AFFIDAVIT OF DR. JAESEON CHO

This confidential affidavit of JaeSeon Cho is made in connection with the investigation currently in process at Purdue University. I, JaeSeon Cho, 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. My English is good, but I have had help drafting this affidavit. I fully understand what it says and it is true.

3. I previously worked at Oak Ridge National Laboratory as a Senior Scientist. I worked there with Dr. Rusi Taleyarkhan ("Taleyarkhan"), and continued to work with him and additional faculty and students at Purdue University when Taleyarkhan left ORNL for Purdue. Currently I am with FNC Technology, a high-tech company in Korea providing nuclear technology services in collaboration with Seoul National University, and I reside in Korea.

4. I was a co-author with Taleyarkhan of the 2002 publication in *Science* entitled "Evidence of Nuclear Emissions During Acoustic Cavitation." I collaborated with Taleyarkhan as a member of his research team in sonofusion studies.

5. I regret that I am unable to attend the investigation hearing on February 1-3, 2008.

6. Over the years from 2003-2006, I did my best to help Purdue students Josh Walter ("Walter"), Anton Bougaev ("Bougaev") and other Purdue students and faculty perform positive sonofusion experiments and never tried to stop them from understanding any of the processes or methods used.

7. On September 18, 2003, I brought a new test chamber made at ORNL to give to Purdue. Taleyarkhan and I worked hard all day long to help Walter and Bougaev to make this

chamber work with N-Acetone. During the day I also took pulse-height data for neutron emissions. These data were null results (*i.e.*, no indication of either more or less neutron emission over background).

8. On September 19, 2003, Taleyarkhan and I entered the Pharmacy laboratory (G60) at 8:30am to first do some trial experiments with D.Benzene-C2Cl4 to see if the results we were obtaining at ORNL could be repeated. I used Chamber 6 for the DBen-C2Cl4 expts. Josh and Anton entered the laboratory to allow me to get started with the source, but then left the laboratory around 9:45am for the entire day saying they had to go to do other things like attend classes and possibly other things. The entry-exit logs should be very clear in this regard as it is the way things are done at similar places and it is very important to be exact because of the presence of significant quantities of radioactive special nuclear materials which must be safeguarded.

9. I started the experiments after filling up the chamber, cooling it down and doing degassing. This step of cooling and degassing takes more than 1 to 2 hours. It is impossible to get data on neutron emission in 1 hour. During this time we were also setting up the NE-213 LS detector for Pulse Neutron Shape Discrimination ("PSD") and fast timing data acquisition of neutrons and gammas.

10. Around 11 a.m. Lefteri Tsoukalas ("Tsoukalas") and Tatiana Jevremovic ("Jevremovic") entered the laboratory to discuss and review progress. At that time, Chamber 6 was degassed and I was taking data for time spectra and also for pulse-height spectra.

11. Both Tsoukalas and Jevremovic saw the data being taken in front of them. The room is so small that everyone is close to the experiment station. Nothing was hidden and

everything was in open view. No effort to hide anything was ever made by me or, to the best of my knowledge, by Taleyarkhan.

12. The PSD time spectrum DBen-C2Cl4Time21.spu and DBen-C2Cl4Time22.spu showed two peaks both in the gamma and neutron region. The neutron peak was much bigger than that for the gamma peak. Both Tsoukalas and Jevremovic saw this data. I explained the data spectrum in detail to them and they said they fully understood it at the time.

13. Around 11:30 a.m. Jevremovic wrote "Bubble Fusion Was Achieved Here" on the wall and asked Taleyarkhan to sign the wall, after which Tsoukalas signed and then Jevremovic signed. Taleyarkhan did not force anyone to do this. It was done by Jevremovic, who was very excited about it (in a positive way).

14. After that, Jevremovic and Tsoukalas left. Soon after that Shripad Revankar ("Revankar") came into the laboratory and I showed him the data for neutron and gamma time spectra after which Revankar signed the wall, and then I (J.Cho) signed the wall.

