

Exhibit 1

Rebuttal to Allegations Recommended for & Published in Phys. Rev. Ltr. Journal – After
Anonymous Expert Scientific Peer Reviews; Experts
Selected & Overseen by the American Physical Society

PRL 97, 149404 (2006)

PHYSICAL REVIEW LETTERS

week ending
6 OCTOBER 2006

Taleyarkhan *et al.* Reply: The Comment [1] has overlooked important aspects which result in incorrect conclusions.

Rather than argue about the merits or demerits of attempts at a computer code calculation for a “presumed experimental configuration and instrument settings-cum-performance,” we directly obtained [2] additional experimental data with our laboratory’s Cf-252 source with the same liquid scintillation and NaI detectors and settings used before [3,4]. We then show by direct one-on-one comparison in Fig. 1 that the reported spectra in our Letter [3,4] for neutron and γ photons are significantly different from corresponding spectra derived from a Cf-252 source. At the external detector face, D-D fusion (2.45 MeV) neutrons from our tests will not be monoenergetic due to down scattering with intervening atoms; hence, similar to neutrons from Cf-252, neutrons of various energies will reach the detector, the spectral shape of which is governed by complex 3D interactions with intervening media, detector train settings, age, etc. Cf-252 emits neutrons with an average energy of ~ 2 MeV [5], and super-

ficial similarity with ~ 2.5 MeV down scattered neutrons should be expected, but this is *not* true for γ emissions. Importantly, our bubble fusion neutron spectrum [4] shown in Fig. 1(a) does display a (smeared) hump around the ~ 2.5 MeV proton-recoil-edge (PRE) [6] due to emitted neutrons being scattered downwards with atoms of test liquid and intervening ice packs and other paraffin shielding, along with γ photon leakage arising from the pulse-shape discrimination (PSD) settings [2,3] which permit $\sim 7\%$ of high energy photons to leak into the neutron window. Some (small) counts above the ~ 2.5 MeV PRE should be expected from γ leakage and U fissions. The Cf-252 neutron spectrum is distinctly separate, monotonic, and shows no hump. The γ spectrum for Cf-252 is even more radically different [Fig. 1(b)] with no resemblance (neither in structure nor intensity) with published spectra [3,4].

Finally, the Comment [1] ignores the fact that a control experiment series has indeed been conducted using liquids with “H” bearing atoms with null results. Only deuterated benzene mixtures result in neutron emissions of ~ 17 to 30 standard deviations in statistical significance.

Our spectra [3,4] for neutron and γ emissions mixture could not have resulted from a Cf-252 source and are indeed consistent with that from a 2.45 MeV neutron source from within the test cell filled with $C_3D_6-C_2Cl_4-C_3D_6O-UN$.

The authors thank Professor Y. Danon of Rensselaer Polytechnic Institute and J. Lapinskas of Purdue University for their assistance.

R. P. Taleyarkhan,¹ R. C. Block,² R. T. Lahey, Jr.,²
R. I. Nigmatulin,³ and Y. Xu¹
¹Purdue University
West Lafayette, Indiana 47907, USA
²Rensselaer Polytechnic Institute
Troy, New York 12180, USA
³Russian Academy of Sciences
6 Karl Marx Street, Ufa 450000, Russia

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PACS numbers: 78.60.Mq, 25.45.-z, 28.20.-v, 28.52.-s

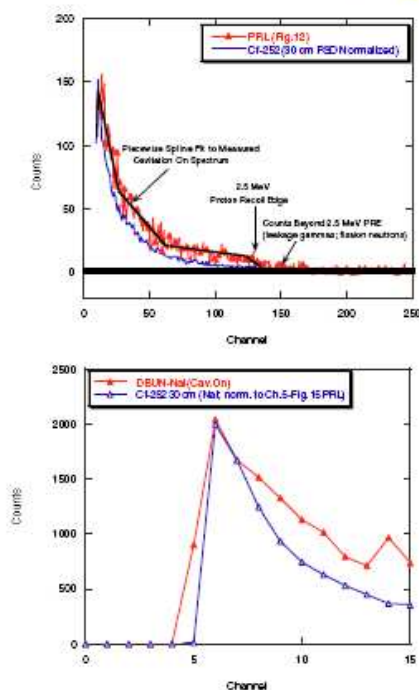


FIG. 1 (color online). (a) Measured neutron spectra for cavitation on [4] with hump ~ 2.5 MeV and for Cf-252 source (normalized at channel 10 to cavitation on spectrum). (b) Measured γ spectra for cavitation on [4] and for Cf-252 source (normalized at channel 5 to cavitation on spectrum).

