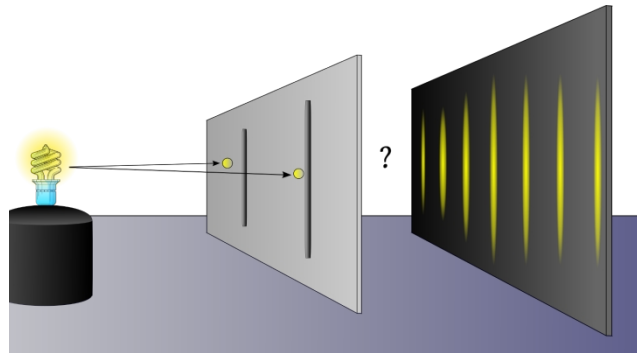


PARTICLES SUPERPOSITION PHENOMENON

One of the biggest unresolved mysteries in Quantum Mechanics is the so-called phenomenon of “Particles Superposition”. Quantum Mechanics states that the particles exist as a wave of probability in a state of superposition until observed. The act of measurement or (observation) is collapsing the wave function of particles and is forcing the particle waves to collapse and to form solid particles. Modern science has declared this to be a mystery, where the consciousness of the observer is collapsing the wave function of matter. On the basis of this assumption, we are bombarded with baseless speculations that the world exists in a state of undetermined waves where nothing is real but is just a product of our minds.



Double slit experiment

This strange and illogical physical phenomenon is giving some scientists a reason to state also that all the particles in the Universe exist in an undetermined state as a wave and the consciousness of the observer is collapsing the wave function of the particles and creating the material structure of the Universe. Even some of them are going much further in the baseless speculations and saying that we are living in a holographic Universe where nothing is real but is just a function of our imaginations. As a counterargument to this nonsense, I will ask: before the observer was born who was collapsing the particles of matter? Where the observer is situated – in reality, or in imaginations? ... And is the observer real or he also is imagination? The aim of this chapter is to provide the missing understanding of the fundamental elements; to give knowledge of how they work and to explain clearly, that there is no mystery if you understand correctly the fundamental elements and their interactions.

I have to state that the mentioned above weirdness of the particles is real, it is well-study and well documented. The particle's behavior is weird, strange, and illogical. The strange particles' behavior is not connected and is not influenced by any other physical phenomena or function, which can give us a clue why this strange behavior is happening. To all current physicists, this is the most mysterious, bizarre, illogical, and unexplainable phenomenon in the World. They doubt that we ever will be able to find an explanation for it. Even when a single photon or single electron was sent at the time and if is not observed these single particles create a wave interference pattern in the screen behind the double slit. Everybody is scratching his head and asking – what is going on?

TOE reveals that the fundamental difference between the Micro and Macro worlds is not that the Law of Physics is different for the micro and macro world. The difference is coming from the fine structure of space. - The biggest objects are crossing the boundaries of all six dimensions but the microscopic particles of matter are so tiny that they can exist just in one micro-layer of space. Each micro-layer of space is a single dimension which in some circumstances can act as a closed physical system. TOE explain also that the “Reference Point”

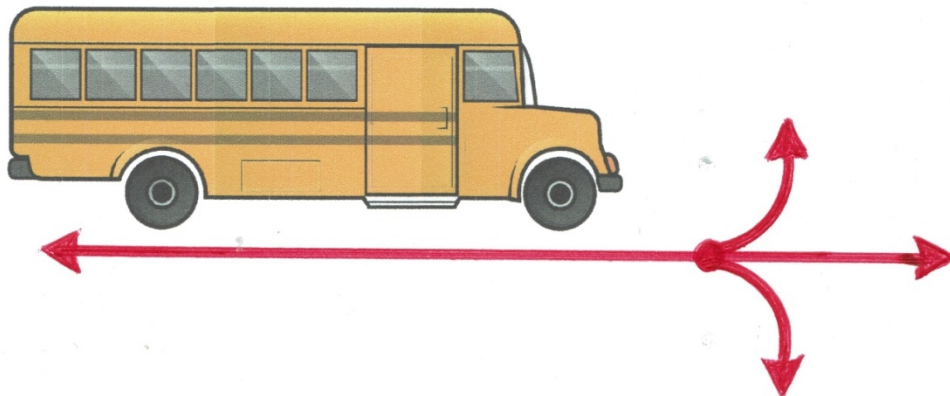
in Space, is a fundamental element in the structure of the Universe. Lack of Reference Point in a isolated Physical System is create interesting state and functions of its elements, which the modern science do not understand.

Let's see how spatial dimensions are functioning. To understand better the concept of space dimensions, we have to use Time Dimension to understand what the specific properties of a single spatial dimension are. We have to concentrate on Time's property and to realize that – Time is spreading everywhere, and that Time is traveling in every possible direction because the Future has no spatial orientation and direction.

