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AFFIDAVIT OF EDWARD FORRINGER

This confidential affidavit of Edward R. Forringer is made in connection with the investigation currently in process at Purdue University. I, Edward R. Forringer, being first duly sworn on oath, state that if called upon as a witness, I would be competent to testify as to the following:

1. I am making this affidavit of my own personal knowledge. All of the facts contained in this affidavit are true.
2. I obtained my Ph.D. in Physics from Michigan State University, followed by close to 10 years of research and teaching experience in Physics. I have a background in accelerator physics experimentation. I am currently a professor at LeTourneau University ("LeTourneau") in Longview, Texas.
3. I initially approached Dr. Rusi Taleyarkhan ("Taleyarkhan") with the wish to be engaged in the study of sonofusion. At the time, I was well-aware of the various controversies and allegations made in the 3/8/2006 *Nature* articles. While I have a physics background, I did not have a background in sonofusion. Upon my request, Taleyarkhan offered me the opportunity to visit Purdue University with LeTourneau's sponsorship. I and several students procured our own grant funding for sonofusion research from the Welch Foundation.
4. Along with two of my students, we traveled to Purdue for several days of experimentation from May 15 to 17, 2006, using Taleyarkhan's laboratory and apparatus as a user facility. Taleyarkhan had forewarned me of the possibility of null results which may occur suddenly, especially if the test cell and apparatus malfunction.
5. On the first day, May 15, 2006, a test cell was offered to me and my students, along with tutoring and assistance on setup and operation. I was provided a safety briefing and

Confidential

one student was badged with REMS provided neutron-gamma dosimeter. We agreed to abide by the appropriate safety rules while in Taleyarkhan's lab.

6. From the first day onwards, I and my students controlled the execution of experiments, with intermittent participation from Yiban Xu ("Xu") and Taleyarkhan on an as-needed basis. As documented in my paper published in the Proceedings of the 2006 Winter Annual Conference of the American Nuclear Society, pp. 736-737, entitled "Confirmation of Neutron Production During Self-Nucleated Acoustic Cavitation," by Edward R. Forringer, David Robbins, Jonathan Martin, I stand by the statements made therein, "It has been suggested that the pulse-height spectrum from acoustical 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." My students and I kept watch for the introduction of any isotope neutron source which could compromise our data. The only isotope sources of which I was aware (a Pu-Be source and a Cf source) were kept in shielded containers at least 40 feet from our experiment and were not moved while we were taking data. The test cell with deuterated benzene-uranyl nitrate mixture was positioned over a freezer with an opening in it to allow cold air to blow into the test enclosure consisting of 3mm thick plastic sheeting on four lateral vertical sides and at the top. A 4cm thick paraffin barrier between the experimenters and the test enclosure served as a biological shield.

7. I and my two students procured and selected at random our own three neutron track detectors. We recorded the ID signatures on each chosen detector and decided on the random positioning of each detector. The test cell face was first wiped clean with acetone. Two Landauer CR-39 neutron track detectors were placed on diametrically opposite faces, and a third

Confidential

Landauer CR-39 detector was placed about a meter away from the test cell. In addition to the three Landauer detectors, we also used a fast timing LS detector system with PSD which was positioned about 17 cm away from the test cell with the 3mm thick plastic enclosure sheet in between. PSD calibration was conducted with the use of a 1 μCi Co-60 gamma source to be able to gate out ~92% of gamma photon counts. Upon degassing and start of experimentation for several times in a row, cavitation was turned on and off and neutron counts obtained in the energy (pulse height) mode were noted. Close to 100% increase was noted with cavitation turned on versus off, all else remaining the same. The background counts remained to within 1 SD each time cavitation was turned off. Despite the fact that the main data acquisition efforts were to monitor for unambiguous neutron tracks on the passive (gamma blind) Landauer CR-39 neutron track detectors, we noted the dynamically obtained neutron count changes and decided we wanted to record some of the LS detector data on the MCA. Such data were obtained six times successively (*i.e.*, 20 seconds cavitation on followed with 20 seconds cavitation off, then 20 seconds cavitation on and so on). The individual data were logged and the various instrument settings were archived in the MCA simultaneously. Thereafter, a continuous cavitation on run was conducted for 2 hours. We noted that the cavitation bubble clusters were imploding selectively closer to one side of the test cell and not on the centerline. At the end of 2 hours, we removed the three Landauer plastic neutron track detectors and introduced them in preheated bath of KOH-H₂O mixture. After 3h of etching, we worked together with Xu to remove the three detectors. At least one of my team members remained at the location of the etching bath at all times to observe. The three track detectors were read individually by us and were later verified by Taleyarkhan. The results revealed a statistically significant emission of neutron tracks from the self-nucleated deuterated benzene-based mixture experiment of that day.

