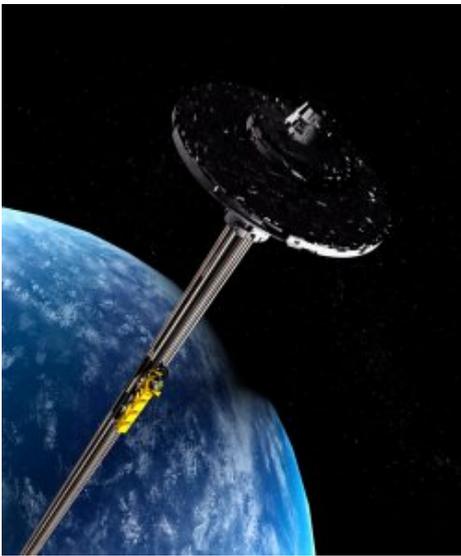


## The Spaceline: A shuttle to the moon!



A rendering of the Spaceline. Credit: [techeblog.com](http://techeblog.com)

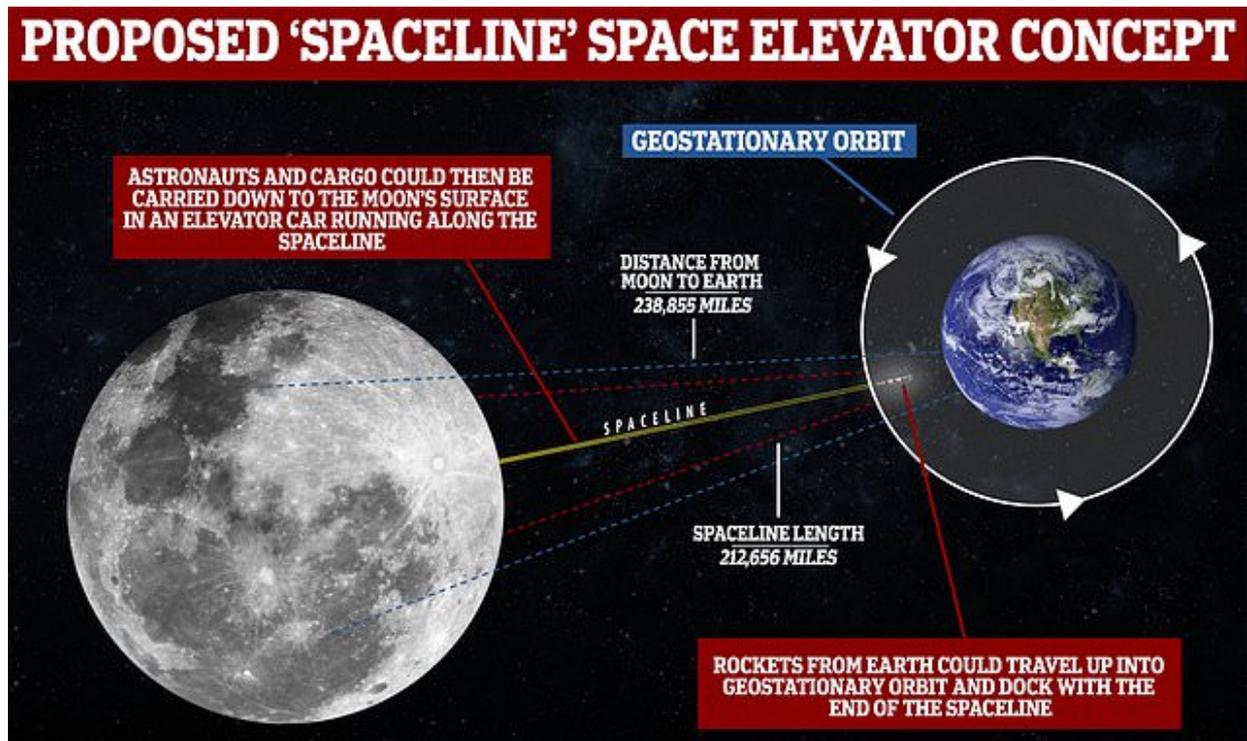
**Willy Wonka had his great glass elevator, but soon, the rest of us may be able to take an out-of-this-world ride of our very own.**

Launching rockets to the moon is a very expensive process, because the amount of fuel and power needed to break through the Earth's gravitational force is huge, and for more than 100 years scientists have been debating the concept of a permanent elevator that travels between the Earth and the Moon. Can you imagine that?

Recently, two university students, Zephyr Penoyre from Cambridge University and Emily Sandford from Columbia University have proposed the idea of a Spaceline that seems more attainable and a lot cheaper than even a space elevator!

**So just what is the Spaceline?** Imagine a really (really, really) long cable, about as thin as the lead in your pencil extending all the way down from the Moon to several thousand feet above the surface of the Earth. This line, which will be made from Kevlar (the same, super tough, almost unbreakable material used to make bulletproof vests) will cover the 200,000 miles from the Moon to a point in the **geosynchronous orbit** above the Earth where the gravity of the Earth and the Moon balance each other out (think like a see-saw when both people on it weigh the exact same amount!). This will make sure that the cable remains stable enough to transport materials and even people between Earth and the Moon. The

transport would be done via solar-powered capsules that would run along the length of the cable.



How the Spaceline could work. Credit: truemedian.com

**Do we really need a Spaceline? What would it do?** By constructing a Spaceline, the cost of sending materials into space, outside the gravitational pull of the Earth would become significantly cheaper. Rockets would only have to be launched up to the base of the SpaceLine, without the need to break through the Earth's gravity at all.

From the base of the Spaceline, where in theory, a base could be built since the forces of gravity cancel each other out, creating a stable environment for construction, materials and people could be transferred to the solar-powered capsules that would carry them to the Moon.

Similarly, geological materials from the Moon could be shipped back down to Earth via the Spaceline and used in construction and other areas.

The base could serve as a centre where rockets for deeper space exploration could be built, and since they would also not have to think about overcoming the Earth's gravity, the cost of space exploration and even space travel for humans would dramatically reduce.

**Sounds pretty cool, right? Is it going to happen?** In reality this idea is still a long way from coming to fruition, but this research paper is definitely a step in the right direction.

**How much will it cost to make this Spaceline?** What is particularly exciting is that the cost of this entire contraption would be about 1 billion dollars, which would be recovered by approximately 53 trips to the Moon.

**Things to think about:** What about space junk – could debris damage this Spaceline? And perhaps more importantly, how much more space junk will we be generating in space?

Do you fancy a trip to the Moon? It just might become possible!

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