Absolutely the same property we will observe when we consider only one isolated single dimension. - This Dimension will be spread everywhere and its orientation will be in all possible directions. Its orientation will not be determined. You will ask why the spatial position and the orientation of a single dimension are everywhere and how and why its orientation is not determined. The answer is very simple – the single dimension definitely has orientation property. It is oriented, but oriented according to WHAT? To have a defined orientation you must have a Reference Point! Without a reference point the term “orientation”, “position” and “direction” have no meaning! – This is the answer to this question.

Understanding this we can come back to our question of particles superposition. To have a stable and clear interference pattern the scientists are isolating the experiment from the interference of the surrounding. They are creating a “Sterile Scientific Environment” for the experiment. The “Sterile” environment is the core of the problems for the scientists because by isolating the experiment from the interference of the surrounding environment they are creating an isolated closed physical system. - Exactly this is the reason for the so-called “Mystery”. Here is what happening in this closed physical system:

The particles are small enough and able to exist inside the boundary of single dimensions. We just reach the understanding that a single dimension without a reference point is everywhere - (Same as Time). The position and the orientation of a single dimension are undetermined until a reference point applies! And this is the key for understand why when is unobserved the particles in the experiment are everywhere. – Because there is no reference point! The reference point is the mechanism of providing location!

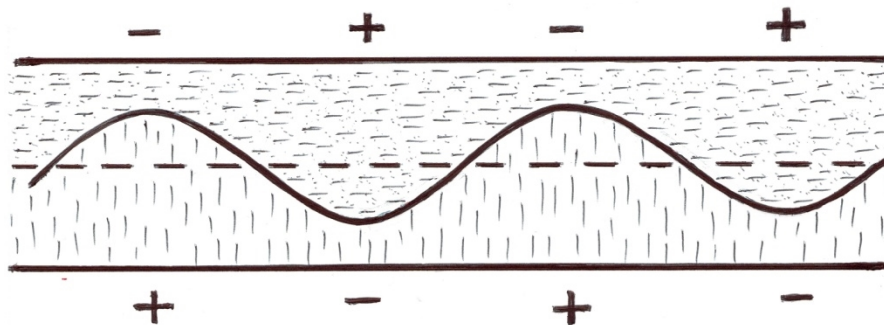


The particle in the boundary of a single dimension we can consider as to be inserted into a closed physical system. To understand the concept I will give an example: - A single passenger is traveling in a bus with fully closed curtains. The bus curtains are closed and the passenger inside cannot see in which direction the bus is traveling – forward, reverse, North, or South. Outside observers also cannot know where exactly the passenger is sitting – (his position). – This exactly is the typical situation with a closed physical system – the physical state, position, and direction are undetermined when is no passing information in or out of this

system. Lifting the curtains of the bus is changing dramatically the situation. Suddenly, the passenger can see the direction of traveling and the outside observer can see exactly where the passenger is sitting (his position). The act of lifting the bus curtains is representing the act of “observation” in the double-slit experiment. - It is letting the information get in and out of the closed physical system. – It is opening the closed physical system which is providing the information of direction and position. In short term, it is providing a reference point. The act of measurement (or observation) in the double-slit experiment is providing a reference point. We have to realize that this is just a simple explanation. We have to know that not only the conscious knowledge of the observer provides the reference point, but many other factors too. Even if a single photon pass true the undetermined cloud of probability of particles or atoms, this single-photon will do the trick – it will provide the reference point and the undetermined particle suddenly will appear. Soonest there is a reference point, the single dimension will have a defined specific orientation and the particle in it also will have its precise position! In the end, we have to realize that this is no more or less of a physical mechanism of providing a reference point to an isolated micro-physical system! - There is no mystery involved and also there are no such things as an observer, who magically creates reality and material structures of the Universe.

The conclusion is that the particles can exist in (superposition), but normally they are just particles. The result of the experiment doesn’t mean that the observer is creating reality. The transformation between the wave function of particles and the solid state of particles is a very complicated physical mechanism that is not well understood by modern science.

One of the pieces of evidence for the correctness of this explanation is the fact that in the experiment you can choose the direction of looking into the pair of entangled particles. In this way, prior to the experiment, you are determining the direction of the single dimension where the entangled particles will be found. When you chose to measure entangled particles you can choose any direction – horizontal, vertical, or any other position. The entangled pair will fit in your chosen direction because you are providing the reference point! There will be only one condition – the particles always will be oriented opposite to each other!



The image above is a graphical representation of a wave function of entangled particles in a single layer of spatial dimension. The sinusoid is dividing the pair. One is above the sinusoid; the other is below the sinusoid. It is obvious that the entangled pair of particles can exist only in the opposite phase! Any changes in the state of one particle - (one side of sinusoid) lead to instant change to the other particle. This is obvious and easy to understand and there are no mysteries, no puzzles. Just pure logic in the boundary of the Law of Physics!

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