

Exploring the Galaxy – Part 2

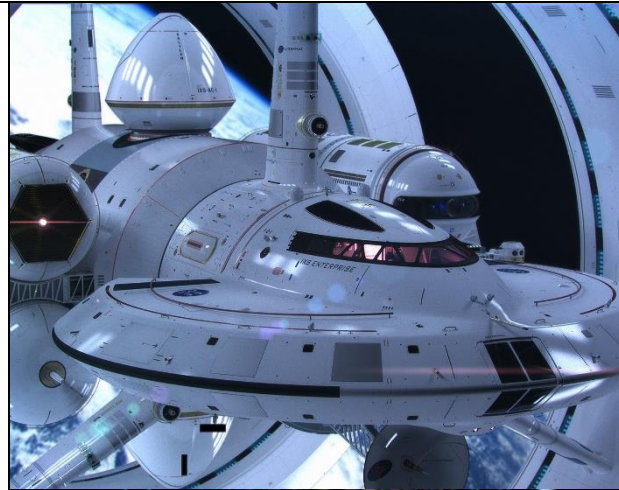
How fast can we go?

Light travels at 300,000,000 metres per second (186 thousand miles per second). That means it would take light only 0.04 seconds to cross the entire diameter of the Earth.

***Nothing* in the Universe that weighs anything can travel faster than the speed of light. This is a *law* of physics.**

No-*thing* can travel faster than light, but space isn't a 'thing', it doesn't weight anything. The Universe is expanding faster than light. Some people think we may be able to use this to get around the Universe's strict speed limit (see 'Alcubierre warp drive').

NASA's Parker Solar Probe is the fastest travelling object ever made by humans at 42.6 miles per second. This is still much slower than light (1 hundred thousand times slower than light). At this speed, it would take 18,261 years to reach our nearest neighbour star (Proxima Centauri).



The Alcubierre Warp Drive

In 1994, a physicist called Miguel Alcubierre came up with the idea to get around the Universe's speed limit.

Empty space can move faster than light, so if we wrap a spaceship in a 'bubble' of space, we may be able to propel that bubble faster than light without breaking any laws.

The picture shown is an artist's impression of what a NASA Alcubierre Warp craft may look like (this ship doesn't exist! Yet...)

Wormholes

Wormholes are hypothetical tunnels between different regions of space in the Universe.

If wormholes exist in nature, it's likely that they would be far too small to travel through. However, some physicists think it may be possible to expand the entrance to a wormhole and make it stable.

In theory, wormholes offer shorter paths between distant parts of the Universe, so could be utilised to reduce travel times.