THE GOOD, THE BAD AND THE UGLY

by

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Abstract

Electron clusters, or EVOs, are shown to be ideal candidates for electrical power generation using easily available methods for manipulation of electronic charge. The work to be done is described as manipulation of the exotic vacuum in a way that takes advantage of the ability to move the EVO against an electrical load using only a fraction of the input power usually used, resulting in an energy gain. However, the high intensity of the process and ease of applying it to mischievous ends portend future difficulties with its use.

Prologue

It has long been known by the author that the best form of charge manipulation for the generation of electrical power involved the use of EVs, or EVOs, in a relatively free form in either vacuum or low gas pressure. This basic method was the subject of a patent issued to Shoulders in 1991[2] for anomalous energy conversion. It was also determined early on that this discovery opened an undesirable gateway to high energy misuse of such charge structures and the work was then turned to more benign solid state methods of thermal energy production, closely related to what is called "cold fusion". Unfortunately, the difficulty of designing an acceptable machine for anomalous energy production was unacceptably large, primarily due to the fundamental, self-destructive nature of the process and the inability to find a feasible way to automatically rebuild the machine for a useful lifetime. This difficulty has now redirected the work toward the original process of using EVOs in a near solid-state form while immersed in low-pressure gas containers. The attendant difficulties of mischievous use of EVOs on an unprecedented level are the secondary subject of this paper, to which the author has no viable solutions.

The Good

Since the motional aspect of charge is the basis of all electrical generation processes, the dense charge containment fostered by the EVO form is a very good thing. Heretofore, space charge has been the bane of many electrical generating methods in that it does not allow the manipulated charge density to rise to a useful level for economical power generation. This is certainly not the case with EVOs, as their electron density is equal to the number density of atoms in a solid.

When using EVOs for electrical power generation, a simplified way of thinking about the process follows: Forcing a charge to move against a resistance of some kind almost always generates electrical power. This resistance, or opposing force, is sometimes called the counter electromotive force. The movement of the charge is normally done by mechanical input action such as turning a shaft. However, using charge clusters like exotic vacuum objects, or EVOs, there is a self-propulsion effect of unproven origin, but theorized to stem from zero point energies [4,5], provided whenever their motion is resisted. This self-propulsion is tied to their self-organized shape, which also acts to contain the large number of electrons in very close proximity to each other. The propulsion energy thus derived is many times the required input energy and is no longer subservient to the trite ballistic particle laws usually applied.

The propulsion effect of even small EVOs is clearly seen and simply measured by their ability to move massive quantities of matter to high velocities [6] as well as propel themselves to many times their initial velocity. The self-propulsion to high velocity is revealed in the energy measurements shown particularly in Fig. 4 and Fig. 10 of reference [7] where the input velocity is about 2 KeV and the output is over 10 KeV, but too high to accurately measure with the simplified method used. Using other methods, the velocity increase has been tracked to over 50 KeV, which was the apparatus measurement limit.

The thrust of new work to be done is to contain the EVOs in electrical traps, like well-known quadrupole or Paul traps, to prevent their coming into contact with solid material and destroying it. Finding a way to couple their efficiently derived motion into commonly available external circuitry provides the electrical output power we are seeking.

A very beneficial property of an EVO is the ease with which it can be formed. By simply moving electrons across a glass surface, under the influence of a field, electrons are removed from the surface and readily join with the moving and growing group. After a brief run, the electrons are formed into high-charge-density structures capable of easily blowing holes through any type of solid material without apparent harm to themselves. In conducting this process, a low-pressure gas background is helpful in recharging the dielectric surface to an equilibrium state. Photo 1, taken from Fig. 5:12 of reference [3], shows a SEM image of a thin film of chromium that was attacked by a swarm of EVOs so generated. These EVOs were broken out of a thin streamer formed during the process of their creation. What is apparent in this formation method is that the EVO size spectrum extends down into the realm of single electrons being willing to bind to others, in apparent violation of older, more staid charge repulsion laws.

