

We are surrounded at all times by a ready-made power grid, called the Zero-point Energy Field; Z-PEC is a simple way to plug into that ready-made power grid, any time, any place, without having to pay anyone anything, ever !!! Z-PEC will lift and propel all of our vehicles on Earth and throughout the Solar System. It will directly power all of our devices !!!

We *already* have the sort of technology needed to mass-produce Z-PEC in much the same way we now mass-produce microprocessor chips that are far more complex. There are a variety of other nano-structuring techniques that can also be used to implement the inexpensive manufacture of chips that will produce dramatic forces!

Z-PEC Is Based On Sober, Conservative, Experimentally-Verified Mainstream Science

There are *many* inventors who are promoting various devices that supposedly provide free energy. Many of these, when they are asked where this energy comes from, flounder, stammer, stutter and sputter, then finally blurt out that *somehow*, their device must tap into the Zero-Point Energy Field !!! This may very well be true in some or even many of these cases; nonetheless, it is that word *somehow* that reveals that they really have no idea exactly *how* their phenomenology extracts it from the ZPE or *if* some *other* totally *unknown* phenomenon is involved!

I am positively *not* criticizing them, they really may eventually prove correct in their assertions; nonetheless, when I claim to be able to tap into the Zero-Point Energy Field. I *know* the *exact* mechanism that will cause this to actually happen! Z-PEC is based on the widely-reported, peer-reviewed, sober, conservative, oft-repeated, published experiments of mainstream Science. I am *not* promoting a new scientific principle. I am not criticizing those who venture outside conventionally accepted norms of Science because I have many unorthodox ideas of my own---*but Z-PEC is not one of them!!!* I will say it again, *there is no new science here!* This is not a scientific breakthrough; rather, it is an elegant, amazingly-simple geometrical insight that has lead to an *engineering* breakthrough !!!

Later in this paper, I will give a clear, concise, detailed explanation of exactly how this works; I won't hold back any details; but first, I will give a quick description of some extraordinary applications of this engineering breakthrough since that is what will most interest the majority of my readers !!!

Flying cars will automatically follow a virtual map that will define what speed and direction vehicles must be traveling in for every location in the sky. Simple radar will keep adjacent vehicles properly spaced.

- Users will only need to input their desired destination!
- We will travel between any two points on Earth in 90 minutes or less, including the time to navigate the much slower local traffic patterns.
- Automated delivery modules will deliver online-goods, factory-direct to our homes in hours, not days.

This means REALLY--FREE ENERGY since consumers will be purchasing *home generators* and *new cars* with ***part*** of the money they already were ***already*** spending on never-ending fuel and electric bills!

- Free energy means really cheap desalination for inexpensive irrigation wherever more water is needed!

Luxurious Spaceships will carry passengers throughout the Solar System and beyond.

- Lifting massive shielding to protect from harmful Space radiation will be no obstacle.
- By continuously accelerating or decelerating at one-g, these ships will simulate Earth's gravity in Space!

- One-g transit-times between Earth and Mars will vary between a week and ten days.
- Journeys to *nearby* stars will be accomplished in decades instead of millennia (though certainly not by casual vacationers!)
- Many ordinary people will commute to work, *both ways* between Earth and its Moon, *every day!*
- *Much ecologically harmful mining will soon be inexpensively done in Space.*

Understanding the Zero-Point Energy Field

The Zero-Point Energy Field surrounds us all of the time. It is everywhere, even in the vacuum of Space. It is made of countless photons— that pop into our Space and time, then pop out again. Nobody knows where they come from or where they go; (although, most scientists *believe* they disappear because they annihilate each other; but this notion of annihilation is pure speculation.) So what evidence is there of this Zero-Point Energy Field? We will examine the forces acting on two metal plates (below.)



