AFFIDAVIT OF DR. SHRIPAD T. REVANKAR

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

1. I am making this affidavit of my own personal knowledge. If called as a witness, I would testify to the truth of the facts contained in this affidavit.

2. I am an Associate Professor in the School of Nuclear Engineering at Purdue University. I have been with Purdue University in various capacities since 1987: as Visiting Assistant Professor 1987-1989 and Senior Scientist and Senior Research Engineer until 1996. I joined the School as a tenure track faculty member in 1997 and have been tenured with promotion.

3. I was a co-author of the NURETH-11 (2005) paper with Yiban Xu and Adam Butt. Beginning in June 2002, I was involved in sonofusion activities initiated by the Head of the School of Nuclear Engineering at Purdue, Lefteri Tsoukalas.

4. During the time I was involved with the sonofusion activities, including the 2005 NURETH-11 paper, Butt never indicated surprise or displeasure about being involved as co-author. Rather, he expressed deep appreciation. While I did not directly supervise Butt, he certainly showed no aversion to being a co-author to me or, as far as I know, to anyone else. I only talked to Butt a few times, and Butt and Xu were often interchangeable, and talking to Xu was like talking to Butt. I talked more often to Xu than to Butt. This was also because I was more familiar with Xu as I was on his thesis committee in prior years.

5. Butt was to be the one presenting the NURETH-11 manuscript in France. Butt knew this well-ahead of the conference. He was going because Xu could not go for visa reasons. I was the alternate to Butt if Butt could not go. Up till the end, Butt was looking forward to going and presenting his paper, but he finally revealed that he had not received his passport in time. Due to that passport problem, I presented the NURETH-11 manuscript in France.

6. Butt started working in the summer of 2004 learning how to conduct experiments related to sonofusion studies. Butt was doing comprehensive sonofusion work including thermal-hydraulics of sonofusion test cells (both experimental and analytic) as also evidenced from his MS Thesis (for which I was a member of his advisory committee). Butt took credit for both these works by including both manuscripts, NED and NURETH-11, as evidence of work he was involved in for his MS thesis. I atteended his defense of his MS thesis in December of 2005.

7. For the NURETH-11 paper, Butt was involved in the experiments since early 2005 and also performed a review of the draft manuscript, giving his corrections and suggestions. Xu was the primary author. Butt did acoustic testing for the paper.

8. There was never any pressure on either Xu or Butt from me, or from Taleyarkhan that I know of, to make Butt a co-author of the NURETH-11 paper.

9. Taleyarkhan did not participate in the work reported in the NURETH-11 paper. Additionally, the reported work involved a different experimentation system (used a neutron source), a new cooling method for attaining thermal-hydraulics for the test cell, a new method for nucleation of bubbles with neutrons (continuous), a different set of protocols and different neutron detectors (Beckman Spectrometer) and they were run in the G60 Pharmacy laboratory controlled by Tsoukalas. Butt's work was done at the INOK laboratory. Xu and I checked data independently. We checked the raw data from the newly-arrived (from ORNL)Beckman

spectrometer system for low level tritium counting in conjunction with the calibration curve (that one obtains using NIST standards to account for quenching) so as to obtain values for radioactive decay for tritium in dpm. I ensured accuracy of entries into the mathematical analysis program and then to derive the needed results for tritium production, if any, from the experiments. I kept logs documenting our work. We, therefore, performed independent data checks, independent data analyses and conclusions. Taleyarkhan's role along with other acknowledged people for the NURETH-11 was for providing a test cell and how to operate it and he has been acknowledged as such.

10. Earlier, I had performed similar work with Xu for assessing results for nuclear emission during bubble fusion for the separate experiments that were conducted by other members of the Tsoukalas group, those pertaining to samples prepared by Frank Clikeman (for which he had obtained data on tritium production separately, using Purdue's general purpose spectrometer maintained for monitoring of significant levels of contamination in radiation-related studies campus-wide. I went over the data and analyses works of Xu which he did separately of Clikeman for the Tsoukalas group. Based on a request from Tsoukalas I reviewed and helped to correct (as necessary) the results obtained by Xu for the same samples prepared by Clikeman, and after being reasonably assured of the absence of errors, I went over this data with Frank Clikeman from Tsoukalas' group. Clikeman used a different tritium detector, a general purpose Packard spectrometer that was being used by him. For reference, Clikeman at first reported positive tritium detection with the Packard spectrometer, but he kept on changing his results due to repeated data gathering and/or repeated calibrations for the same samples prepared months ago, and he began to report the results as being positive (as of 12/2003) to virtually zero, and eventually to negative readings by around mid-2004. When I showed him our Beckman

produced results, he agreed for the absence of errors but did not agree to the ability for the Beckman spectrometer to provide credible results. I have some of his handwritten comments on the data sheet of Beckman machine results which I showed to him.