15. As soon as this was finished, around 12 (noon), I took out Chamber 6 and put in the new chamber brought from ORNL (which was filled with D-Acetone) into the freezer to start out the day's experiment with D-Acetone. Other people were there, including Jevremovic and Revankar. I also took data for D-Acetone with cavitation on and off. The results showed output of about 2-3% excess above the backround.

16. Around 4:30 p.m. I started preparing to go back to ORNL and signed off in the laboratory log book. The experiment with D-Acetone was running for about 5 hours that day. I left the new chamber in the Pharmacy laboratory and took back Chamber 6 and the LS detector system of ORNL. Walter and Bougaev were not there.

17. Thereafter, for many months I tried to remain as was friendly as possible and gave advice to several people including Walter and Bougaev, and also to Yiban Xu.

18. Neither I, nor Taleyarkhan as far as I know, ever did anything to interfere with the confirmatory bubble fusion experiments and data acquisition for tritium and neutrons with D-Acetone by Xu, Walter or Bougaev all throughout 2004. I only gave advice on test cell operation or how to take data on tritium or neutrons, and that only when requested.

19. During 2004 and 2005 I collaborated with Taleyarkhan on DBenzene-C2Cl4-DAcetone-UN experiments.

20. During October, 2005 a new contract was set up between Purdue and ORNL to get my assistance in conducting D-Acetone experiments similar to the ones we had done at ORNL for our *Science* paper. This was the primary focus of my work for this contract.

21. On March 1, 2006 I was present during a DARPA review meeting at Purdue's INOK lab. During that day 2 separate and different experiments were demonstrated. One of the experiments was the external neutron based D-Acetone experiments. The second experiment was done with DBenzene-C2Cl4-DAcetone-UN (self-nucleation).

22. Neither I, nor anyone from Purdue to my knowledge (and I was present for virtually the entire time), prevented any of the visitors from getting answers to their questions on sonofusion. In fact, on March 1, 2006 Ken Suslick was invited to choose the CR-39 detectors to use for monitoring neutron emission during the self-nucleated experiments. At the end of the experiments, positive results for neutron emission for the self-nucleated experiment were obtained as read by several people. I left to go back to ORNL that night.

23. With regard to questions of co-authorship, I believe that helping to write/compose a manuscript does not alone qualify for co-authorship. Co-authorship should require substantive

technical input and/or direct participation in the experimental set up, conduct, data acquisition, data processing, data analyses and drawing of conclusions for the specific work being prepared for the world. Co-authorship is by invitation by the lead (corresponding author) and it is the right of the invitee to accept or decline. Acceptance of co-authorship is a voluntary function and has to be declared in writing to the publisher. Acceptance for co-authorship can depend on circumstances (*e.g.*, if a participant belongs to an organization which does not wish to be revealed, as can happen in cases of national security).

24. It is not uncommon for reviewers or referees to significantly mark up a manuscript (especially when written by fellow scientists from foreign countries where English is not their first language). In fact, this happens routinely in Korea where English is not the native language and many people (including me) have availed themselves of technical writing assistance. I know that Xu also would require some help in English language composition to properly highlight his results to the world.

25. I attest that it is common practice at DoE's national laboratory, ORNL, and at Korean or Chinese universities, for manuscripts to be written (to varying extents) by professional English technical writers. Indeed, the 2002 *Science* manuscript co-authored by Taleyarkhan et al. was first drafted by ORNL's technical writers and, finally, later modified in composition of language and presentation by *Science* magazine's own editorial staff. Participation in composing the language of a manuscript for publication in journals does not meet the standard for co-authorship.

26. There is absolutely no truth to allegations that have been made about the use of Californium or other means to fabricate positive results for sonofusion, or the attempt by any other

means to create false positive results. All the results we took and reported were taken fairly and honestly.

27. I have known about and worked with Taleyarkhan for many years. I know his work and reputation at ORNL while serving there in the rank of Distinguished Research and Development Scientist, and in the nuclear engineering community generally. He is a man of the highest character and ethical standards and his very highly regarded in the fields of nuclear engineering and safety. He is interested only in truth in experimental results.

01/26/2008

DR. JAESEON CHO