Quantum Mechanics' Return to Local Realism

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FOREWORD

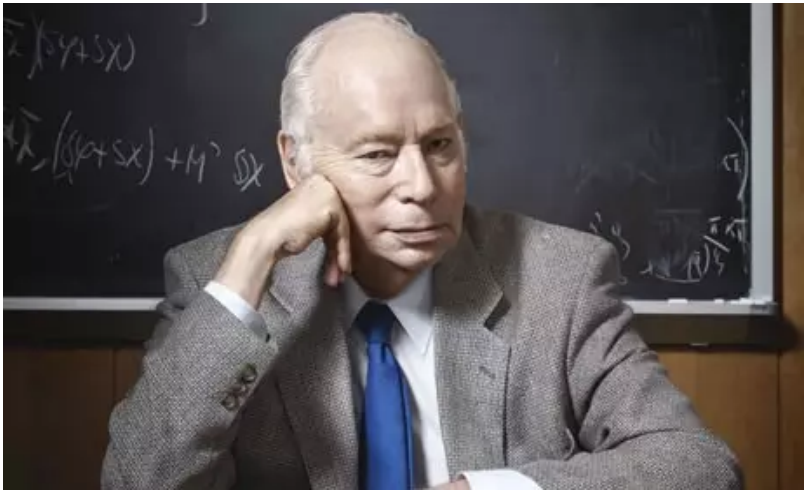
A DECLARATION OF A QUANTUM MECHANICS REVOLUTION

Quantum mechanics is indeed very useful, but it really caught the essence of nature. Why is this? Quantum mechanics was born nearly a century ago. In the last few decades, it has brought great changes to physics, industry and human life. This is the source of the semiconductor industry, laser and nuclear magnetic resonance that we live on. However, while quantum mechanics is extremely useful, scientists' understanding of the basic concepts of quantum mechanics has been stagnant. For example, is the wave function in quantum mechanics real, or is it only a tool that scientists use for calculation? Is it true that the Schrödinger cat is both alive and dead in the box?

In interpreting quantum entanglement and quantum nonlocality experiments (linking Bell's inequality and Leggett-Garg inequality with experimental phenomena, we get the data on the right side of these inequalities based on experimental phenomena), we must use the concept of "all particles must be in the quantum superposition state before being observed" and "any measurement will change the quantum state of the measured particle." Because "as long as a particle to be measured, its quantum state changes," these two concepts cannot be verified experimentally. Thus, these two concepts can only be two assumptions or speculate. The experimental interpretation of the existing quantum entanglement and quantum nonlocality can only be assumed. If the particles are really waves, there is only a possibility of superposition in mathematics, not necessarily superposition. It is also a kind of absurd speculation that a particle has two different quantum states simultaneously. The current quantum state of a particle cannot be superimposed with the future quantum state. So, there is no solid mathematical foundation for "the quantum state superposition must occur". This indicates that in the interpretation process of quantum entanglement experiments, speculation is more than empirical evidence. The description of the next natural section cannot be excluded.

An emission source emits a pair of electrons. In order to ensure

conservation of the spin angular momentum, the spin directions of the two emitted electrons must be opposite. It was detected that the opposite directions of the spins of the electrons did not indicate that their spin directions were formed at the time of measurement rather than before the measurement when "this pair of electrons spin in the opposite direction" was detected. A light source emits a pair of conjugate photons. The electric vector of this pair of photons should also be conserved: At the same moment, the electron vector of one photon is radial, and the vector of another photon must be down. That is, the polarization direction of these two photons is the same (they vibrate up and down rather than left and right). It can be seen that the polarization direction of a pair of conjugate photons is also not formed when measured but is formed before being measured.



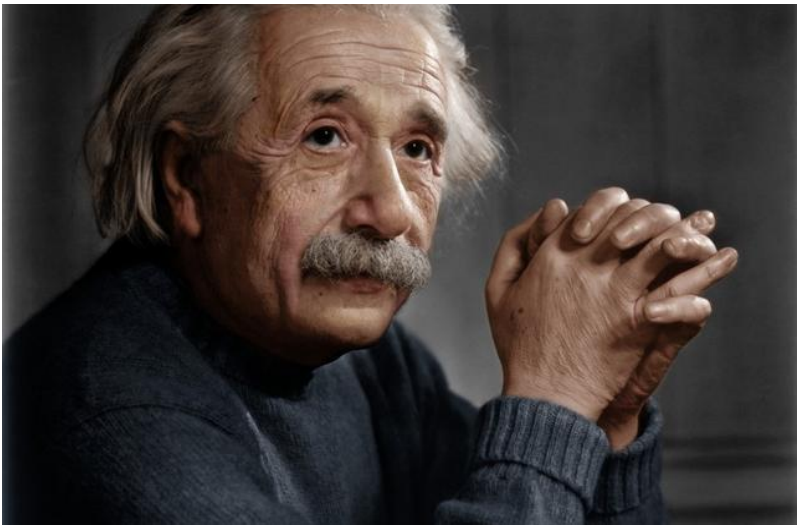
Steven Weinberg

The Patrusky Lecture is a seminar launched in 2013 by the American Association for the Promotion of Scientific Writing, which aims to promote communication between scientists and scientific writers. This year's speaker (2016's speaker) is a famous scientist—Nobel laureate Steven Weinberg. The title of his speech is "Why am I dissatisfied with quantum mechanics?" Professor Weinberg is quite prepared, but at the very beginning, he wrote about scientific writing and has transferred to his new thinking on the basic concept of quantum mechanics in recent years.

