“Antimatter matter propulsion”

The discovery of the Higgs Boson particle helped scientifically describe how matter retains and distributes mass at the atomic scale. Theoretically this discovery would allow for the manipulation of matter at the atomic scale to allow matter to enter a “massless” state. From the ability to manipulate matter into a massless state it would possibly allow for light speed travel and possibly faster than light speed travel (according to the study of tachyon particles).

In terms of propulsion for a type of spacecraft anti-matter , matter collision driving the propulsion would be the most efficient choice. Since any form of existing matter also has a symmetry of an antimatter atomic state within a matching pair to make up matter. Then Theoretically there are no requirements to store vast amounts of fuel or to ever run out of fuel. Since any nearby star within 12.5 to 50 light years would have exo-planets or exo-moons where it would only require maybe a few hundred pounds of raw mineral material from another world to power “antimatter” propulsion. Even considering the nearest star to this planet is Alpha Centauri which is 12.5 light years from earth.

In terms of theoretical models since approaching the speed of light even 1g of matter starts to envelope mass over billions of tons to trillions of tons. I believe its possible to travel faster than the speed of light in excess of 10 to 100 fold or more. Similar to arguments consisting of nothing travels faster than the speed of sound through the discovery of Doppler waves from trains and eventually leading to the concord airplane taking its first international trip and speeds faster than sound. Even modern fighter jets can travel a few times faster than the speed of sound.

Traveling between the stars could be hazardous and possibly most trips would end in becoming completely lost to return to a point of origin. Space is always in the process of great expansion. Even stars that seemed fixed in one place several hundred light years away might be non existent even if we could travel there in 1 year at 100 times the speed of light. Since the light we perceived from the star took a distance of 600~ trillion miles to arrive here. Even traveling to a star 100 light years away it could have drifted a distance from where it was where we observed it from Earth since the universe continues to expand.

Not only is distance to travel between stars an issue there also arises problems with temporal space in terms of time. Traveling to locations distant enough from Earth there are time deviation effects that take place which fall under the Twins Paradox scenario. Attempting to travel to a non-existent star that was thought to be existent from observations on Earth would require altering physical time-space to arrive at earlier version of the star’s time line (which could be one of infinite possibilities of a particular star and its surrounding planets in its particular solar system under m-theory values)

From reading your article I thought I would mention this, since it mentions combining nuclear power as a source of propulsion which require heavier metals to fuel that type of propulsion. Nuclear reactions through heavier metals might not be available under that same type of chemical format to power the same type of nuclear reaction and could also react and work completely different based on the chemical properties of heavier metals which form outside of this solar system. Since each star forms heavier metals different than the way heavier metals formed in this solar system from our Star.

Under personal theory not all stars are massive hydrogen nuclear reactions other stars outside of this solar system might burn heavy nuclear reactions compromised of completely different elements. As a loose based argument even producing fire on this world can be burned or started from dozens of different chemicals which are combustible to allow for exothermic energy. Since the Sun is basically nothing but a large fireball of plasma energy in what seems like an almost never ending nuclear reaction giving off energy. Stars might burn with reactions which we couldn’t even fathom from our own chemical periodic table of elements.

The key to this is to try and find a material that can withstand enough force and pressure to even withstand a small nuclear detonation around 1/20 of the New Mexico testing in the 50s. Being able to find a material strong enough to encapsulate a tiny nuclear detonation would allow for anti-matter , matter propulsion. Since anti-matter, matter collisions that produce energy are extreme. Even 1 gram of matter can account theoretically for a 40KT detonation. As mentioned earlier anti-matter, matter propulsion as a source of energy to propel a spacecraft through the stars would be most efficient since a few hundred pounds of raw material from a nearby star or from star to star would be more than enough between each star.

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