Charge cluster energy devices

A new technology - with strong commercial potential - of high-density charge clusters deserves the attention of all those seeking viable means in clean energy technology.

SOME CHARGE CLUSTER DEVELOPMENTS

The **Joseph Papp Engine** functions when high-density charge clusters are properly produced[1]. See also the **Jimmy Sabori** patent[20].

The **Paulo and Alexandra Correa** plasma device is believed to be a high-density charge cluster phenomenon[2].

The **Pantone GEET** machine apparently produces charge clusters which may be the energy source of this invention[3].

The **Cincinnati Group** excess heat and radioactive reduction is a charge-luster-related phenomenon[4].

Kenneth Shoulder's achievement of over 30X as much electrical output as input is a high-density charge-cluster technology[5].

The ***Plasma-Injected Transmutation*** patent pending of **Hal Fox, Shang-Xian Jin** and **Robert Bass** is based on charge-cluster technology[6].

Lithium augmentation of boiler combustion to increase fuel efficiency is believed to be due to charge cluster formation[7].

The ***Ohmori Effect*** is obviously an application of plasma-injected transmutation[8]. *(At the **Trenergy** Inc. laboratory, we change one of our electrodes to Tungsten and got reduced radioactivity from our reactor, as cited by **T. Ohmori** and **Tadahiko Mizuno**, but not as much reduction as using zirconium electrodes.)*

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charge clusters and cold fusion

High-density charge clusters are composed of several micro-sized entities formed in a ring having a diameter of about 20 microns. The ring, or "necklace" of charge clusters travel in a direction perpendicular to the plane of the ring. Charge clusters are produced in a variety of ways: by lightning; in some liquids, by field emission from specially-prepared electrodes; in low-pressure gases; and, are usually present in sparks and arcs.

Charge clusters can pick up and transport positive ions. The ratio of positive ions to electrons is about 1 in a million. Therefore, the positive ions can be carried by the charge clusters and move toward a positively-charged anode with about the same velocity as an electron. 5,000 volts will produce charge-cluster velocities of about 0.1 the speed of light. In classical physics, positive ions moving at this speed can produce nuclear reactions on a target. This is a primary motivation towards the development of devices and/or systems that can be used to reduce the radioactivity of radioactive slurries and to stabilize spent fuel pellets from nuclear power plants.

The method by which high-density charge clusters produce excess thermal energy in cold-fusion experiments was first elucidated by **Kenneth Shoulders**[9] (*see also: Vol. 9(1)*). Briefly, palladium in a cold fusion cell is loaded with deuterons and becomes stressed and brittle (hydrogen embrittlement). At random times and places, the palladium crystal lattice cracks. The separation of trillions of ionic bonds produces a large (several thousand volts) potential across the crack which lasts for pico- seconds before discharging through the conducting metal lattices. These are suitable conditions for the production of a charge cluster from the cathode side of the crack by field emission (fracto-emission); the entrainment by the charge cluster of deutrons; the acceleration of the combined charge cluster to fractional light velocities; the impact of the combined charge cluster on the anode side; and, the resulting nuclear reactions produced by the high-velocity deuterons impacting the palladium (with the resultant thermal energy from nuclear reactions).

other charge-cluster observations

Though the production and role of the charge clusters may not be readily apparent to the several inventors cited above, a best explanation for much of the excess heat or excess energy may be the production and impact of charge clusters. Charge clusters are being observed by an increasing number of experimenters while others may be unknowingly using charge clusters. The excess energy in the ***Methernitha*** machine[10] may be due to the creation of charge clusters.

Although the initial discovery of charge clusters was made by Kenneth Shoulders more than 10 years ago, others have also independently discovered the phenomenon. These are, in order of discovery: **Ilynock** in Belarus[11]; **Stan Gleeson** and **Rod Neal** of the **Cincinnati Group**[12]; **G. A. Mesyats** in Russia[13] and **Shang-Xian Jin** in China[14]. Mesyats name the charges "ectons" and Jin and his group use the term, "pseudosparks".