Like most physicists, he once believed that quantum mechanics would be enough if it is practical, without going into any depth to explore its basic concepts and implications. Recently, however, he became increasingly dissatisfied with the various interpretations of quantum mechanics and urged scientists to invent new theories to explain some of the longstanding problems and to extrapolate quantum mechanics to a wider extent.

Weinberg's dissatisfaction mainly manifested in two aspects: first, the source of the probability of quantum mechanics (Einstein also has the same dissatisfaction. He has a famous saying that God won't play dice); and second, the collapse process required by quantum mechanics. These two issues are closely related. If we admit the process of collapse, we must admit the uncertainty of the state. The uncertainty of the state is precisely determined by the probability of quantum mechanics. I also have the same dissatisfaction, and will disclose in the following natural paragraphs why I am dissatisfied.

A child was lost. According to the analysis, the possibility of his being in A and B accounts for 50% respectively (his odds in A and B are respectively 50%). The child and where he lives are real and objective things (that is, his state is real, if he is not at A, at B or elsewhere). The probability in the result of the analysis is not the uncertainty of the child's state (it is indicated that the prediction for the child's state is inaccurate, not that the child's state is uncertainty). In quantum mechanics, however, physicists think that the child's body is in a mixed state of "50% at A and 50% at B". In quantum mechanics, except for Born's probability interpretation, the probabilities are obtained by such as this. In fact, only for unordered multi-element systems, is such probability true and objective. In this case, the probability is caused by the inaccuracy of the prophecy, and does not correspond to something that is truly probable. However, quantum physicists treat the probability of reflecting inaccurate predictions as the segmentation ratio of the entity. Can you be satisfied with such a probability?



Albert Einstein

Maybe some people think “a lot of experimental facts (especially the electron diffraction experiment) proved that an electron can appear at two different places at the same time.” However, those are incorrect, unrealistic non-locality explanations. We can use direction quantization that does not deny the reality to explain the electron diffraction experiment. In this way, unrealistic explanations are avoided. Only by proving that direction quantization is absolutely impossible, can we believe in the unrealistic explanation. It is not difficult to find that the child in this example is the Schrödinger cat and it's the Schrödinger cat which avoids observations to be taken as the basis of sophistry. A lot of people say that the Schrödinger cat state is observed. What's the matter? The fact is that the phenomena they observe are defined as the Schrödinger cat state. This is similar to the situation where hundreds of French authors claimed to have discovered and applied non-existent N-rays. In addition, the specific process and state of quantum entanglement are not completely known. This determines that it is impossible to prove its existence strictly by experimental methods. Every particle, from the moment of its born time, must be in the superposition of its various eigenstates. This is an untrue conclusion caused by cognitive dissonance. We will also discuss this issue below (for a more detailed discussion, see Section 2.10).

A mother knows and confirms that her son is thousands of miles away. But her son appeared immediately at her side. Her son said that he had become an invisible man and returned to human form at the moment of his arrival. If the mother believed that her son came home for a moment from being an invisible man to a normal person, she must believe that her son was in a state of invisibility. As long as the invisible man state of the son is not true, the process of returning the invisible man to the normal person is not true. In other words, as long as we fabricate a state of an invisible person, we must fabricate a process of transforming invisible people into normal people. Otherwise, the mother cannot see the normal humanoid son immediately. Similar to this, as long as we believe that the wave packet collapse process exists, it is necessary to believe in the existence of the uncertain state of wave-particle duality or superimposition. As long as we have fabricated the superposition state of the two particles or the uncertainty of the wave-particle duality, we must fabricate a collapse process. Otherwise, after the end of the measurement, a definite state of reality cannot be observed. If there are no reliable reasons for the occurrence of quantum decoherence or the collapse of quantum states, there is no sufficient reason for the existence of an uncertain quantum state. It is a fact that the quantum state collapse lacks reason. The idea that an electron is in a mixture of positive and negative spin before measurement, is also highly likely to be fictional (**Figure 1**). Are you satisfied with the behavior of "treating the most likely imaginary thing as absolutely true?"

Weinberger may also believe that the fictional uncertainty state exists. This is a common problem for scholars who oppose the existing interpretation of quantum mechanics. The reason why their efforts cannot be successful is also here. At this point I am totally different from him. The specific discussion begins now.

Most people agree with the view that the existing mathematical formalism of quantum mechanics is successful, but the existing quantum mechanical explanations are puzzling. It is precisely because of the long and strong dissatisfaction with the interpretation of the Copenhagen school and an unwillingness to continue to believe in its quantum mechanics interpretation, that the more ridiculous theory of multi worlds would rather be adopted (Weinberger said I don't know which world the mixed observation is in. In my opinion, even the creators of multi-world theory do not know this). But the general situation is that the multi-world theory cannot be fully accepted instead of the quantum mechanics interpretation of the Copenhagen school. The influence of other theories is not as good as

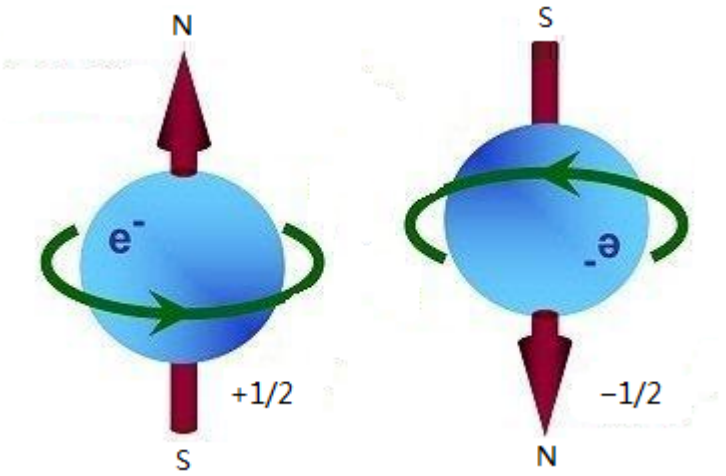


Figure 1. An image description of electron spin. To believe an electron to be in a mixed state in these two states, is equivalent to believing that half of the body of the lost child is at A and the other half at B.

