Time: Gravitational Time Dilation And Time Travel

Time Introduction:

Time is known to everybody but it is difficult to characterize and get it. Time has various definitions in various fields yet the method for estimating it has always been the same. The SI unit of time is second and it is characterized by electronic change of cesium particle. Time had a beginning. It occurred about billions of years ago at the time of the Big Bang. Besides, how and when time will end is an open inquiry depending upon destiny of the universe.

Definition:

Physics define time as the series of occasions from the past to the present into what's to come. The idea of time is related with the motion and the change in objects around us. All objects begin, process, and end in time and that remains constant not only for us but also for the stars and the universe. In science, time is only what a clock reads but Physics, in particular, requires degree of exactness about time measurement. In physics, time is used to describe the motion of objects.

According to classical physics, the concept of time that is used, is of the absolute time which is measurable and is same for everyone and everything. For Isaac Newton, absolute time and space are two different things more like two different aspects of reality that he think should be measured independently regardless of the universe because he thinks time has no end and it is going to last forever even when the universe is empty and out of objects and things that are now present around us. Although according to newton absolute time is real, he says that we are mortal and it is impossible for us to consider it directly. We are only capable of perceiving it what he called apparent or common time, which can be observed by motion or movement of sun and moon and ticking of clocks. It should be understood that newton’s statement of time is at a very good level about what time is and how it behaves in world we live in and how we experience it. Also, relativistic time that was explained by Einstein differ from the absolute time only in a matter when traveling at speed and approaching to speed of light or in the condition of high gravity.

Time As Fourth Dimension Of Reality:

Time can be considered as the fourth component of real world, used to describe three-dimensional events. Space is a three-dimensional zone where a traveler is provided with location according to length, width and height but time provides another coordinate, “direction”. Time in the real world has one bearing, called 'the arrow of time.' Time doesn't flow however, there is a clear direction in which things reside. While most majority consider time as a constant, Albert Einstein showed us that time is an illusion. It is relative and it can differ for different observers according to their speed through space.

Time Dilation:

Time dilation is the theory of special relativity. Einstein's theory of relativity says that time backs off or accelerate depending on how fast or slow you are travelling relative to the other person. If we're standing on earth, our time is appeared to be slower a piece than someone up in space. For earth, it doesn't matter that much when compared to something like black hole. For, when you get closer and closer to black hole, your time appear to slow more and more. A space ship traveling at a speed equal to the speed of light would take millions of light year to travel to some star that is 100,000 of light-years away as seen by clocks on earth, the astronaut in that ship will hardly age that much as he travels across the galaxy. According to Einstein, time is relative to the observer or more specifically, the motion of that observer. Not to say that it is random in nature, it is still governed by laws of physics. It is predictable but it's not absolute as Newton stated. A Christian Philosopher, William Crag, has suggested that there may be a difference in reality of time and how we measure it. According to him, time itself may be absolute but how we measure it might be relativistic.

Gravitational Time Dilaion:

Time dilation can also occur because of gravity. When Einstein broadened his special hypothesis of relativity to a general hypothesis, it become clear that the time dilation effect would also happen due to gravitational pull or simply because of gravity and that effect is referred as gravitational time dilation. The more close the one object to another, the more strong the gravity and thus more the time it will take.

Time dilation also explains the "twin paradox", where one of the hypothetical twin is sent to a space ship travel for quite a while in space, and when he at long last returns, he is found to be the youngest of two. Because of the time dilation effect, the clock on space ship shows a shorter duration than the one on earth.

Time Travel:

Just for the fact, we are always traveling through time as we move from the past into the present and then in the future. But time travel actually refers to the prospect of changing the cost at which we travel in the future or past. Time travel is not possible in newton's concepts or in the special theory of relativity. But in any case, general relativity tells us there is an opportunity of traveling through time that is the possibility of traveling ahead reverse regardless of the time that we experience on earth. Time travel is usually taken out through a process where a person's mind and body is unchanged yet with the assistance of their memories, the location time is changed. It is possible to travel in time however only in one direction. Time is linear and moves only in one direction which means we can only travel in the future but we cannot travel in the past. Einstein's theory of relativity of traveling to thousands of years into the future is possible only if we attain a certain speed and also the unending amount of energy. Apart from that, gravity also helps to travel in the future. Gravity can control time because the more the gravity, the slower the time is spent.