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DESCRIPTION (Must Be Unclassified) ENCLOSED INFO ON NUCLEAR FUSION, COLD FUSION AND OTHER POWER GENERATING SYSTEMS		REFERRED TO:	DATE	RECEIVED BY:
<p><i>Boziewski</i> <i>F4H</i> <i>ER-16</i></p>		DAVIES-action	5-7	ACTION
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File - "Cold Fusion"

For various reasons, including the desire to avoid the hoopla that resulted from the Cold Fusion announcement, Johnson will probably not make an announcement until later this year. I understand that current density at Alabama is 6 amperes through a filament calculated to be 1,000 angstroms in diameter. Bourgoin claims similar samples he has made in North Carolina pass 10 amperes for several hours and 30 amperes for 5 minutes. Dr. Johnson has been performing this work in connection with funding by the SDIO. One of our consultants recently speculated that perhaps a single filament is not present, but rather that the fine powder used can be considered a "fractal" powder producing a current path that may meander, without loss, from filament to filament.

Bourgoin was a graduate student of Dr. Carroll's before the latter retired some years ago as Chair of the Physics Department of the Baptist College near Charleston, South Carolina. The work with bismuth was a reduction to practice of a theory concerning ambient temperature superconductivity developed by Dr. Carroll and reflected in the enclosed patent which issued during 1972.

While the Carroll patent is entitled A Low Temperature Heat Transfer Device, and it has important potential as an alternative to the CFCs for air conditioning and refrigeration, a variation constructed with concentric cylinders is described as a Resonance Absorber. It is the key component of two systems of controlled nuclear disruption which Carroll believes have the potential for inducing total mass to energy conversions.

Independent verification of Bourgoin's work by Johnson's group, and the recent findings by a few well qualified laboratories indicating that the work in cold fusion confirms Carroll's theoretical prediction that fusion can be achieved in a solid, make it entirely possible that the technology described in these earlier patent applications can be realized. (See enclosed paper by M. Rabinowitz). Only experiments can determine whether that is indeed the case. Dr. Carroll plans to resubmit the patent applications.

With the success in reproducing Bourgoin's work at Alabama, the Resonance Absorber can easily and inexpensively be tested. If Carroll is correct, it would make possible the simplest, most powerful, alternative electric power generating system of which we are aware.

Alabama will at some point publicize the Bourgoin verification, triggering a closer look at Carroll's work throughout the world.

Carroll's life long argument with much of relativity theory appears subsidiary to the most important question, namely, will these devices function as predicted in experiments?

Carroll began his analysis while employed at the old Bureau of Standards during WWII. He noted a Physical Review article by

Millikan et al, speculating that spontaneous nuclear disruption might explain the origin of certain cosmic rays. (Unknown to Carroll until last year, the Millikan group performed experiments, reported in two later Physical Review articles later in WWII, suggesting their earlier speculation might be valid).

Carroll later noticed that experiments at Lawrence Berkeley Laboratory in 1947 demonstrated that proton-antiproton annihilation yields highly energetic pi mesons (pions). Both of his designs attempt to produce neutrons in the resonance absorber by means of k capture.

In the first system, using helium as a fuel, a resulting total mass to energy transform is expected to yield a copious supply of highly energetic pions which can either spin turbines to produce electricity, or drive a spacecraft at phenomenal speeds with a light, compact, fuel load.

In the second design, using hydrogen as the fuel, the neutrons cause fusion to take place interior to a spongy metal such as platinum (other metals appear workable). This is, of course, "fusion in a solid". As with cold fusion, no radioactive fuel is involved.

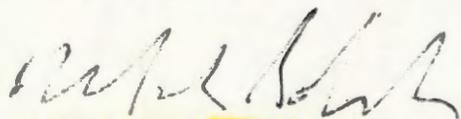
It is now possible to release single atoms of these gases into a Resonance Absorber allowing Carroll's designs to be tested.

I hope you will agree that an urgent investigation should begin immediately, with suitable security restrictions, to determine if Carroll's nuclear disruption ideas are sound. The implications of ignoring this work any longer are far too dangerous, since once widely publicized (Alabama is planning to report their verification at some point in Physical Review Letters), it is possible induced disruption will be tried by nations anxious to enter the "nuclear club". The cost is trivial compared to systems employing fission or fusion as weapons.

A single-stage of the heat transfer device can be used to develop solid state refrigerators and air conditioning systems. We intend to move this potential forward rapidly, for obvious commercial, electric power and social policy reasons.

I would appreciate your comments and cooperation.

Sincerely,



Mark Goldes
Chief Executive Officer

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