

Re: Lunar Space Elevator simply isn't for everyone

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- *From:* "Ross A. Finlayson" <raf@xxxxxxxxxxxxxxxx>
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ianparker2@xxxxxxxx wrote:

An electromagnetic gun is the best solution for the Moon and indeed for anywhere without an atmosphere. It is virtually 100% energy efficient and could take you anywhere within the Solar System.

Ion drives will do the fine navigation.

Fast enough.

In Australia some few years ago, electromagnetic launch was used to accelerate a booster rocket quite a ways and then it was ignited after that, whence it proceeded to orbit. I just have heard that, no source.

The idea, I guess for an ETOMD or ETSMD instead of a LTOMD, LTSMD, Luna to Space Mass Driver, the idea of an ETSMD is that the energy that it take to send, say, a 100 tonne pod into space is applied and does.

Let's see, if 100 tonnes is 10^8 grams, and V_e , escape velocity, is roughly 10^5 m/s, (11km/s), then around 10^{13} gm/s is the pod going to space, $mv = 10^{13}$, with $a =$ around 300 m/s, $ma = 3 * 10^{10}$ newtons, billions of newtons, over $1.5 * 10^5$ m around $5 * 10^{15}$ J or 5 petajoules. The two tonne pod is looking at around 100 terajoules, but is too small unless there is a solution to the shock problem.

<http://www.google.com/search?q=megajoule+coilgun>

Ion engines, solar sails for long course corrections or laser targets, gravity slingshot, chemical (combustion) kick motors, yes the ion drive is probably the most suitable for its basically solid-state construction.

The problem again is the atmospheric problem, in terms of shockwave of an 11 km/s projectile entering Earth surface air, basically instantaneously, but not quite, decelerating, then flying through said air, presumably ablating and losing mass and forming a shockwave in the air. That's the problem if there is a billion newton force source, and solution to the hysteresis problem, where the back electromotive force

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(EMF) maintains fields in the coils.

There are myriad technical problems with a coilgun to orbit system, compared to a space elevator it's quite simple.

That atmospheric problem might have some solution. Consider, say, shooting a precursor sounding-type rocket that leaves a trail of particles in the exact path the pod will take. Then, they combust, say, or are energized, partially vacating the path of the pod. Consider a laser tuned to opacity of air to blast a path through the air molecules. Launching from high altitude is a given. Every little bit helps at 5 petajoules.

I'm a space enthusiast, I'd like to see serious and viable colonization of space in my time. I don't talk very much about politics because I would start listing problems and blaming people and groups. Then again, I have some ideas about how some things could be done better, take back America and so forth.

Research and development, including education and big, small, and primary science, is the predictor of economic growth, in the economy. Growth is good.

Ross

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