The space between the plates is called a cavity, (even though nothing closes off the four remaining sides of the cavity.) Since the grounded plates are very close to each other, there is simply no room for photons to “pop into existence” inside the cavity, *unless* their wavelengths are smaller than the distance between the two walls of the cavity; therefore, all larger photons are excluded from “popping-up” *inside* the cavity; therefore, there are fewer of these photons popping into existence inside the cavity than there would be, if the walls of the cavity were not there. So when the fewer, remaining photons hit the inside of the cavity this tends to *weakly* push the metal plates apart. (Observe the *small* arrows pointing outward!) Meanwhile, *outside* the cavity, there is *plenty* of room for photons with every possible wavelength to pop into existence and to hit the outside surfaces of the two plates. These collisions tend to *strongly* push the plates of the of cavity together. (Note the BIG ARROWS pushing inward.) The more-numerous, (stronger) *inward-pushing* group of photons *outside* the cavity are pushing on the plates *harder* than the (*weaker*) *less-numerous*, *out-ward-pushing* photons *inside* the cavity; therefore, the plates are forced together, by the photon-flux.

This next observation is crucial to thinking clearly about the Casimir Force: Notice that these are uncharged plates, there is *no* attraction between these plates (except for negligible amounts of gravity.) Each plate is positively NOT *attracting* the other plate; instead, the photons of the Vacuum Flux, the Zero-Point Energy Field are acting separately on the two plates, period, end of story !!! Do *not* continue reading until you *fully* apprehend this crucial point. You will be entirely unable to understand Z-PEC if this fundamental distinction is not crystal clear to you !!!

The Importance of Speaking and Thinking Clearly !!!

Now this really is the accepted explanation of how the Casimir Force actually works. Unfortunately, the professional and popular scientific literature carelessly *calls* this situation an “*Attractive* Force Between Two Uncharged Plates” *even though they actually know better !!!* Don't let this confuse *you!* The only force in this situation is the force of the Zero-Point Energy Field pushing harder on one side of a plate than on the other side of the same plate. The Zero-Point energy field is acting on each of the plates separately. The two plates are doing absolutely *nothing to each-other*; they are simply suppressing the birthrate of new photons inside the cavity, nothing more, nothing less !!! Nonetheless, the *photon-flux* independently exerts *separate forces* on *each* of the two plates !!!

I think Physicists tend to forget the following: If the *action* is the Casimir Force then the *re-action* is contained in the momentum of rebounding photons which are free to cross the boundaries of the system without imparting any additional forces to either metal plate. If they don't realize *this* then it is understandable that they unconsciously *want to* cling to the

much-safer *sounding* idea that the two objects are acting on each other, (even though they actually know better!) A third (*unthinkable*) alternative would be the truly horrifying prospect of an actual *Non-Newtonian Force*, *the dreaded action without a reaction!*

It gets worse! There are *theories* that certain arrangements and materials, will *enhance* the photon- flux between two objects. **Again**, they *insist* on calling this a “*Repulsive Force Between Two Objects*” when really, it is the Photon Flux of the Zero-Point Energy field that is acting separately on each of the same two objects, to push them apart ! Again, the objects are influencing the birth-rate of the Photon Flux, ***they are not exerting any forces on each other !!!***

Again, there is no new science here. These authors will not contradict me though they very well may accuse me of petty nit-picking! However, I am NOT nit-picking; sloppy language leads to sloppy thinking! Once the sloppy thinking becomes entrenched in one's mental habits, it becomes all too easy to automatically reject ideas that are in conflict, ***not*** with the underlying truth, but with all the extra baggage that nearly always accompanies slothful mental *habits*. Mental habits are very hard to confront, because people are rarely *aware* that they are *automatically reacting* to a new idea on the basis of what they erroneously *think* they know rather than re-thinking the *fundamentals* as *deeply* and *carefully* as they *should!*

The mental trap in this situation is very simple. Once you develop the wrong mental *habit* of thinking that the one object is mysteriously exerting a force on the other object, you also unconsciously acquire extra-baggage in the unspoken, and fallacious assumption that there has to *be* a *second* object for the *first* object to be attracted to, or repelled from; therefore, since no object can exert a net force on itself, Z-PEC cannot possibly work if there has to be a second object for it to be attracted to--or repelled from !!!