- [1] B. Naranjo, preceding Comment, Phys. Rev. Lett. **97**, 149403 (2006).
- [2] See EPAPS Document No. E-PRLTAO-97-080640 for additional data. For more information on EPAPS, see <http://www.aip.org/pubservs/epaps.html>.
- [3] R. P. Taleyarkhan, C. D. West, R. T. Lahey, Jr., R. I. Nigmatulin, R. C. Block, and Y. Xu, Phys. Rev. Lett. **96**, 034301 (2006).
- [4] See Ref. [3]’s EPAPS Document No. E-PRLTAO-96-019605 for supplemental information.
- [5] G. F. Knoll, *Radiation Detection and Measurement* (John Wiley and Sons, New York, 1999), 3rd ed.
- [6] N. P. Hawkes *et al.*, Nucl. Instrum. Methods Phys. Res., Sect. A **476**, 190 (2002).

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Exhibit 2: Cover of Archives of American Nuclear Society (November, 2006)

TRANSACTIONS

OF THE
AMERICAN NUCLEAR SOCIETY

November 12-16, 2006
Albuquerque Convention Center
Hyatt Regency Albuquerque and Doubletree Albuquerque
Albuquerque, New Mexico

Volume 95
TANSAS 95 1-1010 (2006)
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**Exhibit 1b: Independent Confirmation Published Manuscript of Forringer et al.
(Archived by American Nuclear Society, November, 2006)**

Ex 1b

Confirmation of Neutron Production During Self-Nucleated Acoustic Cavitation

Edward R. Forringer, David Robbins, Jonathan Martin

LeTourneau University, 2100 S. Moberly Ave., Longview, TX 75602. tedforringer@letu.edu

INTRODUCTION

Evidence for acoustic inertial confinement nuclear fusion has been presented^{1,2,3}. The authors of the present summary visited the meta-stable fluids research lab at Purdue University in order to independently test whether or not the previous results could be replicated. The test liquid used in the data presented here is a mixture of deuterated acetone (C3D6O), deuterated benzene (C6D6), tetrachloro-ethene (C2Cl4) and uranyl nitrate (UN).

EXPERIMENTAL SETUP

The setup for our experiments, shown in figure 1, is essentially the same as what has been used in successful demonstrations of self-nucleated acoustic inertial confinement nuclear fusion¹. Notably, there is no external neutron source used as cavitation is triggered by alpha decay of the uranium nuclei. The test liquid was placed in a cylindrical glass vessel and driven with a sinusoidal frequency using a cylindrical lead-zirconate-titanate (PZT) piezoelectric crystal attached to the outside of the vessel.

Two types of detectors were used to identify neutrons. First, a fast rise time, NE-213 type, liquid scintillation (LS) detector was located 17 cm from the center of the vessel. Second, three CR-39TM plastic fast neutron detectors, which are insensitive to gamma rays, were used. Two plastic detectors were mounted on opposite sides of the vessel and a third was placed 70 cm away to measure background neutrons.

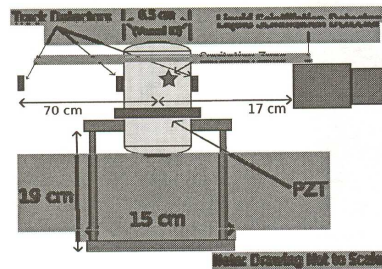


Fig. 1. Schematic representation of experimental setup

The PZT crystal was driven at the resonant frequency of the fluid in the vessel (between 18 and 19 kHz) as determined by maximizing the response received from a microphone attached to the vessel. When conditions were correct, cavitation of the fluid was observed as a pulse of sound whose amplitude was noticeably larger than the typical sound response from the system along with an audible "pop". These cavitation events occurred typically 3 to 9 times per second when the system was tuned properly.

