## CONFERENCES AND SYMPOSIA

## On Russian conferences on cold fusion and nuclear transmutation

Today, ten years after a flurry of extensive 'cold nuclear fusion' (CNF) research was triggered by M Fleishman and S Ponse's bombshell *The Financial Times* interview of 23 March 1989, it is safe to say that the two were clearly over-optimistic about the room temperature (!) fusion of heavy hydrogen nuclei as an industrial energy source. Despite the worldwide efforts of leading physicists who jumped on the cold fusion bandwagon (in Russia alone, the RRC 'Kurchatov Institute', Joint Institute for Nuclear Research, VNIIÈF in Arzamas-16, INP of SB RAS, etc. were involved), the final conclusion to be drawn from these studies is definitely NO.

Still, even today work along these lines goes on, and since many of those involved do not live up to academic and, in same cases, even to good faith standards, the CNF community has turned into an isolated entity producing numerous publications of highly improbable and extraordinarily bizarre content. These may be found in full in the *Proceedings of the Russian conferences on cold fusion and nuclear transmutation* (RCCFNT).<sup>1</sup>

Strangely enough, physicists have a more than modest representation among the conference organizers - to the point, indeed, that not a single nuclear physicist can be found among the Organizing Committee members. The deputy chairman of the Organizing Committee and head of the secretariat are embodied in one and the same person, Yu N Bazhutov, Candidate of Physicomathematical Sciences and Director of the Research Centre for Physical and Technical Problems (Russ. abbr. NITs FTP) 'ERZION', the last term referring to one of the hypothetical (or rather mythical) particles Yu N Bazhutov introduced for explaining all there is in the world and more. The mythical particles 'enions' and 'erzions' first appeared in the early 90s in Bazhutov's TsNIIMASh preprints soon after A F Okhatrin's 'discovery' of the microlepton, only to be ignored fully and unanimously by professional elementary particle physicists.

One more deputy chairman of the Organizing Committee, Doctor of Physicomathematical Sciences R N Kuz'min, is a faculty member of the Moscow State University Physics Department — a fact which one would expect to be beneficial to the quality level of the conference proceedings. Alas, it is not, as a survey of the four conference collections shows.

Among many experimental aspects of the 'cold nuclear fusion' phenomenon, the conference proceedings include attempts to detect the neutron yield from a variety of mechanically moving and/or chemically reacting media; nuclear mass spectroscopy, and the detection of beta-decay as evidence for the formation of new isotopes. In some papers,

*Uspekhi Fizicheskikh Nauk* **169** (6) 699–700 (1999) Translated by E G Strel'chenko; edited by A Radzig so much heat is reported to be released in chemical and mechanical processes that no explanation is possible without invoking fusion reactions in the media.

For each of the above CNF aspects, the observed effects of astoundingly large magnitude are reported — something which sets the conference proceedings apart from results normally published in expert-reviewed journal papers. Clearly, the poor level of experimental equipment and, in most cases, a lack of professionalism are to blame here.

Some of the contributing papers deserve special mention. In Ref. [1], a team of researchers from a host of institutions led by Yu N Bazhutov presents results achieved on the 'Yusmar' hydraulic unit. The unit is claimed to synthesize tritium and even a radioactive isotope of carbon, and apart from that, to produce neutrons and release additional thermal energy. Unlike world's leading nuclear centers, which use heavy water with ordinary hydrogen replaced by deuterium, Bazhutov's team needs just tap water — and with tossol added to that! — to obtain its unique results.

According to Cand. Sci. Bazhutov, it does not take anything more than a normal kitchen to fulfil the age-old alchemist dream of changing ordinary atoms into those of precious metals. Inspired by theories like that, I B Savvatimova has achieved what thus far the world's entire physical community has not been able to do: transmute elements (change nuclei of one element into another) over most of the Periodic table [2, 3]. While skilled physicists build particle accelerators to be able to occasionally observe a single event of this kind, their colleagues at GosNII NPO 'Luch' do this effortlessly by just bombarding metal surfaces with ions in a common gas discharge. And miracles like this abound throughout the conference proceedings under review.

One of the most 'outstanding' results was achieved by A I Koldamasov, in whose work [4] the fusion process takes place in the field of an electric discharge. To quote the author: "Due to the nonavailability of extra pure water, pure TS-1 kerosene was used in the experiment". And, he goes on: "... because of the lack of funding, no parameters other than electric ones were measured".

Interestingly, in the resolution of the 4th conference, signed by the Organizing Committee president Yu N Bazhutov and his deputy V P Koretskiĭ, we read the following about Mr Koldamasov's 'achievements': "A I Koldamasov presented additional information about his RCCFNT-3 report on the measurement of electrical and radiation fields produced by passing superpure distilled water through a diaphragm with a small hole ... ". It seems the gentlemen from the Organizing Committee did not even care to read the contributed papers when summing up the conference.

The theoretical studies match the level of the experimental work. Sure, the universal Yu N Bazhutov is not the only trendsetter in the field. Nor are the mythical hadrons introduced for achieving low-temperature nuclear transmutation, the only 'breakthrough approach' used. V N Shadrin presents us with specific effects of the 'autooscillation quantum mechanics of Rodimov', the 'unitary quantum

<sup>&</sup>lt;sup>1</sup> The proceedings of the 1st RCCFNT were published by MNTTs 'Vent' in 1994, and those of the 2nd, 3rd, and 4th, by NITs FTP 'Erzion' in 1995, 1996, and 1997, respectively.

theory' of L G Sapogin deals with oscillating-charge particles, G I Shipov's torsion effects enable the Coulomb barrier to be overcome, and so on.

Being unprincipled never does good. For ten years now, we have been witnessing the formation of a weird self-isolated community - indeed a sect - that produced something inconsistent, incorrect, and simply illiterate, whereas traditional science, while looking at all this with disgust, does nothing whatsoever to let its attitude be known. Neither the Russian Academy of Sciences nor the Ministry of the Nuclear Power Industry have spoken out. And lo and behold Mr Bazhutov takes the courage to send a letter to the first deputy Prime Minister razing to the ground the atomic power industry. In Mr Bazhutov's words: "... there is a 10% risk involved in operating an atomic power plant" (!). (Where does this figure come from, one would like to know?) But, he continues, things are not that bad after all: thank heavens, the process of cold nuclear transmutation is now being studied by the RCCFNT participants. Just let the Government consider "facilitating the creation of a prototype unit for completing the research, obtaining stable results, developing technology for translating these results into practice, and for carrying out experimental work with the aim of establishing Russia's priority in this area".

Clearly Mr Bazhutov has let the cat out of the bag: no stable results yet — but give us some money! Where is the logic here, for heavens sake?

And now something really interesting has happened. Inspired by Bazhutov's initiative, director of the GosNII NPO 'Luch' — where nuclear fusion 'in the field of an electric discharge' has been realized — has submitted a proposal to the Ministry of the Nuclear Power Industry that "CNF and nuclear transmutation research be supported ... and concentrated ... in the RF Ministry of the Nuclear Power Industry". And, mind you, it is GosNII NPO 'Luch' which should be appointed as the lead institution on the project. Should the said research be funded, the institute would be able to develop and create demonstration units capable of confirming the possibility of excess heat release and reduced waste radioactivity. Thus we see how 'research work' of a highly questionable nature may become the subject of a highest-level discussion in the country.

It is ripe time for both the Russian Academy of Sciences and the Ministry of the Nuclear Power Industry to speak out at last! Lest further silence encourage ignoramuses and adventurers in further 'scientific exploits'.

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## References

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