

## **Time travel from a theoretical point of view**

Time travel has always been a really common topic in science fiction. When we hear to talk about it, it first came to our mind the idea of some kind of machine where you introduce at what time you want to travel or a portal you cross and makes you appear in another time. Although time travel understood as it is presented in science fiction is impossible, the Special Theory of Relativity and also the General Theory of Relativity opened a new window when talking about time travel.

Those theories showed that the ideas of an euclidean, homogeneous space (same “length” in all directions) and absolute time (the same “clock” for everything in the universe) were wrong.

A. Einstein introduced a new postulate that says that the speed of light is always the same for any observer. That new idea was shocking because it implied that space was not homogeneous and time was not absolute. That means that lengths depend on the observer but also time is different for different observers, it is, “clocks” have different “rhythm” depending on the observer.

Is that last idea that allows us to talk about time travel if we understand it in a different way as was introduced in science fiction. If a clock’s rhythm is slower than everyone else, a period of time of a year, for instance, will be traduced in a period of 10, 100,500, 1000... years. So from a theoretical point of view, a person who lives nowadays could see how the world would be in 1000 years, and that would be a time travel to the future.