RESULTS

Liquid Scintillation Detector

The LS detector was used with pulse shape discrimination (rejecting 93% of the gamma events while retaining the majority of fast neutrons). Table 1 shows the number of counts for cavitation on and off with deuterated and control (non-deuterated) liquids. For the deuterated case, counts measured with cavitation on were eight standard deviations above the background (no cavitation) level. For the control case (non-deuterated liquid), counts measured were within one standard deviation of the background level.

Table 1: Liquid Scintillation Detector Results			
	Cavitation On	Cavitation Off	Difference
Deuterated Liquid	379	186	193±24
Control Liquid	131	146	-15±17

Figure 2 shows the pulse height spectrum (cavitation on minus cavitation off) of the events detected in the LS detector for deuterated and non-deuterated fluids. Calibration of the LS detector with gamma sources (Cs-137 and Co-60) showed that the 2.45 MeV proton recoil edge occurred at approximately channel 100. While most of the counts are consistent with neutrons below 2.45 MeV as expected from deuterium-deuterium fusion, some counts appear above channel 100. It is possible that these events represent gammas which were not rejected by the pulse shape discrimination.

It has been suggested⁴ that the pulse height spectrum from acoustic inertial confinement nuclear fusion resembles the spectrum from a Californium-252 source (shown in figure 3 using the same LS detector). The authors of this report, being aware of this suggestion, were very careful to ensure that there were no sources

present that could compromise our data. While the statistics from the data presented here are not sufficient to distinguish the neutron spectrum from the test apparatus from a Cf-252 spectrum there is an apparent difference. The Cf-252 spectrum is monotonically decreasing from channels 20 through 60 while the spectrum from the test apparatus appears fairly constant in that region. This region of the spectrum is important because it represents the energy range where the bulk of neutrons are expected from deuterium-deuterium fusion.

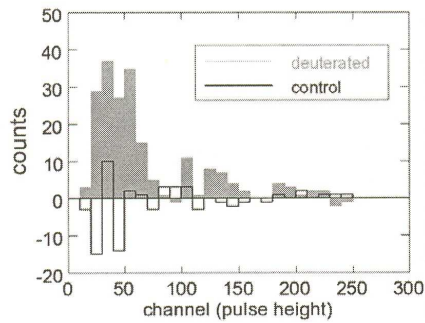


Fig. 2. LS detector pulse height spectrum for cavitation on minus cavitation off for deuterated and non-deuterated (control) liquids.

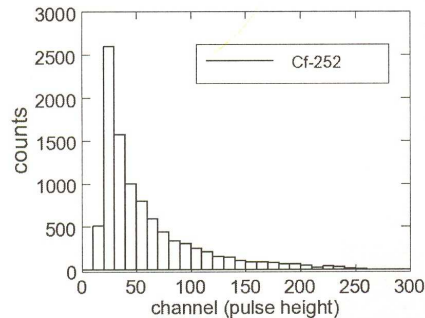


Fig. 3. LS detector pulse height spectrum for a Cf-252 neutron source.

Plastic Detectors

Table 2 shows the number of neutron tracks counted from plastic detectors used in two experiments, one using deuterated liquid and one using non-deuterated (control) liquid. The signal is the average number of neutron tracks for the two detectors mounted on the vessel. For the deuterated case, neutron production was 3.8 standard deviations above background. For the non-deuterated case (control) neutron production was within one standard deviation of background.

	Signal	Background	Difference
Deuterated Liquid	81.5	40	41.5±11
Control Liquid	30.5	30	0.5±7.7

SUMMARY

Neutron production during self-nucleated acoustic cavitation of a mixture of deuterated acetone and benzene has been verified with two independent neutron detectors. No neutron production is observed for the deuterated liquid when cavitation is not present, and neutrons are not produced with or without cavitation for the non-deuterated liquid. These observations support previous results indicating deuterium-deuterium fusion during self-nucleated acoustic cavitation of a mixture of deuterated acetone and benzene.