Copenhagen's interpretation and multi-world theory. Now many people prefer to adopt a more outrageous theory of many worlds. Many people have long suppressed their inner voices. They dared not disclose their voice until they became older people (Weinberg is classic). It is certain that the existing quantum mechanics interpretation system has some problems. In that case, one should allow others to reveal its problems and propose a new explanation of quantum mechanics. Under the precondition of believing the old wave-particle duality, the establishment of a new interpretation system of quantum mechanics is doomed to failure. One of my key jobs is characterized by the establishment of a new wave-particle duality concept (see the eighth question).

The existing orthodox quantum mechanics referred to in this book refers to the Copenhagen School and the predominating quantum physicists before 2018. The way that orthodox quantum scientists deal with problems is too bizarre. They often use the excuse of causality as failure and don’t speak logic. They even take the "micro world is very strange" as an excuse to put aside the substantiality and laws of conservation of energy. They are unreasonable, but consider themselves out of helplessness (there is no way to preach a reason and speak logic,

logically because there is no way to believe causation and reality).

The author firmly exposes the lie of orthodox quantum scientists and points out that the so-called helplessness is due to incorrect thinking. The author will use sufficient reason to convince the reader that as long as the correct thinking is adopted, the law of causation, determinacy, locality and reality can be upheld. The key method I'm going to use is to build a model of the light knot electronic structure to produce a new concept of wave-particle unification without internal contradictions. The model of the light knot particulate structure has solved the discrete problem of the micro particle and the problem of the nature of wave function. It is one of the theoretical foundations of Quantum Mechanics of Local Realism.

The irrationality of the existing quantum mechanics interpretation is determined by the fact that quantum physicists believe that God will create a natural matter that has no pure objective state (that is, particles are like a ghost, and the “unknown is uncertain”). That the probability of the prediction results caused by that cannot be accurately predicted is regarded as the probability of the subject itself, and the different possible states of the prophecy that cannot be realized are regarded as the real states of coexistence. In other words, the unreasonable explanation of quantum mechanics contains all the troubles brought by “without a pure objectivity state”: unknown things being uncertain things, the inaccuracy of prediction being the inaccuracy of ontology and “may exist separately” is treated as “simultaneously real” (isn’t the wave function). God does not create natural matter without a pure objective state. This should be an important objective law. All the behavior and the conclusion of its violations are wrong. If there are problems in the source of probability, there are problems in the original state which has uncertainty when it is measured, the concept of quantum entanglement cannot be established. From another perspective, the concept of quantum entanglement comes from the circular argument. The savagery and absurdity of orthodox quantum scientists are mainly manifested in the following 9, 10 and 11 three aspects. The most important thing is the tenth question (the existing quantum mechanics problem is described below).

1. It Exists that the Fact of the Momentum and Position of Microscopic Particles Is Accurately Measured Simultaneously. But They Find Reasons for not Recognizing This Fact

In order to maintain the idea expressed by the principle of uncertainty, even if the physical quantities are measured, orthodox quantum physicists do not recognize them. The trajectory of microscopic particles can be gained by using a cloud chamber and other equipment. According to the working principle of the chamber (the coagulation to be induced by electronic field), the measured charged particle does not reach the edge of the cloud track. As long as the working principle of the cloud chamber is applicable, the 3D regression curve of the droplet center coordinates in the cloud track should be the exact moving route of the measured particle. However, orthodox quantum mechanics scientists never talk about the significance of 3D regression curves of cloud trails. Instead, the idea of "absolute correctness of uncertainty" is used to negate the accuracy of the measurement results. If you continuously measure the position of a particle accurately, the uncertainty relation cannot be tenable continuously (if the position of a moving particle is measured continuously, then the lines of these positions indicate the exact momentum of the particle). Orthodox quantum physicists use a fictitious collapse process to deny continuous measurements. The conclusion is ridiculous: when a particle is measured for the first time it loses its representation (it can't represent itself as a microscopic particle). There is no basis for the collapse process. How irrational it is for a microscopic particle to represent the properties of a macroscopic object! It is only an idea that r and p cannot be used to describe microscopic particles. The experimental fact supports "the cloud track in the cloud chamber is formed according to the designing principle of the cloud chamber", and does not support "the cloud track in the cloud chamber is formed based on the non-locality of micro-particles." At least it cannot deny that "the formation of the cloud track following the coagulation is induced by electronic field—the working principle of the cloud chamber." The experimental result of capturing microscopic particles is the fact that microscopic particles can be described by r and p.

The wave packet collapse of microscopic particles is considered irreversible. If the particles are coming out of the accelerator, but the diffraction can still occur, the inverse process of wave packet collapse （or quantum decoherence） is bound to occur. If this inverse process does not

exist, then the wave collapse process (or quantum decoherence process) does not exist. In that case, we can't deny that the 3D regression curve mentioned above is the accurate motion path of particles (the environment of the accelerated electrons in the cyclotron are very similar to the one of the environment of the measured electrons in the spark chamber). The existence of the secondary electron diffraction phenomenon directly denied that measurement can cause the wave packet to collapse (supported viewpoint that the wave packet collapse process does not exist).

