File: Cold Fusion

E-QUEST SCIENCES

Science in Pursuit of Affordable, Clean Energy

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Advanced Energy Projects
via fax 1-301-903-6067

15-Feb-94

FAX 2 Pages

Mr. Polansky,

I was recently speaking with Dr. Charles Scott at Oak Ridge labs about my work in the field of micro-fusion. He recommended that I contact you to discuss our work. If the term "micro-fusion" is new to you it is because we have coined it to avoid using the much maligned term - cold fusion. In our work we are able to induce micro-fusion reactions in metal lattices in a perfectly reproducible manner. We use ultrasound induced cavitation, somewhat similar to the sonoluminesence field, to load metal lattices with hydrogen isotopes. In the course of our experiments, which are now entering their fifth year, we see large amounts of excess heat energy associated with nearly commensurate helium 4 production. The helium we see is at tens times (65ppm) the concentration in the atmosphere (5.77ppm) and in absolute amounts in excess of 10^{17} atoms produced in experiments lasting a few hours. To date we have observed neither gamma or neutrons, a mystery that remains to be explained.

We have recently decided to make our technology available to the research community in order to hasten work in this field. Our apparatus and methods offer near perfect reproducibility in a very short experimental cycle. Our typical experiments take between 5 and 72 hours to complete and it is not unusual for us to perform five or more experiments in a single week. We recently described our work at the fourth annual conference on cold fusion, sponsored by EPRI, held in December.

I've included a "data sheet" describing our apparatus and method which is now being marketed to the research community. If you think that this is of interest to your group at DoE please don't hesitate to contact me.

Sincerely,

Russ George
Vice-President

Cold Fusion

E-QUEST SCIENCES

Science in Pursuit of Affordable, Clean Energy

Mr. Walter Polansky
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Advanced Energy Projects
Washington, D.C.
fax 1-301-903-6067

24-Feb-94

Mr. Polansky,

I wanted to thank you for the opportunity to speak with you this week about the work of my company in the area of "micro-fusion." As we move ahead with our plans to avail ourselves of the invitation of the Los Alamos National Labs to continue our collaboration and revisit thier facility for further study of our methods of producing controlled fusion I will keep you informed. However it is apparent that support for this near term effort is not possible from your office so we shall make other arrangements in that regard. As you've seen from the "data sheet" I sent you earlier we have made significant progress in this field and are now marketing our first product as a research tool. We see this first product as a means to reliably and nearly instantly produce and safely observe micro-fusion in solid lattices. Ours is a method and apparatus which has been very much missed in this field which has suffered from poor reproducibility and low level effects. Initial interest in the device and its availability on the market place has been very encouraging and we hope to have several installed and operating in affiliate research laboratories in this country and abroad by the end of the year.

I welcome your suggestion that we prepare a short white paper describing our work for your divisions review and we will do this very soon. While we have made great progress in the nearly five years we've devoted to this line of research there remains much to do. Naturally we believe that a research program that involves the DoE is quite appropriate. Following receipt of the information materials you mentioned you would send (describing the process of research funding through your division) we will prepare suitable research proposal documents.

At some time in the next few months we hope to run a series of private demonstration and acceptance tests here in California for potential customers for our device. As those demonstrations are arranged perhaps it may be of interest for you or a representative of your division to attend. I look forward to a continuing dialog with you and your office.

Sincerely,

Russ George
Vice-president E-Quest Sciences

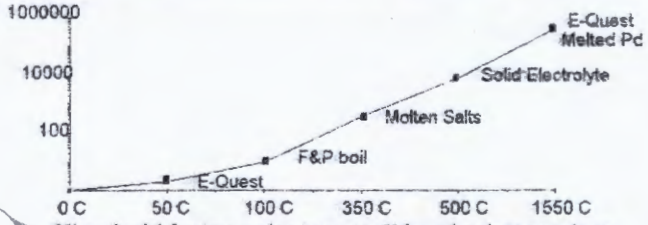
E-QUEST MARK II MICRO-FUSION RESEARCH DEVICE

A research tool for the study of controlled micro-fusion

The **E-Quest Mark II Research Device** is a new and unique tool designed to enable the study of controlled nuclear micro-fusion. In the device, hydrogen isotopes are implanted into solid lattices, achieving a high loading ratio. With further stimulation this lattice-confined isotopic hydrogen readily participates in predictable fusion reactions.