REFERENCES

1. R. P. Taleyarkhan, C. D. West, J. R. T. Lahey, R. I. Nigmatulin, R. C. Block, and Y. Xu, Phys. Rev. Lett. 96 (2006).
2. R. P. Taleyarkhan, C. D. West, J. S. Cho, J. R. T. Lahey, R. I. Nigmatulin, and R. C. Block, Science 295, 1865 (2002).
3. Y. Xu and A. Butt, Nucl. Eng. Des. 235-3 (2005).
4. Science. 2006 Mar 17;311(5767):1532-3.

Exhibit 3

Int. Conf. Fusion Energy (Published – Nov.2006, Albuquerque,NM) –by Forringer et al.

Confirmation of Neutron Production During Self-Nucleated Acoustic Cavitation of a Deuterated Benzene and Acetone Mixture

Edward R Forringer*, David Robbins, Jonathan Martin

LeTourneau University, Longview, TX, tedforringer@letu.edu

Using a test device provided by Purdue University's meta-stable fluids research lab, **neutron production** during acoustically driven self-nucleated cavitation of a mixture of deuterated benzene (C₆D₆) tetrachloro-ethene (C₂Cl₄) deuterated acetone (C₃D₆O) and uranyl nitrate (UN) **was measured and confirmed**. Neutrons were measured with an Eljen liquid scintillation detector and with CR-39™ plastic track detectors from Landauer Inc. Neutron yield during cavitations with the deuterated liquid was 4,600±600 neutrons per second above background while neutron yield during control experiments with non-deuterated liquid (C₆H₆-C₂Cl₄-C₃H₆-UN) was within one standard deviation of background.

* to whom correspondence should be addressed.

Edward Forringer
2100 S. Mobberly Ave.
Longview TX, 75607-7001
tedforringer@letu.edu

Topic Area: Engineering of experimental devices, Sono-fusion.

An oral presentation is preferred.

Exhibit 4 – LeTourneau University Press Release



LeTourneau University

News Release

LeTourneau University, P.O. Box 7001, Longview, TX 75607
Fax: (903) 233-3801

Contact: Janet Ragland (903)233-3815
Janet.Ragland@letu.edu

Nov. 17, 2006

BUBBLE FUSION CONFIRMED BY LETOURNEAU UNIVERSITY RESEARCH

(LONGVIEW, Texas)— LeTourneau University physics professor Edward R. “Ted” Forringer, Ph.D., and an undergraduate student have just returned from the American Nuclear Society (ANS) winter conference in Albuquerque, N. M. where they presented two papers confirming the existence of fusion in collapsing bubbles.

It has long been observed by scientists that sound waves in a liquid produce flashes of light when bubbles collapse. This phenomenon is called “sonoluminescence.” Professor Rusi Taleyarkhan, Ph.D., from Purdue University was the first to successfully show that these collapsing bubbles can produce fusion of two deuterium nuclei. This process is known as acoustic inertial confinement nuclear fusion, commonly called “bubble fusion.” Taleyarkhan’s results had been called into question, but now have been substantiated by Forringer and his students.

“Articles published March 2006 in the premiere international science journal, *Nature* magazine, prematurely dismissed Taleyarkhan’s work,” Forringer said. “Two students and I went to Purdue University in May to conduct our own research, collecting, analyzing and interpreting our own data that substantiated his previous work.”

One paper on bubble fusion, co-authored by professor Forringer, senior David Robbins and sophomore Jonathan Martin, has already been peer-reviewed and accepted for publication in *Transactions*, a publication of the American Nuclear Society. A second paper with Robbins as lead author, along with Forringer and Martin, is currently being reviewed for publication.

And why has bubble fusion generated so much press?

“All other successful methods of producing nuclear fusion are very expensive, requiring large collaborations at national laboratories. But bubble fusion can be replicated inexpensively on a table top with the right conditions and equipment,” Forringer said. “Fusion holds promise for clean, cheap and abundant ‘green’ energy, and our work provides another promising step for further research.”

