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Subject: Our Science paper

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Rusi , Academician Robert Nigmatulin , Professor Robert Block and I met to discuss the proposal by ORNL management to make Dr. Daniel Shapira a co-author of our <i>Science</i> paper , and to add his results to it .

After due consideration we have concluded that this is <u>unacceptable</u> to us on both professional and ethical grounds. It is also my understanding that Dr. West feels the same way. As you know we have worked with you for over 5 years on this research project and have invested an enormous amount of our time and resources into helping make this scientific breakthrough. Clearly Dr. Shapira has not participated in any material way concerning the actual discovery. Moreover, based on his own earlier report (of August, 2001), the limited confirmatory data he took with his detector was one in which he

proclaimed he found nothing interesting, and then dismantled his detection system and left. This was untimely and unfair to the project since we were not given the time to conduct a thorough analysis.

Only after considerable time was invested by you , Bob Block and Colin West , to analyze his raw data ,did we discover that indeed neutrons were being produced during SL with cavitation in chilled deuterated acetone. We have his written agreement to this effect. This does not add any new information but does confirm what we have already found (that 2.5 MeV neutrons are emitted during cavitation). In terms of coincidence measurements his data are inconclusive. Our in-depth assessment at RPI is that this is very likely due to the manner in which the experiment was designed and conducted. For example, the detector placement was (perhaps unavoidably) inappropriate (having been shielded with carbon,oxygen and hydrogen bearing materials that can scatter neutrons and possibly saturate the electronics from gammas); also, the discriminator levels appear to have been set too high so that many more 2.5MeV neutrons appear to have been cut-off relative to the detector system you set-up and used with Prof.Block's help. A factor of 10 reduction in neutron detection during cavitation is our estimate, a number which is in line with the estimates of Dr. Shapira for neutron production, compared to what we found.

We appreciate and believe that Dr. Shapira's comments as a reviewer of our paper were useful and as such he has been duly acknowledged. The data taken with his apparatus add nothing new and would not enhance

the quality to our paper, only to "muddle the water." Thus we do not feel that it is not appropriate to add him as a co-author.

As you know, our paper has been intensively reviewed and accepted by recognized experts in the fields of hydrodynamics, nuclear physics, fusion and sonoluminescence from all the world over, and has been accepted for publication in *Science*. We have also had our own intensive internal reviews. We have documented reviews from ORNL experts confirming the validity of tritium generation (M.Murray), and also on 2.5 MeV neutron generation (from D. Shapira himself) during cavitation of chilled D-acetone. Coincidences between SL and scintillator neutron signals followed by microphone shock signals have also been carefully measured by us for chilled cavitated D-Acetone. Moreover, the data on the statistics of the SL/scintillator signal coincidences only for chilled D-Acetone we present in our paper are in-line with all other observations and measurements that we have made. Indeed, nuclear emission time spectra data were also taken also confirm our results. There is an overwhelming amount of compelling evidence which clearly shows that we have achieved D/D thermonuclear fusion in our experiments.

As I'm sure that you know, the scientific community (including Dr. Shapira, if he wishes) will need to independently confirm our results before they will be widely accepted. The best way to get to this point is to publish our paper in *Science* as soon as possible and to assist others in setting up their own bubble fusion experiments

. We stand ready to help you in this regard.

Finally, if your laboratory management wishes to discuss this matter further I bring to your attention that Academician Robert Nigmatulin will be in the US between February 14 to 20, and we would be happy to engage in a meeting or teleconference.

Dick Lahey
