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Abstract

This article focuses on clean energy generation, with the help of nuclear power, once considered one of the most pollutant method due to the radioactive waste that it produces but now in the form of this article this Mind set is going to be changed forever using cold fissions and with its non-radioactive waste, this is the future of energy production.

Keywords - *Electron capture, gamma decay, beta decay.*

I. INTRODUCTION

The proposed device is the only available source of clean energy that works with such efficiency. It is the only available technique to convert nuclear energy directly into electrical energy without any intermediate heating step, skipping which allows it to harvest enormous amount of energy from a relatively tiny amount of fuel.

It generates very high potential difference with the help of one of a kind cold fusion reactor without emission of any kind of radioactive or pollutant by products.

- It uses It uses two radioactive isotopes of palladium (103 , 107) to generate a self sustainable reaction.
- This reaction produces potential of millions volts between it's electrodes just by maintaining a circuit between the two isotopes .

II. MULTIPLE ISOTOPE RADIOACTIVE DECAY CELL

Palladium isotope Pd-103 produces Rh-103 (rhodium) via **electron capture**. This means an inner electron is absorbed by the nucleus, merging with a proton to produce a neutron and an energetic photon - a gamma ray.

Another isotope, Pd-107, produces Ag-107 (silver) via beta decay, **releasing an electron** when a neutron turns into a proton. (This is kind of the opposite reaction as above) .

We can utilize the beta decay of Pd-107 ions as an electron *source* for the electron *capture* of Pd-103, thereby producing an electric circuit between two different radioactive isotopes. Pd-103 is very radioactive (17 day half-life) compared to Pd-107 (6.5 million year half-life) qso there would need to be dramatically more of the heavier isotope to compensate for the disparity in decay rates.
The palladium core of the device would most likely be Pd-107, which **emits high-energy electrons** as it decays into silver. This is a pretty stable isotope.

Since we know the device uses charged particles travelling within a ring of electromagnets, I surmise that a tiny amount of Pd-103 is ionized by an electric arc (thus the reactor's name, and start-up power requirement), which then allows Pd-103+ to be circulated at high velocity within the outer ring of the device. The ionization acts to delay the electron capture step until the atom encounters a free electron, and the high kinetic energy due to velocity increases the chances of electron capture occurring once an electron is encountered. In effect, the radioactive decay of Pd-103 can be started, stopped, and throttled by the device simply by controlling the ionization and circulation of the Pd-103.

The device's geometry and electromagnetic fields route the high-energy electrons from the Pd-107 core towards the outer ring. There the electrons are captured by high-energy Pd-103 ions. This electron capture process emits gamma rays, which are deflected inward to catalyze the beta decay of the Pd-107 core.

So to summarize : electrons project outward from the inner core, and gamma rays project inward from the outer ring. Because this electron, photon Counterflow creates a deficit of electrons (relative to protons) in the core, a massive electrostatic potential is developed and the palladium core attracts lower energy electrons from the circuits wiring. **The ejection of electrons from the core towards the rim of the device produces an electrical cell capable of generating enormous voltage and current.**

Here's the full proposed reactor start-up process:

- Using external power, Pd-103 is ionized by an electric arc, and accelerated to high velocity in the outer ring. There may also be some externally-powered gamma ray production to jump-start the inner core.

- Pd-107 in the inner core starts to emit high-energy electrons as it decays to Ag-107. The electrons escape the core and are directed by magnetic fields into the outer ring. Lack of electrons creates a net positive charge in the core, which slows further emission (preventing run-away decay) until the electrons can be externally replenished.
- In the outer ring, the high-energy free electrons collide with high-energy Pd-103+ ions. This causes instantaneous electron capture and gamma ray emission. The gamma rays are deflected inward towards the core, thus catalyzing further electron emission and producing a self-sustaining reaction. Note that the reaction is self-sustaining, but very slow while the reactor is idle.
- The electron flow from the inner core to the outer core creates an electric potential difference. When a circuit is created through the circuit 's electrical loads, the outer ring has an excess of electrons and the inner core has a shortage of electrons. This creates current.
- The electrical current through an external load relieves the electrostatic charge accumulations that initially slowed the reactions. So the less power the circuit draws, the slower the reactor produces radioactive decay, and the more power the circuit draws, the faster the reactions are catalyzed. That way, the power output automatically throttles according to demand.
- The palladium slowly converts to Rh-103 and Ag-107, and the reactor runs out of power when the palladium is fully consumed

III. CONCLUSIONS

This energy source will be the only one capable of producing Millions of volts with only a few grams of fuel. This is the solution to one of our major quests “clean energy” and with such efficiency that can overcome any nuclear reactor till date this is a bleeding edge technology that uses some of the basic principles of physics to produce a minimum loss electric output so that it uses a very less fuel when compared to the output gained.

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REFERENCES

There are no references