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Exhibit 5

Nuclear Expert Prof. W. Bugg Confirms Bubble Fusion in Replication Experiments

Subject: Visit of June 6-7 by Bill Bugg
From: William Bugg <bugg@slac.stanford.edu>
Date: Fri, 9 Jun 2006 07:02:06 -0700 (PDT)
To: Rusi Taleyarkhan <rusi@ecn.purdue.edu>

Rusi, attached is a rather hastily prepared report of my visit to Purdue. I did most of it on the drive back to Tennessee yesterday. I will send later a longer more detailed report with discussion of some suggestions I have for possible improvement. Thanks again for your hospitality and willingness to let me participate (and interfere) in your experiments
Bill Bugg
University of Tennessee

Report on Activities on June 6-7 Visit. William Bugg. University of Tennessee.

Thank you for your hospitality and that of your colleagues and students on my visit this week to your laboratory. This short note is intended to briefly summarize my activities and observations on my two-day visit to Purdue. I will send you at a later date a more detailed note..

I was interested in seeing operation of the acoustic cavitation apparatus and wished to see conduct of a full experimental cycle including a demonstration of bubble implosion and the production of neutrons in a deuterated liquid and comparison with a similar run on an undeuterated liquid sample. I was of course familiar with some of the controversy in the literature and press concerning your published papers on the subject and wished to observe and critique personally the procedures used. Since my schedule precluded a long visit I requested a limited demonstration using simple well-understood techniques. Since neutron identification is crucial to interpretation of the results I was interested in use of nuclear track detectors for counting neutrons. These avoid the mastery of rather complex analysis when electronic methods are employed. While I have some experience in such analysis I felt I would not be able in my limited time to conduct the necessary calibrations and cross-checks to fully understand the results. Plastic track detectors, where individual neutron tracks are recorded permanently by etching after exposure, are used routinely by health physicists to measure exposure of individuals to neutrons. They provide a permanent record of the exposure and can be examined microscopically on a track by track basis at any time. The key to their use is careful control of their history and exposure to neutrons during the experiment and I wished to be present to ensure that proper care was taken in this regard. A disadvantage of their use is that they become sensitive as soon as they are manufactured so use of a given batch in an experiment

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requires subtraction of the accumulated background due to exposure prior to their time of use. This is normally done by measurement of a control detector from a given batch just prior to the experiment.

The experiment conducted on my visit utilized a benzene-acetone mixture with a dissolved uranium salt to initiate the implosions. This made it possible to keep external neutron sources completely away from the experiment as a source of possible background for the track detectors. Two cavitation runs of 2 hours duration were conducted, one with deuterated and one with normal liquid. For each run two nuclear track detectors were placed on the external walls of the cavitation chamber to detect neutrons from the chamber and a 3rd placed about 1 meter away to monitor backgrounds.

Since the major goal of the experiment is to look for the presence or absence of neutrons from the cavitation chamber in the 2 runs I adopted the as my primary role the following controls.

- 1) Control of the track detectors. At the beginning of each run I selected 3 numerically labeled detectors from a mailbox located far from the lab, recorded their ID and observed their installation on the chamber and background region just prior to the beginning of the run.
- 2) There are 2 neutron sources in the lab in a locked cabinet about 30 ft from the experiment in their shielded containers. I made sure that they remained in that location during the entire experiment and were not opened or moved.
- 3) I visually observed the cavitation conditions during both runs
- 4) On termination of the each run I observed the immediate removal of the detectors and their insertion into the etching bath.
- 5) Finally I personally scanned each of the 6 detectors for neutron tracks from the deuterated and undeuterated run and recorded my results.

I find a statistically significant excess of neutrons over the background in the 2 deuterated sample detectors located on the chamber and none in the undeuterated sample. I will send a more complete analysis at a later date.

I would like to make an important point with which I am sure you agree. If these runs are repeated several times with the track detectors in place the integrated neutron count should increase significantly with the background (due primarily to the prior exposure of the plastic since manufacture) remaining constant thus improving the signal to noise ratio markedly. I would therefore recommend such a series of extended runs. Unfortunately my short visit did not permit such an effort. One might also consider adding more detectors to improve statistics.

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Exhibit 6

Testimonial on Public Demonstration Experiments on 3/1/2006 and 3/2/2006

To: Prof. Rusi Taleyarkhan

From: Ross Tessien- Impulse Devices, Inc.