Orthodox quantum scientists set up a magic wall between the calculated values of quantum mechanics (or the purely objective state of the system) and the measured values. All the things that pass through the magic wall will change in a ghostly way (the change in reverse is the quantum decoherence and the wave packet collapse, but the inverse process is considered impossible). The measurement of the micro particles is the same. Why is the structure in the nucleons before the injection affirmed according to the injecting situation? Another way to ask is: why is the injection caused by the measurement not the state after the wave packet collapses? Is wave packet collapse a logical result or the concept which is only artificially assumed as needed in the end?

Perhaps the orthodox quantum physicists insist that the helplessness is determined by the wave-particle duality which we must accommodate to the microscopic particles. I'll soon talk about whether the old idea of wave-particle duality where there are internal contradictions comes from the wrong interpretation of the diffraction of particles in matter.

2. The Certainty Value Is Determined, and the Certainty Is not Recognized by Means of an Idea

In reality, it is often easy to obtain the definite value of some physical quantities of the system. For a single-particle system, a deterministic value can be obtained by measuring a given physical quantity (for example, angular momentum of electron spin, orbital angular momentum of s electrons, etc.). In the event of insufficient evidence of the collapse of the wave package, it may be preconceived that the eigenvalue measured is the value present in the system itself, rather than collapsed from another value to this value at the time of measurement. Is there any reason to deny that electron spins and the movement of electrons in an atom has many different purely objective orientations rather than a mixture of different orientations? In many cases, the only definite value obtained by

measurement is fact, and the certainty of the system is also true. However, orthodox quantum physicists accept and use the deterministic values of microscopic systems, but deny the certainty of the micro system. That is, in order to maintain the notion of uncertainty (to deny the concept of certainty), orthodox quantum physicists should try to deny it; even if certain values are calculated using a defined causal relationship. One of the methods they use is that the superposition of states must happen (a microscopic particle does not have any purely objective state. The measured state is formed at measurement). The reason is that the definite states become undefined once they have been superimposed.

3. Cyclical Demonstration in the Case of Incomplete Empirical Evidence

In layman's terms, as long as you admit that you have observed a spooky action at a distance (quantum entanglement), you must think that measurement changes the state of the particle. As long as you admit that the measurement changed the state of the particle, you must admit that the particle before measurement is in the superposition state. It has not been proved by experiments that the particle is in the superposition state before the measurement. Therefore, the empirical chain is incomplete. How do you know that particles are superposed before measurement?

The empirical process is generally not purely objective, but contains subjective elements (the empirical chain generally has a subjective judgment link like mending seam putty). However, the subjective judgment link must be self-evident and logical. In the empirical process of quantum entanglement, there is a critical process of subjective judgment. The subjective judgment is that measurement inevitably leads to quantum state changes. The reason is that only one measurement does not prove that the quantum state has changed due to this measurement. Only by admitting that the quantum states before and after the measurement are indeed different can we admit that the measurement leads to the change of the quantum state. It is a fact that “the quantum state after measurement is a definite un-entangled state.” Therefore, it is necessary to admit that the quantum states before measurement are entangled states. That is, only beforehand, assuming that the quantum entangled state (superposition state) exists, can we admit that the measurement has led to the quantum state change. Finally, according to this conclusion, we get the conclusion “the existence of quantum entangled states is tested and verified by

experiment." This is the obvious circular argument (the proof process starts from the existence of quantum entangled states to the end of quantum entangled states). The additional note is shown in Sections 1.2.5 and **1.3.2**.

4. The Negative Energy Solutions of the Dirac Equations Corresponding with Positive Energy Antimatter

Dirac's relativistic quantum mechanics equation has two solutions—the positive energy solution and the negative energy solution. If these two solutions have counterparts in the real world, then the negative energy solutions should be worthy of the name of the material for negative energy. However, experts in quantum mechanics believe that negative energy solutions correspond to antimatter. This is in order to acknowledge that antimatter has positive energy. This belief of the quantum physicists is a mistake that even middle school students should not commit. Why do they have this belief? It is because of the need to select the concept of "zero point energy" in the basic theory of quantum mechanics and quantum field theory. The correct solution is for the negative energy solutions to correspond with the negative energy matter, and then the virtual particles in a vacuum are a positive-negative energy Particle-pair, rather than a matter-antimatter Particle-pair. By solving the Schrödinger equation of a one-dimensional potential well, the zero point can be generated from the infinitesimal fraction of the space as a finite value. The mistakes mentioned in this section make many people carry out the research and development of vacuum energy, and waste a lot of resources.

5. Heisenberg Relationship Has a Variety of Meanings, but Only One of Them Has Been Chosen

The Heisenberg relation can be expressed as the relation ($pr=\hbar$) between the radius of curvature and the linear momentum of a microscopic particle for uniform circular motion. It can also represent the relationship between the curvature and the curvature radius of a microscopic particle for curved movement. However, orthodox quantum physicists only choose the explanation of the "uncertainty relation". They ignore the fact that there is a paradox in uncertainty relation. If a continuous measurement is allowed and the position is measured continuously and accurately, the momentum is accurately measured (the particle velocity can generally be measured

accurately. According to the connection of a moving particle's defined position, we know the determined momentum). This is the paradox of uncertainty relations. If we believe the relationship of uncertainty, we must deny that we may continuously measure. It is hard to deny continuous measurement both logically and in practice, unless certain concepts are implicitly imposed.

