Deeper into Nature – A Conceptual Presentation

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Abstract

Inquiry into nature is one of the occupations of mankind and there is a lot more we know about nature now than we did a couple of millennia back. But do we really know nature well enough? It is our view that there is still a lot that is hidden from us and nature is deeper than we have imagined.

In this paper, we postulate two deeper levels of reality beneath the reality of space. These deeper realities actually influence what is going on in the physical world. We use this idea to find solutions to a few of the perplexing questions in physics and list the potential future work.

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Introduction

Progress in science was gradual till the 20th century when two revolutionary theories were presented, one was Einstein's theory of relativity [1] and the other was Quantum mechanics. These two theories totally altered the scientific thinking

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on reality. But the theories also raised deeper questions about nature than before. Interestingly they are at odds with each other on two fundamental issues.

The reconciliations are still being worked upon. In our paper, we attempt to resolve the differences between these two theories while espousing our theory.

We organize our arguments as follows. We first discuss the two major differences in the notion of reality between relativity and quantum mechanics. We then present our theory about reality and list its predictions. Eventually we suggest tests for proving our hypothesis.

Quantum Theory and the Theory of Relativity

Is the reality deterministic as Einstein proposed or is it fundamentally probabilistic as the Quantum theory asserts? Again, are instantaneous effects possible? These two issues form the major differences between the two theories.

Deterministic view implies separation of cause and effect. That is, there is a limit to the speed with which an effect can happen. Einstein's special theory of relativity says nothing can travel faster than light. So it rules out instantaneous effects happening. The two slit experiment shows the duality of nature from which the quantum theory's probabilistic view of nature was derived. The theory allows for instantaneous effects. So fundamentally the two theories are at opposition with each other.

Ironically, both the theories have stupendous success when it comes to applications of the theory. So what are the missing pieces and how can the theories be made into a coherent whole? We present a logical way to make these contradictory pieces fit together.

Our Hypothesis

Our own position on the two fundamental differences between the two theories is that, we support Einstein's deterministic view of the world but also Quantum theory's "spooky action at a distance".

We propose two deeper levels in addition to the physical world which we call the M reality and the S reality. The M reality is deeper than space and responsible for the projection of space and the S reality is deeper than the M reality and is responsible for the projection of the M reality. The physical world is the reality of space, the M reality is the reality of time and the S reality is that of timelessness.

We use the concept of transcending a reality when defining higher realities. We say some energy has transcended space, if it is everywhere in space. Similarly some energy has transcended the M reality if it is at every point in time. That some reality is transcended, points to a higher or a deeper reality than it. The energy that transcends is at a higher level of energy.

The physical and the M reality being at two different levels of energy, if one is trying to capture physical reality, one moves away from capturing the M reality. So, the more accurately one is trying to make a physical measurement, the less accurate will be the measurement pertaining to the M reality. The physical reality is more faithfully reflected and the M reality is not.

It is our contention that the laws of both act simultaneously but in a complementary way. For example, the more there is wave nature exhibited by a photon, the less is the particle nature exhibited by it and vice versa. Also, the **closer something is to deeper nature, more marked are its effects**. This can be seen in the famous two slit experiment that was responsible for the development of quantum physics. The single photon is subject to both the laws of the M reality

and the laws of space. The laws of M reality try to disperse it everywhere instantaneously while the physical laws restrict the instantaneity and try to give it a position.

When something is at the quantum level, not only the laws of physical reality apply because it is still in the physical realm but the laws of M reality also apply and both apply in a complementary way. When the effects of the physical reality are large, the effects of the M reality is small and vice versa. So we get the formulation in which, the photon exists everywhere in space but with different probabilities. It is like photon being everywhere in space but occurring at different frequencies at each point in space.

Since the laws of the M reality are unknown, we just have a probabilistic formulation. So, when we make a measurement, we do not have a definite value but once we find out, say, the position in space, we can accurately measure the values because we know the behavior of particles in space. We could have started with measurement of velocity and continued measuring it accurately.