Date: March 2, 2006

Thank you for the opportunity to observe the self-nucleated acoustic cavitation experiment yesterday (3/1/06) in conjunction with the visitors from your DARPA-sponsored acoustic fusion project.

In order to allay doubts that arise regarding appropriate procedures for obtaining the neutron track data using CR-39 samples (2 mounted on the test cells and one for monitoring background changes) we requested and appreciate acceptance of the opportunity to experience the observations through the entire process starting with ensuring the experiment setup has no neutron sources, that the track samples are chosen for positioning at random (offered for selection by us) and then view the actions taken for cavitation, removal, etching for 3h at 80C in a KOH:H2O bath, removal and counting of tracks under an optical microscope as done yesterday.

We agree to be bound by safety regulations for your laboratory as advised to us yesterday and will agree to abide by instructions of your assigned experiment station operator from Purdue University. If asked to evacuate we will do so immediately. One of us will be badged with an electronic readout neutron-gamma dosimeter and will agree to wear it at all times while in the lab. Readings will be taken and documented before start of observations and at the end of the day.

The experiment conducted yesterday revealed that the background sample tracks were in the range of about 15-16 tracks, whereas, the chamber-mounted detectors experienced an increase to approximately 28 and 39 tracks, respectively.

If the experiment of today also reveals similar results of yesterday, we agree to write a note/Abstract to a suitable technical conference in the immediate near future and announce our observations and findings.

Ross Tessien



Person badged: Reading at start of observation
Reading at end of experiment observation

RT $\frac{n}{0}$ $\frac{y}{0}$ RT
0 0.05 RT

Results of Neutron Tracks with 2h Cav. Expt. (DB-C2Cl4-DA-VN)

Sample ID →	8324136	8324128	8324135
↓ Row	(Bkgd)	(2h Cav)	(2h Cav)
5	13		
8	8/9		
8	12		
<u>20/22</u>	<u>33</u>		

Sample ID →	8324136	8324128	8324135
↓ Row	(Bkgd)	(2h Cav on chamber)	(2h Cav on chamber)
1		13	13
3	8	8/9	15
8		12	15
<u>20/22</u>	<u>33</u>	<u>33</u>	<u>35</u>

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Exhibit 7
Testimonial of Dr. Y. Xu

PURDUE

UNIVERSITY

SCHOOL OF NUCLEAR ENGINEERING

October 27, 2006

Dr. Peter E. Dunn
Associate Vice President for Research
Research Integrity Officer

Dear Dr. Dunn,

I am writing in response to your letter dated October 23, 2006 requesting additional correspondence between me and Prof. Taleyarkhan concerning my 2005 NED manuscript and copies of any other drafts of that manuscript.

I understand there may be some questions about the independence of the research results published in my 2005 NED paper. Dr. Taleyarkhan did not influence, alter, change, revise, or modify any of the data, analysis, conclusions or research cited in the 2005 NED paper. The extent of Dr. Taleyarkhan's technical assistance and that of Dr. Cho have been described in my earlier response to you. For the data and observations in my 2005 NED paper I did all the experiments myself, collected all of the data independently, and did so without Dr. Taleyarkhan's involvement. I also did the analysis work with no input from him. I thought that was already clear and implied in my previous letter to you, but to the extent it was not, I would like to make it clear once and for all.

The independence of my research findings in the 2005 NED paper has been acknowledged publicly several times in the past, well before the Committee was conceived, in internal and external sources: in Purdue's Press Release of June, 2005; to the media (see for reference my statements made in H. Leitz's article in Germany of June, 2005); and publicly in the Acknowledgements portion of the paper. Dr. Taleyarkhan's guidance and assistance do not mean or infer in any way that he influenced the experiment or the independence of the data collected by me.

Since I have lost my email records before October 2005 (see the attached page between me and our department computer specialist regarding this issue), I could not provide any email communications between me and Dr. Taleyarkhan regarding my 2005 NED paper on sonofusion. Attached as you requested, I have found three paper copies of the draft NED manuscripts which Dr. Taleyarkhan marked up to try to help me. There were no changes dealing with my research, the data collected, the conclusions of the manuscript, nor the substance of my findings whatsoever. Rather, the changes were for grammar, language, and scientific formatting requirements for the NED journal.

