

BREAKING THROUGH EDITORIAL



Impressions of ICCF21

George Egely

Conferences come and go. However, ICCF21, held in June 2018, was outstanding in two ways. On one hand the theory papers were better than usual, and the organization was better than usual (thanks to the organizers, Steve Katinsky and David Nagel). Judgment is always highly subjective; other participants might have quite different views.

Let me start with the down side: experimental results are nowhere in the commercial range. Consequently, financial support is lagging, and social acceptance is minimal. The heat output is in the range of watts in a typical experiment, not yet kilowatts. This is enough to create fury at and envy of the hot fusion industry, but not enough for the necessary multimillion dollar commercial investment. So we are in limbo, at least with the heat-only-output type experiments.

Looking around the audience, there was a striking observation. Most participants were above the age of 60 (including the author), or rather above 70. There were a number of students in their 20's, due to the new student scholarship program. This is a novel, praiseworthy feature of the ICCF21 program. However the scholarship program was funded, the organizers did a marvelous job making this dream real for young scientists. However, researchers in their 40's and 50's—a time when scientists are most experienced and active—were absent. Obviously, the extreme official rejection for our field has its tragic consequences. As no patents are awarded, and few if any papers published in “mainstream” prestigious journals, no one can make a living and an acceptable income from our field.

Now comes the highly subjective part: I think the subjects of the meeting covered only a small fraction of all feasible LENR. Most theoretical and experimental papers covered the Pd-D or Ni-H heat-only systems. In my opinion this is only of academic interest, but cannot be commercialized. This is still the legacy of the Pons-Fleischmann era, but only a side show of all possible LENR phenomena. However, no one will help from the outside. We have to do aggressive expansion, to find better LENR phenomena in nature and technology. Our challenge is not publish or perish, but expand or perish.

There are absolute standards in this field. An incredible amount of taxpayer money and venture capital is poured into hopeless hot fusion megaprojects, like the National Ignition Facility (inertial fusion) and Tokamak-like ITER at Cadarache, France. If we compare the test results of these fusion research areas, LENR comes off better. There are a number of over-unity test results, while hot fusion has none.

Hot fusion will never be functional, due to the complexity of these behemoths, and erroneous engineering principles. As life does not exist without enzymes (catalysts), industrial, economic fusion cannot exist without catalysis.

If we were to compete on equal grounds, the outcome would be obvious: LENR is far better now. But our scientific (and political) society is dysfunctional in every field: failures are rewarded, good results are fiercely punished.

Consequently, LENR results must be a million times better than hot fusion in every aspect. That is in terms of energy efficiency, cost efficiency, and repeatability, reliability. A smashing commercial LENR product must be on the market for years to get a social rather than a scientific acceptance. It means that a real miracle must happen in this uphill, totally unfair competition. So if “cold fusion” is only a thousand times better than hot fusion, it is not enough. It must be a million times better. The good news is, the potential is there, judging by the experimental and theoretical papers.

The big “if” is: can we make the big qualitative jump with this meager funding, and acceptance, level? My highly subjective answer: not if only Pd-D and Ni-H systems are considered.

There were no test results in the kW range and the 1000+% output range in the experimental papers.

Electrical input/heat output systems in the milliwatt to watt range are simply not sweet enough for the industry yet, but dangerous competition for the incumbent hot fusion business.

My bitter (highly subjective) opinion is that homework has to be done. The lessons of history must be learned. There are a number of forgotten inventions, where the results were spectacular: small, portable electric energy generators were driven by LENR. However, neither the inventors, nor the recent LENR community, were aware of this.

The Window of Opportunity: The End of the ICE (Internal Combustion Engine) Age?

In the meantime, a new industry has appeared: the electric car and scooter industry. Their flagship is the Tesla car company, but as a weird twist of fate, they are ignorant about the most important result of Nikola Tesla—he demonstrated an electric car (driven by LENR as early as 1931, in Buffalo, New York).

As I wrote earlier, this is not just wishful thinking, a heresy. Tesla left detailed writings about his (semiconducting

SiC) “carbon button” lamps, as being unusually bright compared to incandescent lighting. He was obviously aware of the presence of excess energy, but ignorant about the million details of LENR. (We cannot blame him at all!)

The brightly shining carbon button lamp was the starting point of his later research on a high voltage tube producing electricity. This tube was the most important achievement of his life, as he stated in an interview.

This electricity producing tube (or any similar device) is in great demand for the emerging electric car industry.

All of these electric cars have common problems. They are quite expensive and useless in harsh winter. The present market in the U.S. is restricted to the wonderful mild climates of California, Texas or Florida. Anything above Massachusetts is forbidding because in cold weather the battery pack rapidly loses its capacity. Further, the battery packs are expensive not because of the Li ion but due to their cobalt content.

Therefore an onboard, small electric energy producing LENR unit would be decisive in the competition between gas driven and electric cars. So switching from “heat only” Pd-D/Ni-H systems is necessary, not only for the very survival of this field, but for the common good, too.

By the way, I saw only two Tesla cars in Manhattan in four days, walking most of the time. In Colorado, none. Sooner or later Florida and California will be saturated, but Montana or Illinois will have none of them, until the internal heating is solved. Moreover, the biggest competitor, the Chinese BYD (Build Your Dreams) is invisible at the moment. They produce many more but they sell them only at home...for awhile. Their new battery plant (nearly ready) is 50 times bigger than Tesla Motor’s gigafactory in Nevada.