Operation and Specifications

In standard operation, the *Mark II* device provides for rapid and reliable production and measurement of fusion heat and nuclear products. Typical experiment duration can range from 6 to 72+ hours. The user- configurable *Mark II* is easily adapted to a wide variety of analytical hardware. A typical *Mark II* reaction results in steady-state excess heat (50–100 watts), abundant ^{4}He (>10^{17}atoms or 10X atmospheric background), and is radiation free.



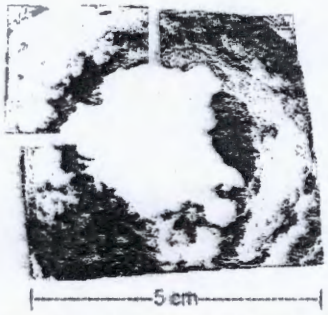
Microlcold-fusion output per watt input @ temperature
(Reported by E-Quest and others - ICCF-4 Conf. Dec.93)

The operation, in terms of its physics, makes use of an intense ultrasound field in the vacuum-tight stainless steel reactor resulting in the violent collapse of tiny bubbles (cavitation) on the target lattice. High cavitation energies convert the bubble contents (isotopic hydrogen in prescribed ratios) to energetic plasma and inject that plasma, via a highly directional jet, into the target lattice.

A bubble collapse with "jet" impinging on a lattice target

Research Opportunities

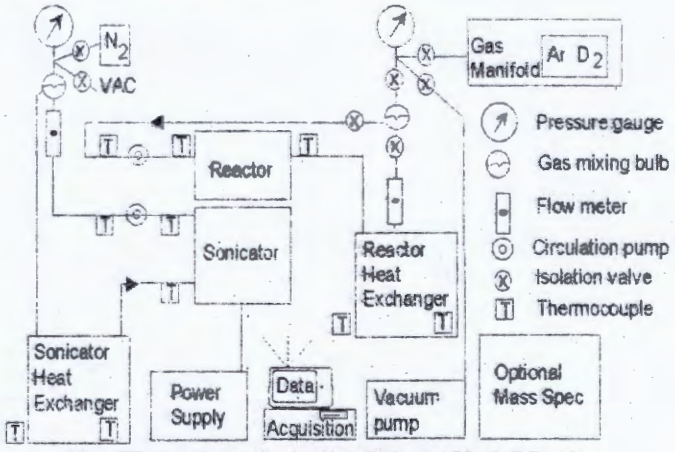
The *Mark II* provides for direct study and screening of factors in micro-fusion reaction including: *lattice materials, reactant fluids, additives, temperature, pressure, EMF stimulation, nuclear emissions (neutron, gamma, x-ray, charged particles), and isotope effects.*



A palladium target melted in E-Quest research
Fusion energy output 1mw/μ sec

Space Requirements

The *Mark II* requires approximately 1M^3 and access to compressed gases. It can be set up as a compact bench-top device, or the reactor vessel can be incorporated as an isolated component in detector arrays. The basic system includes the reactor system, power supplies (110AC), complete gas and fluid handling system; it is a fully integrated calorimeter. Experiment control, data collection, and data analysis are designed to interface with a personal computer system (PC or Mac).



Simplified schematic for the E-Quest Mark II Device

Options

The **E-Quest Mark II Research Device** is available to qualified researchers in a variety of configurations suited to specific research and laboratory needs.

Affiliate Program
Through sales of this technology, E-Quest Sciences expects to form a select group of research affiliates who will actively participate in cooperative research and development in this area of energy research.

For prices and additional information contact
E-QUEST SCIENCES