6. Strained Interpretation Is too Much, and Often Look at Things in Isolation

For many conclusions in quantum mechanics, it is better to say that it is to be defined, than it is to be obtained, by measurement. For example, the alternately changing state of the two states of quantum states is defined as a continuous quantum entanglement. However, according to the concept of state superposition, we know that the quantum entanglement state is not the alternate change of two distinct quantum states but the non-definite mixed states of the two quantum states. The method of identifying multipartite entanglement is also defined and is often the meaning that is given by the person who claims it. Other misinterpretations contain ingredients that are far-fetched (e.g., the interpretation of wave-particle duality and that of non-reality, etc.).

When discussing electron diffraction experiments, they only looked at the performance of the electrons from the slit to the screen and did not analyze the experience and performance of the electrons in the entire circuit. When discussing the secondary diffraction experiments of electrons, they only considered diffraction but don’t consider whether the measurement could cause the wave packet to collapse.

7. Ignoring the Law of Conservation of Energy

Orthodox quantum physicists admit that microscopic particles have non-realities, that is, a particle can appear in two different places at the same time. A particle is divided into two, but the size does not change, and the energy must be two times that of the original. If a particle that appears in two places at the same time meets the antiparticle at the same time, can it be annihilated at the same time? If not, it cannot show that it can occur at the same time in two different places. If it can, it does not meet the law of conservation of energy. The explanation that a photon can pass through both seams at the same time is also contradictory to the Huygens principle

(should we believe the Huygens principle or believe that particles have non-realities?).

When there is only one particle in the system, “Thinking that the state superposition is not the superposition of the entities but only the superposition of the quantum states” does not violate the law of conservation of energy. However, when interpreting the phenomenon of electronic double-diffraction experiment, one has to think that “electrons happen in parallel, and parallel electronic entities superpose.” In this way, an electron is divided into two, and it violates the law of conservation of energy.

8. Misunderstanding Wave-particle Duality

The existing quantum mechanics interpretation system simply describes the microscopic particle as an uncanny ghost (it is neither a wave nor a particle, but a ghost of non-localized reality). In fact, the diffraction phenomena of object particles such as electrons can be explained by the quantization of the direction of the micro particles. Direction quantization can be caused by angular momentum quantization. It would be cost-effective to avoid all the problems explained by Copenhagen (eliminating the singularity of Copenhagen's interpretation) by using a direction quantization concept. Of course, using only direction quantization is not enough. We can establish the model of the light knot electronic structure. So, the object particle is a real localized wave (an object particle is surrounded by a wave. Viewed at a distance, it is an object particle, but viewed close by, it is a wave propagating along a closed path). This is the essence of the new wave-particle duality: a microscopic particle is both a wave and a particle, and the discreteness and the locality are unified. In Kelvin’s words, the particle is the kink of the wave. In this way, the particle is a complete wave, and the illusion of humans for waves. According to this new wave-particle duality, particles cannot be considered non-local-real. As long as the directional quantization explanation and the model of the light knot particulate structure are used, the existing orthodox interpretation system of quantum mechanics can be subverted.

9. Subjective Assumption in the Construction of an Important Theoretical Foundation

Schrödinger's cat is a bridge between the popular example and profound theory about the "existing quantum mechanics interpretation." It is an example that is both common and rewarding (appealing to all). Schrödinger's thought experiments on cats have linked the development of microscopic particles with the development of macroscopic objects. If the superposition of live-dead cats cannot occur, it is impossible for microscopic particles to be in the superposition state of the two eigenstates.

Analyzing it from different perspectives can cause wide interest. If we change the Schrödinger cat into a prisoner sentenced to death, and consider "the superposition between the broken bottle and the undamaged bottle" and the origin of the cat's state, we can obtain conclusions that have never been drawn before (the bottle is an ampoule bottle filled with poisonous gas in the box).

The Schrödinger cat was replaced with a dead prisoner and the box was made of light-shielding material. Therefore, although the entire box is dark, there are still optical signals transmitted to the eyes of the prisoner. This device links microscopic particles with macroscopic prisoners and the ampoule bottle. As long as the microscopic particles are superimposed on the two states of "decay and no decay", the prisoner must have a live-die state-superposition. The ampoule bottle containing Highly Toxic Gases must have been superimposed on both the intact and broken state.

We assume that the final result is exactly the prisoner's undead state which is collapsed. The prisoner should be able to describe what he saw after coming out of the box. Can he see that the ampoule filled with highly toxic gases is intact and broken? If the highly toxic gases are mixed with special odorous substances, can the dead prisoner smell the odor?

If he saw the superimposition state of the broken-perfect ampoule, should the ampoule be broken into 8 pieces or broken into 24 pieces? The entropy of highly toxic gases that permeate the entire box should be greater than when the highly toxic gases accumulate in the bottle. If, at the instant of opening the box, the outside observer sees the poison gas cylinder undamaged and the prisoner alive, he must think that the highly toxic gases have collapsed into the bottle. Why does this collapse process lead to reduced entropy? Existing quantum scientists believe that ampoules filled with poisonous gas must be in a superimposed state in their intact and broken state before they are damaged. However, the degree of bottle breakage cannot be determined logically. Before opening the box,

there were many different damage eigenstates for that ampoule bottle. Which one should we choose to overlap with its intact state? Can't we let the process happen and later decide?! Before opening the box, since the damage level of the ampoule bottle cannot be determined, the superposition of the broken state and the intact state cannot be determined. It is forcibly assumed that the superposition of states will inevitably occur, and it can only be subjectively assumed.