There are 400-odd electric car/scooter/bicycle startups in China alone, and India has also appeared on the scene. The historical opportunity is here. The question is: are the researchers of LENR able/willing to grab the opportunity, abandon Pd-D systems and get to the electric output systems? The answer is “no”—as I’ve seen it at this meeting. Consequently, this field may simply cease to exist within a decade—harsh words, harsh reality.

The potential market is huge for LENR. Great fortunes are to be made, but much bigger ones are to be ruined, such as big oil.

LENR has the only potential to satisfy this huge opportunity, but not within the present research area. And this is my big concern. Many researchers in this area are simply ignorant of their past, e.g. the outstanding experimental results of Nikola Tesla, Henry T. Moray, etc.

The only qualitative, positive step forward has been (as I see it) the improved and converging understanding of LENR processes.

Most theoretical papers addressed “cold fusion” in terms of charge waves. They came under the names of charge clusters, coherent states, quasi-particles, electron solitons, resonant surface waves, heavy electrons, etc. Sooner or later the terms will hopefully converge, and even phonon waves will join them.

The following papers fell into this group: Dimitar Alexandrov; Katsuki Tanabe; Vladimir Vysotskii; Xing-Zhong Li, Anthony Zuppero and Thomas Dolan; Andras Kovacs and Dawei Wang; and in a sense Peter Hagelstein’s paper too. Thus collective behavior of charge waves and lat-

tice waves are behind the catalysis of fusion with hydrogen isotopes.

The other camp is the “quantum rebels,” with relativistic deep orbit models, like J.L. Paillet and Andrew Meulenberg.

The surface wave models are easy to verify or falsify; the deep orbit of “fractional quantum number” models are not; we either believe them or not. They don’t help experimentalists decide what to do the next morning down in the lab anyway.

Experiments

There were a number of experimental papers, most of them of high quality, nonetheless of routine Pd or Ni loading and deloading, yielding some excess heat, to be measured by flow calorimeter or a Seebeck calorimeter. These papers were boring (for me), since they won’t change our “leper” status. This is simply not a million times better than hot fusion.

Papers by Vladimir Vysotskii and Aleksander Nikitin discussed useful biological transmutation to get rid of radioactive soil after the Chernobyl disaster.

The theoretical nuclear crystal model of Norman Cook was well received. There was a remarkable evening seminar on this subject on Wednesday evening, when Philippe Hatt also added some interesting and useful insights about binding energies of such nuclear structures.

And of course there were strange new ideas also, like those of Simon Brink and Russ Blake, both from Australia.

I enjoyed very much the “summing up experience” papers from the early pioneers with huge experimental knowledge, like Michael McKubre, Jean-Paul Biberian, Mahadeva Srinivasan, George Miley and especially Edmund Storms, who was not present in Padova or Sendai when I attended those conferences.

Unfortunately there were no Russian participants and only one from China, ostensibly due to visa problems.

The next meeting will be held in Europe in Slovenia, chaired by Bill Collis, an experienced organizer. If I were him, there would be more room for bold new approaches rather than old routine Pd loading papers.

Researchers in this field are completely unaware of old transmutation results and its roots based in nanotechnology. Auguste Comte, the French philosopher, said that to understand a science, it is necessary to know its history.

So the transmutation experiments of Mary the Jewess (Alexandria, 1st century), Robert Boyle and Isaac Newton are forgotten completely. Moreover, it is necessary to know how LENR appears in nature, as it gives a deeper insight.

In my opinion, dust catalyzed transmutation happens in the crust of our Earth, and in a spectacular manner on the tiny moons of Enceladus, Titan and Europa, spitting geysers from under a thick layer of ice. It also takes place on our Sun, where the corona is heated by incoming interstellar dust to an astonishing 100-200 million degrees C while the surface is only a comparably “ice cold” 7000°C. That is, the whole universe is run by dust fusion, a version of LENR.

So next time the U.S. Patent Office rejects an application, based on the usual “unreliable” label, we may point towards the Sun: is four billion years enough?

All LENR experiments presented were run on shoestring budgets except the project of a hybrid fusion-fission reactor, being developed by Larry Forsley and Pamela Mosier-Boss, for space application as an energy source.

The schedule of ICCF21 was extremely tight. Lectures were continuous from 8 a.m. to 5 p.m., except for the Wednesday afternoon excursion. I was usually saturated with information by mid-afternoon, grasping for some air. Yet the whole meeting was well-organized, smooth running, without any hitch. The Preparata Medal was awarded to Mitchell Swartz, who deserved it by all means for his experimental results. [Detailed coverage of ICCF21 will appear on the *Infinite Energy* website in July and will be published in Issue 141.]

However, this is simply not good enough yet. This is an exceptionally oppressed field, without patent protection, lacking the possibility of publication in mainstream journals, and the most painful, a lack of research grants from the taxpayer, who is obviously against pollution, resource wars and oil greed.

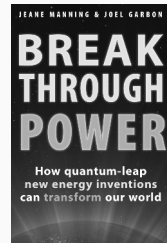
My conclusion is as usual. We have to be a million times better than hot fusion results. We have to learn the results of Tesla, Moray and the like.

Our future is in our glorious past.



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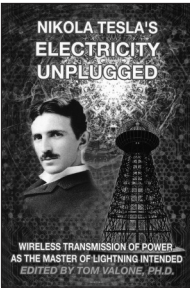
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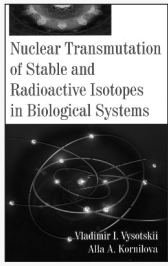
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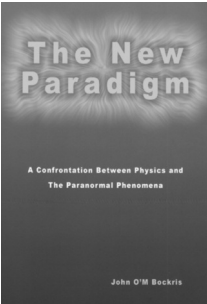
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