

The little electron that killed all the dinosaurs,

A short story about chaos theory –Gayan Illeperuma

Long long time ago, far far away, there was a lonely electron. It was all alone in the empty space. Surrounding it was nothing but the darkness. Few glimpsing stars, that were thousand light years away, was the only thing visible. One faithful day a stranger came from nowhere. It was a single photon. It was bright and nobody knew how long it had being traveling or how it had survived the long journey. Any way its destiny was certain. It hit the electron with all its might. There was a little shimmer, and then it faded in to nothingness. Nothing but the usual pitch black canvas of darkness. However little electron felt more alive. It had gathered all the momentum and energy of the unfortunate photon. Now it was moving, moving towards an unknown future. A future no one predicted.

Although the speed of the electron was tiny, it had an immense patience. It had waited few million years and easily endured the journey of thousand years. It was moving away from nothingness towards a bright light. A distant star. Time passed by and the electron was traveling further and further away from its home. By now it was closer to a solar system than it had ever been. Like moving towards a crowded city, more particles started to fill the space. Now photons were not rare strangers but common visitors. But our little electron was about to face a more unexpected encounter. Within few days a dust particle appeared on its path, It was so small it's more suitable to call a collection of molecules than a dust particle. But in front of the little electron it was a giant. Tiny electron had no way to escape. It faced the inevitable and collided with the dust particle. Dust particle only felt a little twinkling sensation but any way the incident had moved its path by few angstroms. Time passed by. Little difference in the angle started to show its effect. After few years it was few centimeters away from where it might have been if the impact hadn't taken place. Another thousand years passed. Earlier dust speck might have missed the asteroids gravity field by few centimeters. But because of what happened ,now it was in the grip of the asteroid that was moving

towards the bright star. Dust particle tried to escape. But the pull of the gravity was too strong. Finally it gave up and fell on the surface of the asteroid for a never ending sleep. Within few days asteroid ended the inner region of the strange planet system. By now it was clear it was not a simple solar system but a binary one. And the asteroid had plotted its path to the doom. With the help of the gravity from the star, Asteroid was heading directly in to the star. Temperature of the asteroid started to rise. Little ice caps on the surface started steaming and flying out wards. Our little dust particle try to hold on to the surface. It was its only defense against the scourging sun. By now asteroid had started to melt as the temperature sky rocketed. Thousands of photons from solar winds continue to batter the asteroid the dust particle. But like a determined kamikaze pilot, asteroid went straight for the surface of the sun. In a fraction of second it was absorbed in to the never ending flames of thousand degrees.

This is where the miracle happened. Dust particle never really felt anything as it was disseminated into thousand little particles. A little swarm of electrons, protons gash out as the particle worse torn out with immense forces. Compared to the impact of the hundred kilogram asteroid it was nothing. Nothing at all. It was more like a fire fly in front of a thousand watt bulb. But never the less it was still a fire fly!

Like all the particles that was torn out from the asteroid these particle too entered a never ending cycle. As the nuclear reaction happens inside the star, these particles started to interact with them. Our group of tiny army was able to interact with a little blob of helium just below the threshold. Without them this reaction might have never happened. But the help of newly arrivals it was fussed in to helium and started a chain reaction in the local region. Soon the chain reaction grew in to a few kilometers wide area. Now the temperature on the surface just above the region was few centigrade's higher than it should have been. As the pressure inside the star builds up, it was usual for it to throw it out like solar winds. It was happening all the time. So if this region didn't exist it could have come out on the other side of the star. But now it did have a higher temperature region close by and it chose to come out there. A thousand mile long

solar wind escaped from the surface. It cooked everything on its way. Among them was a comet. It was on its usual journey around the star. It had never expected such a warm welcome. As the boiling plasma of solar wind hits the side of the comet all the ice in the cavities instantly turned in to steam. They shot out through the small halls like a rocket engine. This had shifted it from its normal path and now it was in an unstable path. Comet had taken the first step to escape from the gravity prison of this star. With every revolution, variation became more and more. After a dozen trials it had gathered enough courage and energy to run away from the star. One fateful day its speed and angle just matched the escape velocity and the comet instantly thrown away in to an unknown part of the universe.

After few billion years it was entering in to a new solar system, A solar system with nine planets. It was heading towards the third planet in the system. Unknown to anyone this watery blue planet was teeming with life, And its fate was about to take a twisting ride.

Huge Dinosaur was on the edge of the lake when it first saw the bright star. It was a new star. It had never being there. And what's more strange was its shining in the day. Of course fat friend didn't thought any of this, it kept munching in to some plants. But the star began to grow in brightness and size. Soon it was too bright to watch. A moment later a huge shock wave shattered the planes. As the comet hit the sea it created a tidal wave hundreds of meters high. As the giant wall of water swept away most of the animals from the surface and their lives, ashes of the impact started to cover the sky. Soon it was dark like the night of the dead.

A little rodent peeked through it mouse hole. It was afraid of all the giant predators. But soon all that would change. Soon all of giants will die leaving the stage of life and this planet for first mammals. Soon little rodent will shed its fear as a pray, and start to evolve. Later it will evolve in to more cunning and intelligent beings. It will give birth to strange biped creatures not only look back in to the past for the awesome history of the planet and how lucky they were but also being able to find their way through all the chaos of the past. Soon these

creatures will give rise to science and literature. Soon it will give rise to a person who will write down this story. Soon it will... But remember, it all started long long time ago with a tiny lonely electron far far away...

-Gayan Illeperuma

"The butterfly effect is a metaphor that encapsulates the concept of sensitive dependence on initial conditions in chaos theory" - Wikipedia