If the box is large, the prisoner is away from the side of the ampoule bottle. We assume that, after the ampoule bottle was broken, it took one second for the Highly Toxic Gases to reach the mouth of the prisoner, and the prisoner held his breath and broke the box within a second to escape. In this case, the ampoule bottle was broken and the prisoner was not dead. This result is inconsistent with the analysis result for the Schrödinger cat thought experiment (in the Schrödinger cat thought experiment, the bottle was broken and the cat had to collapse to death). What is the factor that determines the collapse direction of the superposition state?

Is the prisoner's observation inside the box a measurement? If not, we cannot logically judge what he can see. What category of results did he observe? If the answer is affirmative, then he will not see the superimposed state in which the ampoule bottle is both damaged and intact (his first observation was that the state of the ampoule bottle collapsed to an undamaged state. In this way, he always sees the integrity of the ampoule bottle). However, the existing interpretation of quantum mechanics and the device together determine that the probability of the ampoule bottle being “broken or unbroken” accounts for 50% each, and the state of damage to ampoules is also likely to be observed.

Within one minute, the investigated particle has three possible states: the undecayed state; the decayed state; or the decayed-undecayed superpositioned state. What are the reasons for thinking that it must be in the third state? Before the collapse, why is “the probability that the first state and the second state stand alone” zero? The appearances of these three states are three separate events. Before the collapse, the first state and the second state are the original states (eigenstates), and the third state is the derived state. Why should the eigenstates all develop into superposition? In layman's terms, there is no state 3 if there is no original state 1 and state 2; if there is no state 3, there may be states 1 and 2 as well. It is already very clear which state is more basic and cannot be ignored. At present, orthodox quantum mechanics just puts the cart before the horse. It is considered that state 1 and/or state 2 can only be derived from state 3, and we think of the derived probabilities as $C_1^2/(C_1^2+C_2^2)$ and

$C_2^2/(C_1^2+C_2^2)$, respectively. If eigenstates 1 and 2 are not both superimposed, their probability of occurrence cannot be determined by the combination coefficient of their derived states. In fact, the probability of state 1 is equal to its original probability plus $C_1^2/(C_1^2+C_2^2)$. In fact, the probability of state 2 is equal to its original probability plus $C_2^2/(C_1^2+C_2^2)$. It is not logical to think that "the original existence probability of state 1 and state 2 is always treated as zero and they are considered to have collapsed only from the superposition state". This is just as ridiculous as "alien people think that the Earth's people were both hermaphrodites when they were born, and the observed dioecious bodies were changed from hermaphrodites."

Both state 1 and state 2 are eigenstates. At least some of the particles may always remain in the eigenstate (the principle of superposition of state is also like this). Only 100% of the particles will necessarily develop to the superposition state derived from the eigenstates. The probability of collapse is likely to be $C_i^2/(C_1^2+C_2^2)$, and only using the normalization condition $C_1^2+C_2^2=1$. If the state superposition is imaginary, then the superposition state collapse is fictional (**Figure 2** can clearly illustrate this point).

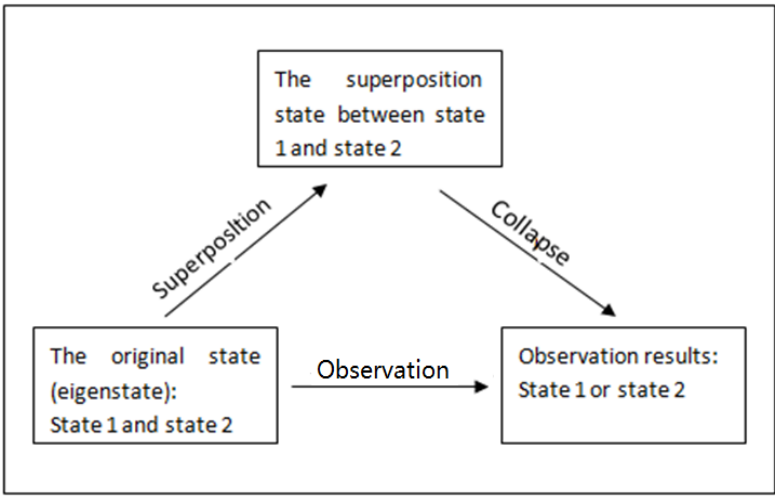


Figure 2. Relations between eigenstates, superposition states and observation results.

It can be seen visually from **Figure 2**: it is observed that the ampoule is not broken or damaged, and it is possible to observe the pure and objective state of the system. Then, state superposition and superposition state collapse are both fictional. Observed results can be directly explained by observing the purely objective state of the system. Why do we have to go on a detour that passes through the superimposed and collapsed?

For single-particle systems, the condition required for superposition is quantum parallelism. If the state of quantum parallelism can be really superimposed, it violates the law of conservation of energy. Some people may say that quantum parallelism is only the parallelism of particle states. However, there can be no "state" out of the particle. Let electrons pass through the double slit one by one in order to do electron diffraction experiments. In interpreting the results of such experiments, quantum parallelism is not the parallelism of states, but refers to the parallelism of entities. If it is non-physical parallelism, no diffraction will occur.

In summary, there are three plausible speculations about the single-particle system of existing quantum scientists:

(1) Before the superposition, eigenstate 1 and eigenstate 2 appear at the same time;
(2) Eigenstate 1 and eigenstate 2 must be superimposed;
(3) The superposition state of Eigenstate 1 and this Evidence State 2 are not a possible state but the only necessary state of the system. All eigenstates are collapsed without the original eigenstates.