Once observed, charge clusters are found to be ubiquitous. The examination of an aircraft struck by lightning was found to have numerous small pits that are readily recognizable as charge cluster impacts. Ball lightning is believe to be a large and stable charge cluster. Those who have maintained internal combustion engines using spark plugs and a distributor may note that the pits made in the electrical contacts in the distributor as a result of the the capacitor being faulty.

Charge clusters do not always produce nuclear reactions. There appears to be a necessary energy threshold for nuclear reactions to occur. Shoulders explains this threshold phenomenon[9]. It is possible that over the millennia, the elements in the crust of Earth may have been greatly modified by lightning-produced charge clusters. It appears that the relative abundance of the elements may be the result of such lightning strikes and the charge-cluster caused transmutations.

Charge clusters have been observed but not fully recognized for some decades. Sparking in electrodes was reported before the 1960s during investigations of luminescence in electrodes in aqueous solutions[15]. When an increase in electrode voltage resulted in sparking, experimental interest ceased.

In aqueous solutions, charge clusters provide unexpected results, including the stabilization of radioactive nuclei. Shang-Xian Jin has conducted many experiments using naturally-radioactive thorium in **Trenergy**'s attempts to more fully understand the transmutation phenomenon[16 17 18].

As an example of the possible operation of charge clusters in some of the projects cited about, consider the case of the **Joseph Papp**'s engine(US Patent 4,428,193 dated January 31 1984) and the Sabori patent[20]. The Papp engine used a tungsten point mounted on brass or copper electrode inside the chamber filled with a mixture of noble gases. Under the influence of arcing from the electrode, it is believed that when charge clusters are produced that the charge clusters in their travel from cathode to anode ionize the noble gases, causing them to expand rapidly and that the expanded ionized gases impel the piston and that this creates power delivered to the crankshaft. It is probable that those skilled in the production of charge clusters could improve on this engine.

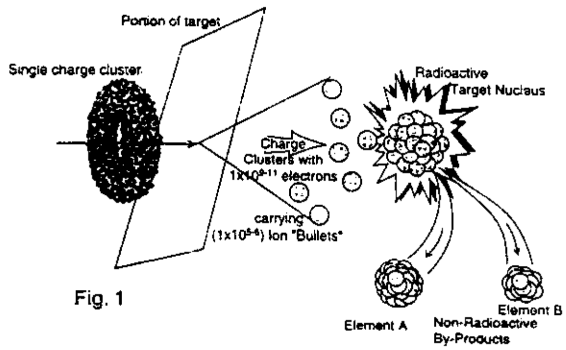

Fig. 1

Figure 1. Charge clusters stabilizing radioactive nuclei.

Shoulders reported at least one experiment in which charge clusters were produced that measured about 50 microns in diameter[19]. The resulting electromagnetic pulse (EMP) when the charge cluster impacted the anode caused the malfunction of some transistors in equipment unrelated to the experiment. Replication of results should be done in screen rooms or a Faraday cage to prevent damage to lab equipment. The interesting point is that the sizes of charge cluster (as a function of increasing input energy) appear to be quantized in sizes. This experimental observation deserves considerable attention because it suggests some basic understanding of electromagnetic phenomena hitherto unknown or untreated in science.

A charge-cluster-producing device can be characterized as having 3 inter-related parts: (1) where the charge cluster is formed at, or closely adjacent to, the cathode; (2) the space where the charge cluster leaves the cathode; and, (3) the anode area where the charge cluster lands or impacts. The entire assembly may be no larger than an inch in length. Changes made in one part of the assembly are almost always reflected into other parts. The very high local electric and magnetic field strengths in the vicinity of a typical charge cluster create interesting results. These strong fields may be the major factor that influences the design of a charge cluster device so that a supposed beneficial change in one part of the device necessitates dimensional adjustments in other parts to retain desired results. There will probably be many theses reporting on studies of parameter changes in charge-cluster-producing devices.

For optimum device performance, it is desireable to be able to create, launch and extract energy from charge clusters produced at verify high repetition rates. The parameters that affect the repetition rate need to be evaluated. Without more adequate analytical tools, this process can require numerous experiments and deserves study and reporting.

observing charge clusters

As shown by Shoulders [5 9 20], techniques can be developed for the visual observation of charge clusters. He describes the invention and use of an electron pin-hole camera to provide visual stop-action pictures of charge clusters. This approach has been able to capture video images of charge clusters in 50 pico-second duration. Such instrumentation needs to be developed, improved and commercialized for further exploration of this technology.

