 1930, p. 76

Today, one of the typical results from this vast domain is the
existence of the neutrino. Recently, one confirmed its existence
and mass at last. Though the neutrino was predicted by W. Pauli 75 years ago, but scientists needed several decades, a huge mass of equipment and a large special budget (one hundred million dollars) in order to confirm the mass in Japan. The neutrinos that were observed were from Magellan galaxy, 160 thousand light-years. Neutrinos from the sun drench the earth some trillion pieces per a second and pass through our bodies. What is the neutrino on earth? We could confirm only 16 neutrinos out of the countless ones that pass by. Still more, there are other unknown particles which have not been confirmed in the universe. With saying to mass, for example one says that the mass of an unknown particle exists or the mass does not exist. For example, what is virtual particle? It appears, then suddenly it disappears. What is the reason for its appearance and disappearance? This shows that existence and nothingness co-exist (Absolute Nothingness). Finally, questions about hypothetical particles extend to ‘vacuum energy’. According to traditional cosmology, there is no energy in space. But the expansion of the universe needs energy, because it is short of energy from the Big-Bang. The expansion of the universe explains vacuum energy. Then what is vacuum energy? Vacuum energy and other particles are reality, the stream of life that passes through the whole cosmos, all things (I demonstrated, nothingness as reality, in “Philosophy of Nothingness and love”).

As the reality is beyond words, it is called nothingness, nothingness as reality. Quantum theory and contemporary cosmology confronted the nothingness that transcends words, mathematics and physics. Theory of relativity intuited and expressed nothingness as a lack of substantia, while it persisted in using mathematical expressions about the moving universe. In conclusion, the theory of relativity and quantum theory have in common the negation of absoluteness; both Einstein and Bohr intuited nothingness as a lack of substantia (substance). The theory of relativity insisted on the expression of the universe in mathematical term, on the other hand quantum theory, while respecting mathematics, is not always restricted by mathematics. From my view, they both express my principle of nothingness (nothingness continues to infinity → eternity → transcendent being) and then go on to separate their theories from my principle. After the separation, they developed their theories independently. The theory of relativity and quantum theory are only parts of my philosophy. Strictly speaking, my philosophy, the principle of nothingness and love, is the origin of the theory of relativity and quantum theory, and has already effected the synthesis of both theories.

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