

3<sup>rd</sup> International Conference on **Nuclear and Plasma Physics**  
&  
4<sup>th</sup> International Conference on **Quantum Physics and Quantum Technology**  
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## Quantum information conservation

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**H**ow does future unfold in Quantum world? We have an emergent uncertain future continuously coming into existence relative to the spontaneous absorption and emission of photon energy. Within such a process the wave particle duality of light and matter in the form of electrons is forming a blank canvas that we can interact with forming the possible into the actual! The future is unfolding with each photon electron coupling or dipole moment relative to the atoms of the periodic table and the individual wavelengths of the electromagnetic spectrum. As part of a universal process of energy exchange that forms the ever changing world of our everyday life the 'past' has gone forever. At the smallest scale of this process the 'past' is represented by anti-matter annihilation with the symmetry between matter and anti-matter representing the symmetry between the future and the past as the future unfolds photon by photon. In such a theory the mathematics of quantum mechanics represents the physics of 'time' with the classical physics of Newton representing processes over a period of time, as in Newton's differential equations. In the delayed choice quantum eraser experiment, time is unfolding photon by photon within the experiment, relative to the geometry or structure of the experiment. We do have a cosmological timeline for the whole universe, but we also have an infinite number of reference frames coming in and out of existence with a timeline for each object. In quantum eraser experiment, the photon rewrites past when it sees the presence of an 'observer' in future to show as if it traveled through one slit or the other. If that's the case, when it sees the future, the photon/electron canvas in future did not interact with observer yet. So how did the photon see the future? - An anti-matter annihilation. According to Stephen Hawking - Black holes act as a kind of quantum erasers to erase the past, meaning, all the quantum information, starting from big bang, which is preserved through 'Conservation laws' is being erased slowly. However, through the thermal energy emitted through Hawking radiation, information can be restored. Thus, quantum information can never be destroyed.

## Biography

Lalitha Nath pursued her Bachelor's Degree (2005) from JNT University. She is an IT professional for the past 11 years in a premier insurance organization. She is a quantum enthusiast (passionate about Quantum Physics) and has spent significant amount of time in researching and understanding quantum phenomenon. She has delivered presentations across various quantum conferences. She has started writing papers on quantum mechanics.

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