I disagree with any allegations that my research findings were anything but independent. Adam Butt also does not, and cannot, quarrel with this fact.

Sincerely,



Yiban Xu

Enclosures (3 hard copies of manuscripts drafts, 1 copy of email communication regarding email loss)



School of Nuclear Engineering

Nuclear Engineering Building • 400 Central Drive • West Lafayette, IN 47907-2017
(765) 494-5739 • Fax: (765) 494-9570 • <https://engineering.purdue.edu/NE>

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Exhibit 8

7/2/2004 Email from Tsoukalas to Taleyarkhan acknowledging and appreciating Taleyarkhan's equipment move with no objection by Tsoukalas whatsoever

Subject: Re: Pharmacy Equipment (REMS communications); Mass spectrometer
From: "Lefteri H. Tsoukalas" <tsoukala@ecn.purdue.edu>
Date: Fri, 02 Jul 2004 17:40:32 -0500
To: Rusi Taleyarkhan <rusi@ecn.purdue.edu>
To: Rusi Taleyarkhan <rusi@ecn.purdue.edu>

Dear Rusi,

Thanks very much. Enjoyed talking with you this morning. Please give my best to your family and have a nice holiday weekend.

Best.

Lefteri

Rusi Taleyarkhan wrote:

Dear Lefteri:

Sorry about the surprise but I'll jot this down for REMS records after our discussion today.

As I indicated, Jim Schwitzer wanted the space in the pharmacy building for some new hire in Health Sciences that he was asked to help out -which is why Yiban/us also had to spend time to help it get cleaned up (old vials, spills, etc.). The materials were moved out of there with considerable effort on our part, also since you had assured me of the completion of the confirmatory phase of my oak ridge expts. re: tritium detection during bubble fusion you had initiated. I spoke with Jim and advised him of your surprise and he has agreed to permit transfer back of equipment there (the freezer and other equipment put together by Josh/Anton).

However, after our discussion, it appears that the pharmacy site is not something at least I would like to advise holding on to; the room design was set up for irradiating animals to study biological effects - don't see us doing this in the near future. Therefore, per your agreement, I'll put aside the plans for relocating back the freezer,etc. and store them here at INOK.

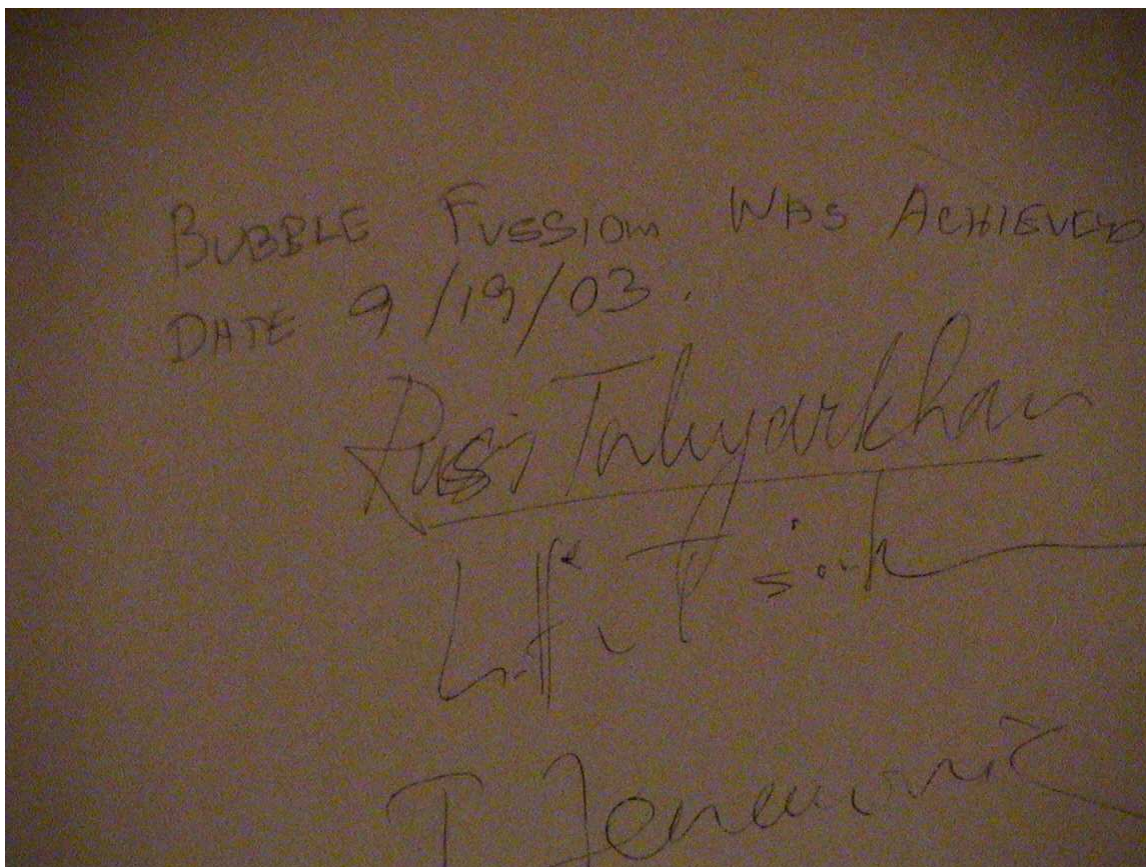
I've spoken with Yiban separately about the mass spectrometer from Crane. For some reason he heard from somewhere that the machine is not operable. I'll call on Jack Fulton and discuss this with him and let you know what I find..

