You can travel faster than speed of light!

Kristian Ekman March 19, 2016

I have been taught that nothing can travel faster than the speed of light, but it's probably not the whole truth.
We are playing with the idea that we are traveling to Proxima Centauri, our nearest star. Distance 4.24 light years. We have a great space ship with a very powerful engine that runs on some kind of super fuel, not yet invented. We can drive there at an average speed of 99% of the speed of light that is 297 795 km / s. It will therefore take a little more than four years to travel there. We round to 4 years.

Einstein's theory of relativity says among other things that time will run slower when we increase speed. According to the formula below, time runs about 7 times slower at 99% of light speed.

$$\Delta t' = \gamma \, \Delta t = \frac{\Delta t}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Https://en.wikipedia.org/wiki/Time_dilation#Overview_of_formulae

One seventh of four years is approximately 0.57 years. So we will find that we travel 4 light-years in about 7 months. That is 4 / 0.57 = 7 times the speed of light, of course.

Because time is running slower and slower when accelerating, in the spaceship we are experiencing that we can travel at limitless speed. For example, at 99.99% of the speed of light, time passes about 71 times slower in the spaceship and it will only take us about 22 days to travel to the nearest star, 71 times faster than the speed of light! But then when we go back to earth at the same speed, land, buy a newspaper, check the date, then it will have been about 8.5 years on earth.

I could be wrong but I believe and I think that there are no known theoretical limitations to travel faster than light speed, because the speed is distance divided by time and time runs slower when you increase the speed. But you can never travel faster than a light beam, and you can not see someone else travel at those speeds.