As shown by Jin *et al*[19], the local electric and magnetic field strengths of charge clusters are some order of magnitude than any such field previously produced in the laboratory. This phenomenon can be considered as a method of creating a charge-cluster-based probe having unusual characteristics to probe various materials or even the structure of space itself. If there is an aether (vacuum continuum, etc.), the charge cluster is a likely candidate for exploring the nature of space.

The very high electric field strength in the close vicinity of a charge cluster allows such a cluster to ionize any dielectric material in its path. Shoulder shows pictures of cylindrical tubes or holes, about 20 microns in diameter, drilled through aluminum oxide. The energy to drill (sublimate) the aluminum oxide is many times larger than the energy used to create the charge cluster. This observation alone signals the need for thorough study of charge clusters. What is the source of the energy that allows the charge cluster to vaporize aluminum oxide and produce long cylindrical holes many times longer than the diameter of the charge cluster?

Based on a suggestion by Shang-Xian Jin, the capability of using high-density charge clusters to make table-top particle accelerators was included in the patent application[6] for plasma-injected transmutation. Such particle accelerators should be developed and provided as a low-cost instrument for the study of nuclear effects. Such an instrument should be able to be produced so inexpensively that even well-funded high-school laboratories could have particle accelerators for the study of nuclear reactions.

future cluster devices

The capability of charge cluster to ionize a variety of dielectric materials (including a range of gases, liquids and solids) suggests a variety of experiments. Coupled with the observed ability to carry some of these positive ions, this ionizing capability suggests a wide range of experiments in which charge-cluster apparati can be used to provide various nuclear reactions. It should be experimentally determined to what extent a typical charge cluster can carry heavy ions. It appears reasonable for charge clusters to ionize hydrogen, deuterium and helium and carry protons, deuterons or alpha particles. Such particles can be accelerated to fractional light speeds by easily-achieved electric potentials. What needs to be experimentally determined is whether a charge cluster can carry positive nitrogen ions and to what extent that such heavy ions can be transported and accelerated. Can ionized aluminum oxide provide heavy positive ions than can be used at impacting particles? That question needs to be answered.

It is suggested that the study and use of high-density charge clusters may be the most promising factor in the development of commercially viable, new energy devices and systems. The production of excess thermal energy, excess electrical energy, the stabilization of radioactive materials, the production of scarce elements from bountiful ones, the development of table-top accelerators and an improved understanding of electromagnetism all seem possible with the further development and study of high-density charge clusters.

☐ ***Hal Fox***

Hal Fox is with **Trenergy**, Inc., 3084 East 3300 South, Salt Lake City, Utah 84109-2154. (801) 466-8680; fax: (801) 466-8668

Ken and **Steve Shoulders** can be reached at 1025 Freestone Ranch Road, P O Box 243, Bodega, California 94922-0243. (707) 876-1880. More information is also available in the book, ***Zero-point energy research***, compiled from presentations and briefings of Dr. **Harold Puthoff**, published by the Association.

REFERENCES

[1] Gene Fisher, unpublished paper delivered at the International Symposium on New Energy. Denver, Colorado. April 16-18, 1993. [Fisher now deceased].

[2] Correa, Alexandra N. and Paulo N., Labofex, 42 Rockview Gardens, Concord, Ontario, L4K 2J6 Canada (905) 660-1040; fax: (905) 738-8427. **Excess energy conversion system utilizing autogenous pulsed abnormal glow discharge.** Proceedings International Symposium on New Energy, Denver, Colorado, 1996 p 43-62. *See also*: Correa, Alexandra N. and Paulo N., **Direct current energized pulse generator utilizing autogenous cyclical pulsed abnormal glow discharges**. U.S. Patent 5,502,354. (March 26, 1996). *Other of their patents: U.S. 5,416,391 and 5,449,989.*

[3] GEET Research, LLC, 213 W 4800 S, Salt Lake City, Utah 84107. (801) 281-4577; fax: (801) 281-4578. ***GEET Sheet Report***, Volume 1, issue 2, December/January 1997.

