

Amount of Information in Observable Universe

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Abstract:-

Today's article is about fascinating quantisation of the amount of information in the entire observable universe by physicists.



Mysteries of universe are fascinating and no where to be near unfolding, atleast any time soon. But, no one can deny, we have come a huge way, gave many mind bending theories, that helped to understand a bit of our reality with a bit of different perspective and shown some clarity. The search for truth goes on and now to further attempt in search of reality, scientists are speculating many theories about the information itself.

There are many different speculation, whether the information itself is a fundamental aspect of physical reality or is it a state of matter itself and many such. Which ever is the case, it's something that every bit of particle in this universe possess, like something can't exist, without having any type of information out there to the universe. Not only the existence and position, the rules that govern their existence, the mass, different physical properties, every single thing adds to the information.

Scientist Melvin Vopson, from the university of Portsmouth, United kingdom, found a way to calculate the amount of information. He first made an estimation about, how much information an elementary particle contain in itself. But the all those elementary particles had to stable and have non zero rest mass to be able to come under the radar of calculation. He excluded bosons, as they considered them to be carrier of information. He restricted the calculation to the observable part of the universe, so antiparticles got excluded. Many other elementary particles were excluded for being unstable and having very very short life time . The estimated information

held by each particle of universe was given by 1509 bits. When he calculated that to the estimated total number of particles, the estimated amount of information was around 6 followed by 80 zeros bits of information.

Apart from this, he stated that, information can be stored in other forms also, which includes the surface of our very own universe.

And this theory can have a huge practical benefit also, because it will be helpful in accurately designing practical experiments.

Reference:-

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Image reference:-

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