Confidential

8. On the next day, the same sequence was followed for experiments with normal benzene mixtures. Null results were obtained for neutron emissions from the CR-39 neutron track detectors as well as from the NE-213 LS fast timing system. In addition, we performed experiments on their independently chosen Landauer track detectors using a 1 Ci Pu-Be neutron source (NIST certified to produce $\sim 2 \times 10^6$ n/s). LS detector data were also obtained deliberately with the use of the laboratory's Cf-252 isotope source.

9. On the third day, we continued to conduct independent readings of the track detectors. We were allowed to and took back to Texas with us all of our Landauer CR-39 plastic track detectors, the raw experimental data archived on the MCA during three days of experimentation for post-processing and our data analyses to draw our own conclusions.

10. Soon after leaving Purdue, I wrote an email on May 19, 2006 to Taleyarkhan expressing appreciation for the hospitality, and declaring "I feel that we got very good data which fully convinced me that I have observed acoustically induced fusion events. I was also very interested to see the many other applications of "stretched" fluids."

11. About a month or so later, we completed our data analyses and documented our work in the form of manuscripts and transmitted the same for review and invitation for presentation and publication in the archives of the 2006 Annual ANS Conference and the 2006 Intl. Conf. on Fusion Energy. Both submissions were accepted after reviews.

12. The manuscripts cited me and my students as co-authors. The manuscript clearly cites "... we went to Purdue to independently confirm bubble fusion ..." as was reported by Taleyarkhan et al. in their January 2006 PRL paper.

13. Taleyarkhan and Xu were acknowledged for their assistance on both submissions by us. In the two lectures provided to the world body at the two internationally-attended

Confidential

conferences, we uniformly assumed ownership of our efforts and results. I am told that such a mode of manuscript preparation and dissemination (with acknowledgments for Talearkhan's assistance) is similar to what Xu et al. did for the 2005 NED publication.

14. I did not believe that Talearkhan and Xu's involvement in our experiments required them to be listed as co-authors. Rather, we "acknowledged" them in accordance with the norm of scientific journal writing. As this was a confirmatory experiment, and because we conducted and controlled the experiments (even though we used their technical assistance and apparatus as from a user facility), their listing as co-authors was not required.

15. Talearkhan did not ask to be a co-author, nor did he ask to be excluded as a co-author. Similarly, he did not ask to be acknowledged nor did he ask not to be acknowledged. These questions were left entirely to us.

16. I believe I independently confirmed Talearkhan's sonofusion studies (reported in January 2006, in PRL) using the facilities and apparatus of Purdue University's metastable fluids research laboratory as stated in paragraph 14 (above).

17. The issues highlighted in the Press (mainly from Nature) involving data fabrication using a Californium source are wrong and misguided and unsupported by facts, especially given my team's positive findings (and also those reported unofficially by W. Bugg of Stanford Univ./UTK).

18. I had not interacted with Talearkhan or his collaborators before approaching him in March, 2006. I independently procured research funding, controlled the conduct of experimentation sequences, detector choice, detector calibrations, data acquisition, data reporting, drawing up of conclusions, and documentation of their findings. Talearkhan

Confidential

displayed grace, openness and willingness to assist in independent group validation with available resources.

19. From the brief interactions I have had with Taleyarkhan and his colleagues at Purdue, and especially during the visit by my team to Purdue, I never witnessed unethical conduct by Taleyarkhan or his colleagues, nor has Taleyarkhan ever advised me to do anything wrong or tried to influence me in any way to engage in research misconduct.

20. I am grateful for the opportunity Taleyarkhan gave me to study sonofusion in his laboratory.

Edward R For
DR. EDWARD R. FORRINGER

SUBSCRIBED AND SWORN TO
before me this 30th day
of January, 2008.

Rita J. Courson
Notary Public