Fortunately, Z-PEC does NOT ***need*** to exert a force on itself, it simply suppresses the birth-rate of the photon-flux on its one side and not on its other side. Therefore, the more-numerous photons on one side of Z-PEC's push harder than the *less*-numerous photons on its other side! This gives us a useful *net* force, the Casimir Force ! Remember, it is the Photons of the Vacuum flux that are pushing on Z-PEC, ***not some other object !!!***

I Solved This Problem !!!



Once the two objects come together, it will take just as much energy to separate them as might have been obtained when they came together in the first place; therefore, it is impossible to continuously extract new energy from this exact set up !!! Here is my solution !

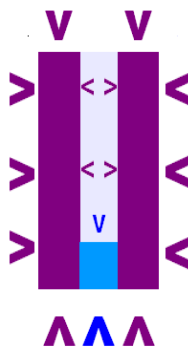
Please Refer to the Illustration Directly Below !!!

The Cavity Walls are Vertical and Solid Purple

Purple Arrows represent the direction & magnitude of *forces acting on the Cavity Walls*. These *Purple Arrows* come in pairs that are equal and opposite!



These forces cancel out!



Z-PEC

Zero - Point Energy Converter Patent Pending

The Cavity Floor is Horizontal and Solid Blue

Blue Arrows represent the direction *and* magnitude of forces acting on the *Floor* of the Cavity. *These two Arrows are opposite but they are Not Equal !!!*



These Forces do NOT cancel !

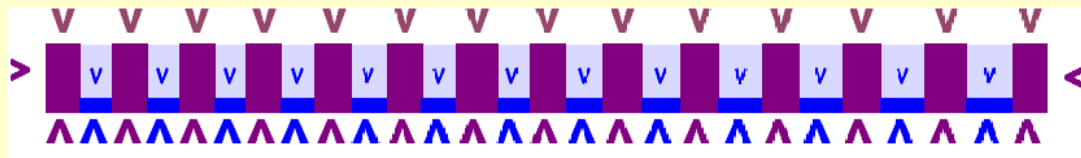
The Virtual-Photon Depletion Zone Inside the Cavity

LARGE Virtual-Photons *cannot* form inside the small, specially-constructed Cavity; therefore, there are fewer Photons hitting the surfaces on the *inside* of the Cavity than on the *outside*. In the illustration, this is *why*, the arrows *inside* the Cavity are *small* !!!

So Where Does the Net Force Come From?

The more-*numerous* Virtual-Photons, *outside* the Cavity push *harder* on the Cavity Floor than the *less-numerous* Virtual-Photons *inside* the Cavity!!! This gives us the a net force, the *Casimir Force!*

**A Macro-scopic Array :
Quadrillions of Nano-Scale Holes Or Grooves !!!
(No Problem, Really !!!)**



What About The So-Called Casimir *Repulsive* Force?

Complex standing waves can *increase* the Pressure inside the cavities. To *prevent* resonance, we can fashion our cavity using a *semi-conductor material* that is absorbent *to some* small Virtual-Photons that are permitted inside the Cavity and transparent to the rest of these small Virtual-Photons; this material is *also* conductive and grounded to help *prevent* the formation of larger Virtual-Photons. **OR!!!!!!** We can get a net force by making the cavity-floor pressure *higher* than the ambient pressure that is acting on the *backside* of the same cavity floor that is *outside* the cavity !!!

Smaller Is Better!