Have a great 4th holiday - I will be preparing proposals and packing boxes in Tennessee.

Rusi

Exhibit 9: "Writing is On the Wall"

Purdue University's Laboratory with Signatures from L. Tsoukalas and T. Jevremovic
Acknowledging Their Successful Bubble Fusion Attainment



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Exhibit 10

**Tsoukalas Message to British Broadcasting Corporation
of his Group's Positive Bubble Fusion Results**

Subject: Re:
From: "Lefteri H. Tsoukalas" <tsoukala@ecn.purdue.edu>
Date: Wed, 19 Jan 2005 20:18:22 -0500
To: Colin Murray-GW <colin.murray.01@bbc.co.uk>
CC: "Lefteri Tsoukalas" <nehead@ecn.purdue.edu>

Dear Mr. Murray,

Sorry for the late response.

Purdue's sole work in sonofusion is done at Professor Taleyrkhan's laboratory.

Two years ago, a Purdue group under my guidance and with the assistance of Dr. Taleyrkhan initiated a series of scoping experiments to look for tritium production. The work was, therefore, not truly "independent" (since assistance from Dr. Taleyrkhan included design details and setup of the test cells used in the experiments) although **operation and data gathering was conducted independently.**

In addition, and for reasons beyond my control, we did not have the opportunity to complete it and publish results. Hence, I am not really in a position to offer much of substance to your inquiry, although informally, I could share that our raw unpublished results look promising and encouraging. **When using a state-of-the-art sensitive tritium counter (Beckman LS6500) of the type used by Taleyrkhan et al. (Science, 2002), statistically significant tritium increase appears to be realized from neutron seeded cavitation tests with chilled deuterated acetone, whereas, corresponding tests with normal acetone and those with irradiation alone gave null results.** As an aside, Monte Carlo nuclear simulations of the experimental setup conducted by our nuclear staff have confirmed that the neutron fluxes used for nucleation of clusters can simply not result in measurable changes in tritium - something borne out from the Tritium measurements.

I would like to stress that engineering-science details for conducting successful "bubble fusion" experiments should be considered a non-trivial undertaking, and need to be devised, set up and conducted with utmost care, diligence and perseverance.

Please do not hesitate to contact me if I can be of any further assistance.

Best.

Lefteri H. Tsoukalas

Lefteri H. Tsoukalas, PhD
Professor and Head
Purdue University
School of Nuclear Engineering
400 Central Drive
West Lafayette, IN 47907-2017
Tel: (765) 494-5742, Fax: (765) 494-9570
Email: nehead@ecn.purdue.edu, tsoukala@ecn.purdue.edu
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