Star travel earlier than we thought?

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I recently saw a series of YouTube postings entitled Further Conversations with Jack Sarfatti (http://www.youtube.com/watch?v=NCsnmn17csI) Part 1 thru Part 6 and although obscure, to me the implications are astounding. After a period of pessimism about the future of humanity in space, today I am more optimistic than I ever was that humanity's destiny is in the stars.

Over the years, Jack Sarfatti has always been a bit of an icon to me. I have followed and admired his work, including spending a fair amount of time perusing his website: www.stardrive.org. The site describes much of his research and thinking in both consciousness studies and gravity physics - both direct descendants of zero point theory. In recent times, the site appears to have fallen into disrepair, yet the information on there is still extremely interesting.

I studied physics during my undergrad years in the mid 1970s and learned some fascinating stuff. This included an undergrad level of understanding of the mathematics behind quantum physics, particle theory, etc. However, since that time, I hadn't followed the progress at the leading edge of quantum physics beyond what you can read in Scientific American, etc. I also hadn't followed the latest in gravity theory, zero point theory, etc. - all having advanced incredibly since my undergrad years. So when I listened to Sarfatti's YouTube interview today, my jaw dropped. Based upon what I heard presented there, I believe that we could have working star travel: antigravity propulsion, and all that goes with it, within a hundred to two hundred years. The revolution is truly just around the corner.

A few years earlier, Gwyn and I attended a lecture by Dr. Mark Millis, at that time the head of NASA's Breakthrough Propulsion Workshop (http://www.grc.nasa.gov/WWW/bpp/). In it, Dr. Millis described the essential hurdles facing star travel, and possible propulsion research coming out of NASA's advanced concepts work. Dr. Millis stated that the biggest problems in the physics of possible star travel have always been:

- Propulsion - how do we propel a spacecraft fast enough to cover the distance to a nearby star in a reasonable period of time?
- Energy - how do we obtain the truly prodigious amounts of energy required to travel interstellar distances.
- Gravity - how can we tailor gravity fields to both provide the acceleration as well as provide artificial gravity within the starship, itself.

If we move beyond rocketry and begin to study other modes of propulsion, we eventually find that in order to travel to the stars we will have to be able to understand and control gravity. Arguably, this is not something we could do using conventional physics and Dr. Millis stated that we need to think WAYYYY out of the

box on this one. Surprisingly (at least to me) there is far more of a mathematical foundation behind this than I thought. I hadn't realized just how much so until listening to the Sarfatti interview on YouTube.

The biggest breakthrough has apparently come through the relatively recent emergence of dark matter, and then of dark energy, in cosmology research during the last couple of decades. Over most of my lifetime, the problem that there was not enough mass in the universe has baffled astronomers/cosmologists. The universe is not gravitationally closed. Therefore, it should ultimately drift off into an infinite void. This was theoretically and poetically unfulfilling; there must be about 10 times as much mass out there, unobserved in some way. Over the ensuing ten years, it was found that the there seems to be just enough mass, and therefore curvature, to exactly close the universe. So rather than be a mere theoretical artifice, the missing mass must actually exist. It was thus given the (un)imaginative term name of "dark matter".

Then, in 1999, came the cosmological measurements of Dr. Saul Perlmutter et. al. These were expected to confirm this model - that the universe was slowing down at just the right rate to prevent it from expanding forever, yet never falling back in on itself, either. "Unfortunately," the experiments found something different - that rather than slowing down, the universe was accelerating (!!!). This meant that something out there was actually pushing the universe apart - effectively a cosmological scale antigravity. This meant that in some way, antigravity must be possible - because it actually exists.

At that same conference where we heard Dr. Mark Millis, Gwyn and I also attended a talk by Dr. Ning Li, an experimental physicist. In this talk, Dr. Li addressed the apparent interaction between superconductivity, electromagnetism, zero-point physics and gravitation. Again, most of it was rather over my head, but I did get the gist of what she said (I think I did, anyhow). She build a mathematical case for the physical effects within a superconductor causing a coherence within the zero-point field, which in turn resulted in modification (shielding) of the gravitational field. Much of this was a theoretical response to the experiments in Tempere, Finland (http://www.electrogravityphysics.com/html/tampere.html), which have apparently shown interactions between superconductivity and gravity. Thus, Dr. Li had built a one of the first cases that I knew of for actual gravity modification. Indeed, gravity control WAS possible.

Now, with the concept that the universe is accelerating, it seems that indeed, gravity is far more pliable than we thought. Apparently, the cosmos is made up of about 3/4 dark energy, and only 1/4 matter. Antigravity is not only present, but it is the most prevalent thing in the universe.

Returning to the YouTube interviews with Jack Sarfatti, I listened with rapt attention as he described how something like gravity modification might be accomplished. He talked about some of the current gravity-EM field experiments that are going on at Berkley, Cal Tech, and other leading edge physics institutions. Several of these are

close to demonstrating actual conditions in which negative energy density could exist - and thus negative gravity. If this is the case, than the fundamental theoretical hurdle to star travel, the control of gravity, may soon fall.

Someone - perhaps Einstein – stated, "The difficult we can do tomorrow, the impossible may take longer." Now, just maybe, the impossibility of star travel has turned into the difficult task of actually doing it. It may a few centuries to master the "small matter of engineering" required to actually apply the physics to build a working "warp-drive" engine. But if these experiments pan out as described in Sarfatti's interview, then perhaps the biggest "impossibility" has begun to fall.