But when we try to measure the other parameter which in a complementary relationship, say, measuring velocity after measuring position, we do not have a definite value because we are making the first measurement and do not know its value in space. We can be measuring any one of all the possible values. The value for velocity will be only a probabilistic one and once we know it, we know the value in space and we can track it and apply physical laws to accurately determine further values.

The existence of different energy levels also explains the uncertainty supposed to be in nature given by the Heisenberg uncertainty principle [2]. So when one knows the value of position with more accuracy at the physical level, one gets a lesser accuracy of its complementary part, the velocity, when one tries to measure it simultaneously, since we cannot look into different energy levels with the same accuracy simultaneously.

The existence of deeper levels also explains the problem of creation of the universe. We say that the physical world was created from the M reality but now we need a higher level too because we need to resolve the question of how M reality was created. A deeper existence takes us to timelessness which puts an end to all the creation paradoxes.

In summary, any energy existing in the universe is subject to the laws of the space and the M reality. When energy is closer to the deeper nature, the laws of the deeper nature become more pronounced.

How to find the deeper levels?

We know that relativity breaks down at smallest levels. Quantum effects take over. But these quantum effects are the result of higher reality which presents itself as a window of smallest scale in space. So space being quantized, the smallest distance is where the deeper level presents itself.

We propose an analogue in time where a window of the smallest scale presents itself between two units of time. The reality that presents itself in this window is the timeless S reality.

Alternately, one can find higher level of reality at the largest scale, in one's own mind.

What Our Hypothesis Can Explain and Predict?

Our hypothesis explains some of the long standing issues in quantum physics including the uncertainty principle.

In addition, the following predictions may be made.

Since our hypothesis implies that space itself has mass, space by itself may be responsible for very large scale gravity effects. It is our contention that the curvature supposed to be a property of space time is due to the inverse square law combined with the mass of space.

We also suggest that the mass of the space is responsible for the unaccounted matter called dark matter. Dark energy is the energy of the M reality.

As universe evolve, dark energy would increase due to the increasing influence of the M reality and dark matter would decrease due to decreasing mass of space.

The effects of the four fundamental forces will start waning and the forces of the M reality will become more pronounced.

Our hypothesis thus suggests that laws of space themselves are time variant and with time becomes more and more in sync with the laws of the M reality. So the universe will tend towards more order though increasing disorder would have been its nature in the first phase of its existence

Tests to prove our hypothesis

The first test we propose is in testing whether at the smallest scale of space, energy instantaneously disperses everywhere. As an approximation we may test whether as the energy approaches the smallest scale, whether the effects of instantaneity increases. This points to transcending of space and to a higher level of nature as we propose.

One can also test for higher energies than physical energies by trying to detect thoughts and test whether they travel instantaneously everywhere when produced. This would point to a deeper level than physical level.

Potential Future Work

Great advances in knowledge and technology can happen if we unravel the mysteries of the inner world because they seem to be the source of our physical world. The effects of those are likely to be much more powerful and far reaching than those of the physical world.

One of the areas of research could be to explore the mechanics of projections of

the lower realities and the subsequent evolution of the lower realities. Another vast area of research would be to formulate the laws of the M reality and the S reality and how they affect the physical world.

One may need to rework the physical laws too but one is more likely to get an integrated framework of laws at different levels. Understanding the higher level of energy and figuring out how they are related to the physical energy would be required.

The applications coming out of the above discoveries would also be an area of intense research.

Conclusion

We proposed two more levels of deeper realities beneath space as a way to address the current siege on the resolution of major differences between theories of reality. We showed how the hypothesis of three levels of nature is a logical way out. We made a number of predictions using our hypothesis and also proposed tests for proving its correctness. If proved true, there are immense theoretical and practical implications.

References

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[2] Wheeler,J.A.andZurek,W.H.(eds), *Quantum Theory and Measurement* (Princeton J:Princeton University Press), p 62, (1983)