In an explosive formation process of the kind more normally used, EVOs are produced almost instantaneously by sudden electron extraction from a metallic cathode operating under a field high enough to produce quantum mechanical tunneling out of the metallic lattice. The emitted EVO swarms are often very complex; nevertheless, the binding between adjacent parts of the swarm is high as they are able to bore holes through refractory material like silicon carbide without measurable modification of the swarm shape. Such a swarm is shown in Photo 2 as an optical micrograph taken from reference [8]. For examples of other boreholes, see reference [6]. From the foregoing, it should be clear that there is not much tendency for the EVOs to dishevel; indeed, they are tightly bound together, being well above the binding energy of any known solid material. These EVO structures are ideal candidates for assembling into even larger structures without the restraints of space charge repulsion. All that is needed is a container capable of temporary storage while they clean up ion trash from the formation process and then cool down by subsiding in the trap.

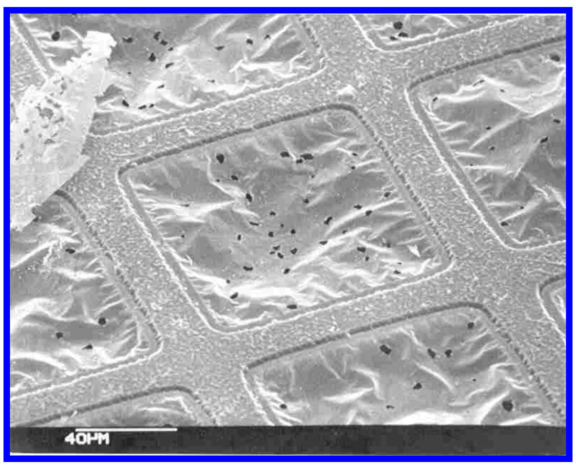

Photo 1: SEM micrograph of chromium film target of EVOs made by accretion from a surface run of electrons.

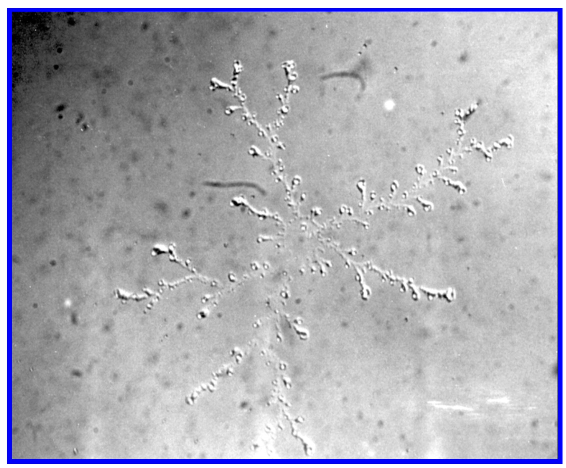

Photo 2: Optical photo of witness plate taken at 1,500X showing EVO swarm connected as bead chain structure.

One of the most fundamental questions about EVO use is how far does the charge masking effect go toward complete elimination of externally expressed charge. The containment of charge is seemingly at the root of the question but there is not yet an answer as to the extent of the effect for properly trapped and cooled electrons. The white state, spewing 2 KeV electrons in all directions, is very likely an overflow or excited state of the more contained black state but the full extent of the black containment is not known. That answer awaits trap tests designed for a quiet environment.

A seemingly ideal trap for this function is the Paul type of electrodynamic quadrupole. When EVOs are injected into this trap, using methods similar to that of Bostick [9], they enter at essentially zero velocity at the electrical center of the trap. In practice, a microwave oven is a convenient source of energy to drive the trap. To get an elementary understanding of trap operation, a simulator program for PCs can be downloaded from the web at:
http://www.genetical.com/dc/ScientificResearch/Rowland/TrapSim/TrapSim.zip

This simulator operates on all charged particles and is very instructive to run. When testing EVO action, the simulator is set for electrons without space charge repulsion, as the EVO actually has attractive particle effects instead of space charge repulsion. Gas damping can be usefully employed for cooling in the simulation as EVOs get along nicely with gas at low pressure.

The Bad

In the experimental world there is a truism: If it has not happened, it probably will not happen. The thrust here is that it is very dangerous to predict too far into the future. Doing so usually brings bad news. Still, it is the life of the experimenter to go on into such darkness moving as deftly as possible but with caution. In the business of containing such eager particles, capable of fantastic energetic feats in the micro world, scaling to progressively larger samples is necessarily accompanied with caution. Many things can be learned using micro samples, but eventually, there comes a time when large samples are necessary. That time has arrived.