| nm | PSI | nm | PSI | nm | PSI | nm | PSI |
|----|---------|----|--------|----|--------|----|---------|
| 1 | 191,676 | 14 | 4.989 | 27 | 0.5777 | 40 | 0.1023 |
| 2 | 11,980 | 15 | 3.786 | 28 | 0.4907 | 41 | 0.09192 |
| 3 | 2366.37 | 16 | 2.925 | 29 | 0.4194 | 42 | 0.08285 |
| 4 | 748.73 | 17 | 4.989 | 30 | 0.3607 | 43 | 0.07487 |
| 5 | 306.68 | 18 | 3.786 | 31 | 0.3118 | 44 | 0.06783 |
| 6 | 147.9 | 19 | 2.925 | 32 | 0.2710 | 45 | 0.06160 |
| 7 | 79.83 | 20 | 2.295 | 33 | 0.2366 | 46 | 0.05607 |
| 8 | 46.80 | 21 | 1.826 | 34 | 0.2075 | 47 | 0.03928 |
| 9 | 29.21 | 22 | 1.471 | 35 | 0.1828 | 48 | 0.03611 |
| 10 | 19.17 | 23 | 1.198 | 36 | 0.1616 | 49 | 0.03325 |
| 11 | 13.09 | 24 | 0.9856 | 37 | 0.1434 | 50 | 0.03067 |
| 12 | 9.24 | 25 | 0.8182 | 38 | 0.1277 | 51 | 0.02833 |
| 13 | 6.71 | 26 | 0.6849 | 39 | 0.1141 | 52 | 0.02622 |

A Proof of Concept Array

A proof-of-concept array can be made using the same techniques, materials and equipment that are routinely used in semiconductor manufacturing.

Floor Depths should probably be 2-3 times Floor widths. We want to eventually, achieve a floor area of one square inch with wall separations in the 3 nm range, or better; but for proof-of-concept, we might consider an more easily-produced array as small as 1 mm² with Wall-Separations as large as 50nm.

Continued Below

Interested Organizations May Contribute In the Following Areas

Facilities, Equipment & Personnel for

- making microchip prototypes
- making custom materials
- Grant-Writing
 - ***No US Government Money !***
No US Government Interest !

- Semiconductor design and prototyping
- Diverse Nano-technologies
- Microchip Design
- Microchip fabrication
- Materials Science
- ***Advanced Imaging***

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My Mini--Bio

I have been married to my wonderful wife Marilyn for more than 28 years. We have three grown sons, four granddaughters and a toy poodle! We live in the beautiful City of Spokane in the State of Washington, in the Pacific Northwest Corner of the contiguous United States.

I have been active in New Covenant Fellowship for almost thirty years. I play the 'cello and am learning the violin and the piano; however, *inventing things* is my all-consuming major hobby;

I have quite a few college credits, but could not finish my first degree in music education due to health issues that have plagued me ever since; nonetheless, I have used my time well. I read voluminously, mostly technical literature. I have accumulated quite a few credits in Math, Science and miscellaneous mechanical & electronic engineering classes. When I can't think of anything new to think about, I read patents online!

As far back as I can remember, I have had a burning thirst to learn anything and everything about Space and to somehow go there myself! I was born in summer of 1957, just before the launch of Sputnik, when Earth still had only one Satellite! People talked about Sputnik for years! Some of my earliest memories recall the early days of the first rockets blowing up on the launchpad! I remember how amazed everyone was when John Glenn and Alan Shepherd bravely stepped up to be counted. We all held our breath, dreading the moment when he too would blow up!!!

As I grew older it soon became apparent to me that the Space Program was needlessly complex and many times too expensive. It is amazing that we ever made it to the Moon even once, with so many special interests tripping over each other to get a piece of the money! I began to realize, if I was going to go to Space, I was going to have to *invent* a new way to get there! My three boys who were still in grade school came up with the acronym SCOTTY!

Smiths' **C**oolest **O**uter-space **T**ransportation **T**echnology **Y**et !

I came up with a lot of really creative ideas of my own and considered the ideas of others! I looked into all sorts of so-called alternative science; nonetheless, Z-PEC is my first *major* idea that is based entirely on conventional scientific norms **and** existing technologies !!!

Now my three little boys are three strong men who are eligible for the draft and wars loom as far as the eye can see. I am really hoping that Z-PEC will help World Peace by ending reliance on fossil fuels. We can use some of that money to build a world economy that is based on abundance rather than on contrived shortages and planned obsolescence! We will be able to inexpensively travel anywhere on Earth in a few short hours; hopefully, people will take the time to get to know each other before they have to get acquainted on a battlefield!