[4] Mallove, Gene [editor]. ***The Cincinnati Group disclosed its radioactivity remediation protocol.*** *Infinite Energy*, Volume 3, issues 13 & 14, March-June 1997. p. 16-7.

[5] Ken R. Shoulders: **Energy conversion using high charge density.** U.S. Patent 5,018,180 (May 21,1991), *Other of his U.S. Patents: 5,054,046 (1991), 5,054,047 (1991), 5,123,039 (1992); and 5,148,481 (1992).*

[6] Fox, Hal, Robert W. Bass and Shang-Xian Jin. ***Plasma-injected transmutation.*** *Journal of New Energy.* Volume 1, Number 3. Fall 1996. p. 222-30. *23 references, 4 figures.*

[7] Mallove, Gene [editor]. ***Nuclear augmented combustion emerges ... IMMEDIATE and substantial reduction in global fossil fuel consumption and pollution is now possible with lithium-based fuel additive.*** *Infinite Energy.* Volume 3, issue 18. February/March 1998. p. 11-2.

[8] Ohmori, T. and T. Mizuno (Hokkaido University, Sapporo, Japan). ***Strong excess energy evolution, new element production and electromagnetic wave and/or neutron emission in light water electrolysis with a tungsten cathode.*** *Infinite Energy.* Volume 4, issue 20. June/July 1988. p. 14-7.

[9] Shoulders, Ken. R and Steve Shoulders. ***Observations on the role of charge clusters in nuclear cluster reactions.*** *Journal of New Energy.* Vol. 1, No. 3. Fall 1996. p. 111-21.

[10] King, Moray. ***Vortex filaments, torsion fields and the zero-point energy.*** *Journal of New Energy.* Volume 3(2). 1998. also: Proceedings, August 14-15, 1998.

[11] personal communication.

[12] Bass, Robert, Rod Neal, Stan Gleeson and Hal Fox. ***Electro-nuclear transmutation: low-energy nuclear reactions in an electrolytic cell.*** *Journal of New Energy.* Volume 1, Number 3. Fall 1996. p. 81-7. *6 references, 1 figure, 1 table.*

[13] Mesyats, G. A.. *Ecton processes at the cathode in a vacuum discharge.* in: **Proceedings XVII International Symposium. Discharges & Electrical Insulation in Vacuum** (21 - 26 July 1996) Berkeley, California. p 721-31. *38 references, 10 figures, 5 tables.*

[14] personal communication. *See also:* Shang-Xian Jin, *et al.* **Transient phenomena of electrochemical corrosion.** International Symposium of electrodeposition and corrosion.. Kitakyushu, Japan. September 16, 1998.

[15] Bhadkamkar, Atul and Hal Fox. ***Electron charge cluster sparking in aqueous solutions.*** *Journal of New Energy.* Volume 1, number 4. Winter 1997. p. 62-7.

[16] Fox, Hal and Shang-Xian Jin. ***Operating the LENT-1 Reactor: preliminary report.*** *Journal of New Energy.* Volume 2, number 2. Summer 1997. p 110-8. 12 references, 4 figures.

[17] Fox, Hal and Shang-Xian Jin. **Low-energy nuclear reactions and high-density charge clusters.** Presented at the annual meeting of the American Nuclear Society, Nashville, Tennessee, June 9, 1998. 16 references, 9 figures, 3 tables.

[18] Fox, Hal and Shang-Xian Jin. ***Characteristics of high-density charge clusters: a theoretical model.*** *Journal of New Energy.* Volume 1, number 4. Winter 1996. p 5-20. 16 references, 2 figures.

[19] Shoulders, Ken. R. ***EV - A Tale of Discovery.*** Austin, Texas (1987). A historical sketch of early *EV* work, 246 pages,153 photos and drawings, 13 references. *Available from the author: PO Box 243, Bodega, California 94922-0243.*

[20] Sabori, Jimmy. **Ion electromagnetic engine.** International Patent WO 96/12879, May 2 1996. Published in *Space Energy Journal.* September 1998. Volume IX, issue III. p 9-42. *Available from Space Energy Association, P.O. Box 1136, Clearwater, Florida 34617-1136. (813) 586-5110.*