It is necessary to study EVOs at rest in a trap instead of them being in the dynamic, rapidly moving state studied in the past. This is an entirely new endeavor calling for wholly new techniques. The bad news here is that such studies usually take a long time to reach a useful point. Examples of new data required is the need to know what the electrical input does to set the stage for EVO actions capable of sustaining the command without further input of energy, as that seems to be the modus operandi for one interpretation of operation. The flip side of this argument is how to form the EVO so as to hold a desired state while propelling itself against the load field. I suspect these two aspects of the same basic problem will require compromises not now even imagined.

An additional problem common to all large structures is that the innermost elements are not as accessible as the surface units. This is likely to occur in large EVO structures, as they appear to be conforming solids. That is, conforming to the trapping fields but essentially a semi-rigid unit with immense high-frequency stiffness. There has been no successful work done to date on “finding a handle” to differentiate one part of an EVO from another. It is easy to visualize that there is altogether too much smoothness and a kind of low-frequency liquefaction to get a grip on a specific part of a large structure. The notions of slippery and superfluidity abound here.

To surmount or postpone some of the above-mentioned problems, initial work on energy generation will likely concentrate on uniform slugs of charge, with homogenous properties, moving under external command so as to excite simple external energy collectors. I am sure a large compromise is in order by doing this but it is likely well worth the price to have a unit that does not destroy itself during use as the solid-state, cold-fusion-like version does.

The Ugly

I think Hell has not a clue as to the fury of a bunch of electrons suddenly unleashed. For the uninitiated to get a feel for the calculations involved with the Coulomb force, see the following website:

http://hyperphysics.phy-astr.gsu.edu/hbase/electric/elefor.html

The website does calculations for you using whatever numbers you put in, but in the simple example given, 1 ampere of current is allowed to flow for 1 second in two 100 watt lighting circuits yielding 1 Coulomb of like charge each separated by 1 meter of distance. The force calculated between these two charge sources is 1 million tons! The same force would be available using only 10 milliamperes of current flowing for 100 seconds. This could be done with a miniscule piece of apparatus operating out of a backpack, as the trap and attendant circuits are very small. This quantity of charge in EVO format is likely less than 1 cubic centimeter in dimension. Surely, there should be a ***Do not disturb*** sign on it.

The problem is compounded further by the simplicity of long-term storage of the charge in a simple dielectric bottle of either plastic or glass, as EVOs have been found to be extremely stable when used in conjunction with both of these. This is somewhat equivalent to the well-established practice of storing positrons in a paraffin bottle. As unlikely as that sounds, it works.

The ugly problem introduced by this technology is the capability of first separating and then storing charge in such a simple way. I have often heard energy buffs proclaim a need for the “Radio Shack” method of energy generation. Here it is, but I am not so sure we really want it. With such potentially vicious electrons in storage, who needs atoms to do foul deeds? This is just another example of how much easier it is to destroy than it is to build. In this case, the ugly doings of a mischief-maker can get by with a small fraction of the work it takes to make a useful electrical power source.

To make the problem even uglier, the simplicity of the apparatus can be increased further to the point of a spark discharge driving a resonant transmission line to provide a damped wave train for the attached trap. Since scientific answers are not the aim of someone creating mischief, the process can be carried out at atmospheric pressure. When one studies the problem of generation closely, all kinds of naturally occurring structures can be seen to do the job with a reasonably high degree of charge separation and collection. Ball lightning may well be an example of such an accidental occurrence. The missing ingredient up to now has been the ability to hold the apparatus still long enough to collect the low-velocity, periodically ejected EVO effluent from the trap.

The author can easily imagine a scenario where instructions are generated with enough clarity for about 1 person in 1,000 to perform the necessary operations to refine and store a gallon jug of electrons in the form of EVOs. There is no doubt that this jug full would be light enough to carry and be highly sensitive to destabilization of a catastrophic nature.

All of this ugly talk naturally turns to how to detect such a bottle of charge. There is no external field to be found around the closed bottle and the positive charge refuse has long since dissipated from the brewing site. At this point there is only conjecture as to what the substance looks like. Will it be metallic or dielectric in nature? Is it reflective or transparent? One thing for sure, it is likely to be very lightweight. Who knows, it might glow!

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