The state superposition principle clearly shows that for the single particle system, eigenstate 1 and eigenstate 2 and the superposition states of the two eigenstates may appear. However, the three above are inconsistent with the superposition principle. Existing quantum scientists use the third conjecture when using the state superposition principle. The calculation of probability based on the third conjecture is like calculating the proportion of single people in the world without recognizing “unmarried singles” and only acknowledging divorce-induced singles.

In short, using the Copenhagen School's point of view to explain the above examples would be very contradictory. The multi-world theory cannot explain why the prisoners in the box must be in a different world from the observers outside the box.

10. The Source of Probability Is Unreliable, but It Is Regarded as a Basis for Uncertainty

The origin of randomness in quantum mechanics is divided into two main categories: the source of wrong ideas and the source of theory.

Before the measurement, the quantum state of a microscopic particle is unknown. Some people think that microscopic particles have no purely objective and definite quantum state. Others estimate and predict it. The first type of human approach directly acknowledges the probability of microscopic particles. The second kind of human approach is to consider the probable result of the inaccurate prediction as the true state (objective state) of the microscopic particles, and this probability is regarded as the basic attribute of the particle. Another type of thought is that the interference of the measurement is inevitable, and then the random interference leads to the measurement result being random. So, they take this random measurement result as the true state of a particle. The above is the source of the knowledge of probability. The above is the source of knowledge of the probability of quantum mechanics. The theory sources of quantum mechanics probability can be divided into three sub-categories: the interpretation of wave-particle duality (or unrealistic explanation); Born's probability interpretation; and the principle of superposition. There may be a different probability source classification (for example, wave-particle duality and non-reality can be thought of as the general source of quantum-mechanical probabilities). However, the basic content is the same. The probable source of the value of the physical quantity is similar to that of the quantum state.

For an isolated system, the evolution of the quantum state with time is described by the Schrödinger equation when we don’t measure. That is to say, given a quantum state at any time, the quantum state of any other time can be uniquely fixed. With any moment of quantum state, we can get the average of various physical quantities at any moment. It can be seen that the purely objective state of the isolated microscopic system is inherently deterministic and has various definite values. Just after the measurement, the result of the measurement is random. No matter whether the measured mean is consistent with the average value calculated by pure theory, the orthodox quantum physicists don’t admit that the measurement results reflect the state before measurement (this is what we have said above, that a wall of magic has been placed between the measurement result and the pure objective state). In addition, orthodox quantum scientists believe that the uncertainty of the Microsystems is caused by the superposition of

states. Even an isolated system with only one particle becomes indefinite as the particle overlaps with its own shadow. We can also say that there are three sources of uncertainty in quantum mechanics: the first is that it does not recognize certainty directly; the second is that uncertainty is caused by the measurement of random interference and wave-package collapse; and the third is state superposition leading to uncertainty.

Probability interpretation is also a sophistic way of "acknowledging the constant value and denying certainty" (if you deny the certainty of a position while recognizing a certain value related to the position, you can only use this method. This is the customary technique of existing quantum scientists). According to the model of the light knot electronic structure mentioned in the previous section, we know that the probability density is actually the energy density. "The energy density at each point in the outer space of the single particle system" representing the position of the particles enclosed by that photon is constant. "The field can be extended to infinity and full of full space" is much more reasonable than "a particle itself reaches also each point in the infinite space". It can be said that as long as the concept of the point particle is cleared, it is not impossible to introduce the probability of non-introduction.

Let's look at the other case of the lost child. According to analysis, he is 50% at A, 30% at B, and 20% at C. In the end, the parents found him at B. His pure and objective reality is always at B. However, the quantum physicists regarded the previous analysis as his true state: It is considered that "the child's body is 50% at A, 30% at B and 20% at C" before it is found, this is an uncertain chaotic state, and it just collapsed to B at the moment of discovery. They do not admit that the child's state is a purely objective whole. The conclusion of the analysis before finding the child (in this case, this is a guess, a mathematical operation in quantum mechanics) was taken as the description of the true state. The child's body being 50% at A, 30% at B, and 20% at C corresponds to the three solutions of the wave function. The principle of superposition states that the linear combination of the three solutions is also a solution of the wave function (a possible state of the child's body). Obviously, it can be seen that the probability of the principle of state superposition is produced by mathematical operation, and is not necessarily a pure and objective reality. According to the principle of state superposition, the linear combination of the three solutions is also a solution of the wave function (a possible state of the child's body). Obviously, the probability derived from the principle of state superposition is generated by mathematical operations (it is an expression that the prediction is inaccurate) and not necessarily the purely

objective and true state. In this case, the correct rate of prediction is 30%; 70% is wrong. As long as the state of the prophecy is regarded as a real and objective state, 70% of the proportion is wrong. The Copenhagen school thought the prophecy was absolutely accurate and used a collapse process to cover up the adverse consequences.

The next section contains a further explanation of the problems in this section.

11. Think There Is Natural Matter Without a Purely Objective State

This error is that an unknown state is regarded as an indefinite state, not A is B is secretly replaced by both A and B ("a particle can only be in one of many states" is secretly exchanged with "a particle can be in many different states simultaneously"). Generally speaking, it is a mistake to think that God can create a ghost.

Denying the fact that microscopic particles have a purely objective status, means that "unknown" is regarded as "nothingness." In philosophy, this is a mistake made by idealism. It is also a scientific violation of objective laws. Some orthodox quantum mechanists nakedly state that some of the microscopic particles are formed under the influence of the environment at the time of measurement. These states are undefined (and nonexistent) before the measurement. This directly denies that the microscopic particle has a purely objective and definite state.

