

Nano-Box Rocket Array

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The peer-reviewed literature discusses a “Repulsive Casimir Effect.” In other words, the Quantum-Flux Radiation-Pressure is expected to build inside small cavities to a level that is higher than the Ambient Radiation-Pressure. Seemingly, everyone is overlooking the clear consequences *if* this is really true.

Let's start by thinking about a totally enclosed box with four sides, a top and a bottom. If we fill that box with pressurized air, we find that opposite sides experience equal and opposite forces, the floor and ceiling also experience equal and opposite forces. Therefore, there is no net force acting on the interior surfaces of the box; but, suppose we remove the floor of the box: Now, each force that is acting on each **side**, is still negated by the forces acting on the opposite side---but now ceiling of the box has no opposite side for the pressurized air to act on; therefore, the ceiling experiences an unopposed upward-directed force since there is no opposite force acting on the floor of the box (since there *isn't* a floor!)

A rocket is just like this except that it maintains pressure by **continuously** releasing *new* expanding gases into the combustion chamber and nozzles. For our purposes, it is vital to make a very subtle distinction. The molecules that are propelling the rocket at any given moment are **not** the ones that are **exiting** the nozzles. At any given moment, the Rocket is only being accelerated by the molecules that are actually bouncing off its internal surfaces at that moment, which consists of a very thin layer that is immediately adjacent to the interior surfaces of the nozzles and that part of the combustion chamber that is directly opposite the opening in the combustion chamber. **This** is the essence of the rocket---**not** the big loud show coming out the back end! The only significance of the exiting gases is that they do indeed have to get out of the way so that new fuel can react and expand inside the rocket, so **new** molecules can bounce those surfaces, imparting **new** energy.

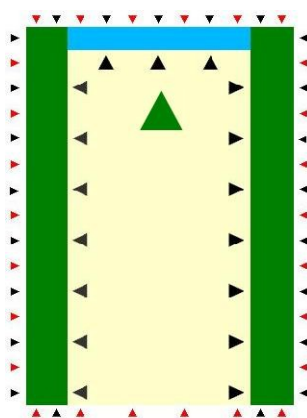
If a genuine flux-enhanced cavity is really possible, like any other pressurized cavity with one open side, it would experience a net force acting toward the ceiling of the cavity. A Z-PEC Thruster consists of a macroscopic plate that is covered on one one side with nanoscopic cavities. The enhanced radiation-pressure of the photons of the Quantum-Flux, inside these cavities, exerts a net force on the ceilings of those cavities for all the same reasons as the air-pressure in our bottomless box or in a rocket. All the same things are happening, only this time it is the ephemeral photons of the Quantum-Flux that are reflecting off the ceilings of the cavities instead of molecules. One of these cavities is illustrated below.

The photons of the Quantum-Flux continuously form, and build up and maintain some equilibrium point inside the cavity, reflect from the interior surfaces and promptly vanish; they do not “leak” out of the opening as pressurized gas molecules would.

All **Black** Arrows are the *wave-lengths* that are small enough to fit inside the cavity; these smaller wavelengths also occur outside of the cavity.

Red arrows are wavelengths that are too large to fit inside the cavity. Some even bridge across the cavity opening as though it was a solid side.

Zero- **P**oint **E**nergy **C**onverter
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The Red Arrows represent wave-lengths that are too large to form inside the Cavity. Some even bridge across the opening as though it was solid.

The arrows inside the cavity are big because they represent the stronger Radiation-Pressure inside the cavity.

All of the red arrows come in pairs that are equal and opposite, so **these forces cancel** $\blacktriangleleft \blacktriangleright \blacktriangleup \blacktriangledown$. All of the Big Arrows acting on the interior sides of the cavity come in pairs that are equal and opposite, so **these forces cancel** $\blacktriangleleft \blacktriangleright$ & $\blacktriangleup \blacktriangledown$.

Since everything else cancels, we are left with three large arrows that are pushing **up** on the (blue) ceiling of the cavity; they are only **partly** counteracted by three **small black** arrows that push **down** on the roof. Therefore, there is a **net** force acting on the top side of the cavity. It is represented by the large Green Arrow.

As with the rocket, it is only the photons that actually contact the cavity ceiling that really matter.

There is one vital difference, we have to supply the fuel for a standard rocket, but the Quantum-Flux supplies a steady stream of fresh photons that continuously impart radiation-pressure, momentum and energy to the ceiling of the cavity. Furthermore, the structure and material of the cavity cause the pressure of the Quantum-Flux to spontaneously build up to a higher level inside the cavity than outside the cavity.

If this happens to actually work, we are simply exploiting what the photons of the Quantum-Flux are *already* doing, following their *own* rules, not *ours!* Just as unbalanced forces in the environment impart energy and momentum to a sailboat, so also will unbalanced forces in the Quantum-Flux impart energy and momentum to Casimir's one moving plate, so also will they impart momentum to a Z-PEC Plate, but this time, there is no second plate for the first plate to run into- or away-from. Instead, the cavity remains continuously intact; therefore, the Quantum-Flux can continuously impart momentum and energy to the Z-PEC Plate.

All I have done is to point out what we already know about pressurized chambers and what we *think* we know about the photons of the Quantum-Flux. Combining these two ideas leads inescapably to the conclusion that *if* we really can make large arrays of nanoscopic cavities and *if* they contain a higher-than-ambient radiation-pressure inside them, then these ephemeral photons are a source of momentum and kinetic energy that is just as freely available as the photons of the Sun---but available day *and* night wherever and whenever we want it. We just need to do the experiment and find out. If it is true, then we will have to develop the idea to find out if we can get practical levels of power from it.

In principle, this arrangement is exploiting photons that are moving through space and imparting energy to matter. Isn't that how Solar Energy works? We are not supplying the energy that causes the photons to be emitted; these photons are already there. We are not supplying additional energy to cause the Flux-Pressure to rise, inside the cavity, this also happens naturally.

Initially, experts are needed to devise research strategies, plans, budgets and to write Grant Proposals. We need experts with experience modeling the Enhanced-Flux Cavity Model, as well as other experts that may be able to help further enhance the cavity pressures through resonance-optical pumping and other optical effects. We need experts in Nanophotonics, Cavity QED, Semi-conductor Engineering, Nano-structured Materials, Modeling, Nanophotonics, Relativity Theoreticians, Grant Proposal Writers, accountant, equipment supplies and facilities for all the above.

Zero- Point Energy Converter

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It won't give the big noisy display as is seen at a Space Shuttle Launch--- there isn't a beam of light emerging from the cavity. This is because the ephemeral photons of the Quantum-Flux Disappear almost as soon as they reflect off the sides and ceiling. (In other words, these photons are exiting the cavity by simply disappearing---unlike the molecules in the rocket, they don't need to "run out the backdoor!")

Please consider this your personal invitation to share any insights you might have about this project or if anyone comes to mind who might want to know about this, or might consult or assist in preparing Grant Proposals or might consider assisting in the Research itself.

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