It may be said that the state of uncertainty is one of the objective states. It depends on whether the state of uncertainty is an objective existence. Let's take the example of a coin that stands up and rotates (note: this coin has only words on the A side and only pattern on the B side). As the coin rotates, which side is facing up is unknown. At this point, the state in which the probability of side A facing up and the probability of side B facing up by 50% each is not the objective state at present but a prediction of the future. Because a coin cannot be half A facing up, and half B facing up. The objective state at this time is the state of rotation, while the predicted future state of uncertainty is not the present objective state. The state of the coin after its fall in the future cannot be determined at present, and does not indicate that the state of the now-rotating coin is indefinite. In other words, the specific contingent content in the future uncertain state must not be the objective state. Take the target as an example and the situation will be clearer. When a sharpshooter hits the target, before

shooting, it is predicted that there is a 90% chance of winning a 10-ring, a 4% chance of a 9-ring, and a 1% chance of an 8-ring. This prediction and its description are objective, however, the state of description is not the purely objective natural state on the target; it exists only in the human mind (even writing it on paper can only mean that the paper on which those words are written is an objective reality). The reason is simple. Predicting the outcome of the state (only a shot and the result is 90% is 10 rings, 4% is 9 rings and 1% is 8 rings) cannot be an objective existence.

The statement “it can only be one of them” (a single thing is not in a variety of states at the same time) to describe system states was stealthily changed by quantum physicists into “it is absolutely all” (a single thing is in a variety of states at the same time). For the state of the system, “perhaps one of them” (a single thing is only in a variety of states, respectively) is mathematically correct. The expression of the principle of state superposition is still “possible”. However, in the process of applying it in practice, there is the behavior that disguised the replacement of the above-mentioned concept. Partial probabilities in quantum mechanics are also generated in the behavior of this one, and God does not play dice. No matter how much of the mathematics of Hilbert space is correct, it cannot be proved that quantum mechanics' behavior that disguised the replacement of the concept is correct. Only by first affirming that the uncertainty of the microscopic particles is fundamental, can the probability of quantum mechanics be considered fundamental. That is, the conclusion that “the probability of microscopic particles is fundamental” stems from a logical cycle. It can also be said that one of the sources of the probability of quantum mechanics is the denial of a purely objective definite state of a particle. Further analysis is shown in the following.

For single-particle systems, probabilities similar to those above are the performance that predictions are not inaccurate. Only for multi-particle systems, the probability of quantum mechanics may be true. If the statistical laws suitable for a multi-element system are applied to the single-element system, we have to introduce the concept of probability density, and otherwise, we can only admit that it is a ghost. Of the existing orthodox quantum physicists, some people regard the unknown state as a state of uncertainty, and another part of the person is equivalent to the state described in the prediction result as a real state (regarding the performance of prediction to be as inaccurate as the affair itself).

As mentioned above, the source of probability in quantum mechanics is not reliable. Professor Weinberger discusses it in more detail (for example, neither the wave function nor Schrödinger's equation is a source

of probability).

Since there are so many problems in the existing orthodox interpretation system of quantum mechanics, we should try to solve or avoid these problems. I am here to announce to the world: I am determined to subvert the existing quantum mechanics interpretation system.

About the foundation of quantum mechanics, P. A. M. Dirac has speculated several times recently that it is impossible to re-introduce determinism in quantum mechanics if we do not give up some strongly upheld fundamental conceptions. It rigorously proves that if we do not give up the conception about wave-particle duality, in other words, if we do not give up the state superposition principle and the probability interpretation, and consequently we do not give up the uncertainty relation, it is impossible to re-introduce determinism in quantum mechanics.

The method I used was to deny the old wave-particle duality by establishing a model of the light knot electronic structure, using direction quantization to explain the diffraction experiments of the object particles, and thus denying the old wave-particle duality. I would like to establish the realm of localized realms on the premise of preserving the mathematical formalism of quantum mechanics and subverting the interpretation system of quantum mechanics. The writing outline is as follows.

This book is divided into several parts: first, a critique of the existing quantum mechanics interpretation system; second, a presentation of the reasons for returning to the realm of localized realism and determinism; third, the establishment of the mathematical form system of quantum mechanics under the new premise; fourth, the application of the concept of localized realism quantum mechanics to the quantum mechanics calculation; and fifth, the prediction and verification methods. Regardless of how the titles of the directory are different from the text in the following outline, the context of this book is described on this page. If we expand the general outline slightly, it has the following contents.

(1) To expose the contradictions in the interpretation of quantum mechanics.

These include: “discussed a serious problem in the interpretation of quantum entanglement experiments—the changes of quantum states due to measurements have not been experimentally validated.”

(2) Establishment of quantum inverse measurement theory.

(3) Establishment of the electronic structure model for the light knot.

Because of this, a new concept of wave-particle duality was established.

(4) To expose the errors of the randomness source of a micro system.
(5) To propose the direction-quantization interpretation of the electron diffraction experiment.
(6) Establishing the theoretical premise and new quantum mechanics measurement view of local realism.

Replace the five basic postulates with new and fewer premises. Above are the reasons for returning to realism and determinism.

(7) Establishment of the mathematical formal system of local realism quantum mechanics.
(8) Establishment of the structural model of some atoms and molecules by applying the concept of local realism.
(9) Calculation of some atoms and molecules in detail by using the above method.
(10) Putting forward a prediction and the experimental verification scheme.

Here, I declare to all mankind: quantum mechanics of localized realism and determinism has been born. “Quantum inverse measurement theory (QIMT)”, the “direction quantization explanation” and “the model of the light knot particulate structure” are its three theoretical bases.