11. Clikeman argued with me that the Beckman readings may not be valid because I had to take out the background count from the readings. But I told him that based on actual calibration checks it was revealed that the Beckman machine automatically and satisfactorily accounted for background effects. I also pointed out that even if a separate step was taken to deliberately subtract background counts for both the cavitation on and off samples, the results still were positive. He still disagreed. I was not convinced nor did I understand why. I documented my in-depth discussions and analyses with Clikeman in a memorandum to Tsoukalas.

12. I worked with Tsoukalas' group on sonofusion. The group's students used some of the apparatus from my laboratory at Purdue. I worked with Xu, Josh Walter, and others in Tsoukalas' group for about 2 years, attended regular group meetings which (after Nov. 2003) were also attended by Xu. I was directly involved in in-depth data processing and analyses of tritium emanation.

13. I was told that Xu conducted most of his experiments resulting in the data gathered for the eventual NED paper in the G60 laboratory of which Tsoukalas was director.

14. Tsoukalas removed data obtained by Xu (and cross-checked by me) ("Beckman data") from a separate manuscript meant for presentation at the 2005 NURETH-11 conference. I had a meeting with Tsoukalas about the Beckman data on December 20, 2004 and he said he would keep our Beckman data in the manuscript. The latest draft I saw on December 22, 2004 sent to me by email did include our Beckman data. Later they decided to remove the Beckman

data and I disagreed, telling Tsoukalas et al. that they should report both the Beckman data and the data they obtained using the Packard spectrometer. Tsoukalas eventually dropped Xu and me from authorship of that manuscript after they unilaterally decided to remove the Beckman data. Later Tsoukalas' group decided to retract the submission of their manuscript altogether from NURETH-11. Still later, after Tsoukalas and Jevremovic are shockingly quoted in the 3/8/2006 Nature article alleging misconduct on several counts by Taleyarkhan, a few months later, Tsoukalas published a similar paper without the Beckman data, without Xu or I listed as an author, in 2006 in the Nuclear Technology journal. In that publication, Tsoukalas et al. did not acknowledge Xu or me and our help in their experiments. I felt this was inappropriate.

15. I provided corrections to drafts of the manuscript meant for NURETH-11 (co-authored by Xu, Butt and Revankar) that was eventually published in the Proceedings of NURETH-11. Other persons from Tsoukalas' group that provided technical assistance were properly acknowledged in the NURETH-11 paper.

16. The manner in which we obtained publication in NURETH-11 is as follows: In early 2005, after Tsoukalas et al. had pulled the manuscript from NURETH-11, the conference chairman of NURETH-11, Dr. Lemonnier, contacted me directly. I had worked with Lemonnier on other professional matters, and since my name was at one time on the Abstract submitted by Tsoukalas to NURETH-11, Lemonnier called me from France and expressed his disappointment with the fact that Tsoukalals et al. had retracted their Abstract from NURETH-11. Given time constraints for NURETH-11 and in light of the retraction, I offered to provide Lemonnier with another paper by Xu to fill the gap left by Tsoukalas' retraction. Lemonnier was pleased and encouraged the same. I then instructed Xu to forward a manuscript to Lemonnier on February 14, 2005. On February 15, 2005 or around that time, I checked the manuscript, offered

comments and edits, and Xu (as lead author) submitted the manuscript to Lemonnier for independent peer reviews and possible acceptance for publication and presentation at NURETH-11. Taleyarkhan was not involved in this process at all.

17. After our NURETH-11 paper was accepted, Tsoukalas and his group members expressed disdain to me for going ahead and publishing and presenting that paper with our separate thermal-hydraulics and nuclear (tritium) emission based data.

18. JaeSeon Cho ("Cho") from Oak Ridge National Laboratory ("ORNL") was asked to visit Purdue on 9.18.03 and 9.19.03 to help the students get going since they were having difficulty in obtaining repeatable positive data due to problems involving repeated breaking of test cells from the significant transient shock loads involved in bubble fusion experiments, an expensive and tedious problem to overcome. In the past, successful sonofusion data had indeed been obtained in that laboratory, but not with good reproducibility. On 9.18.03 the main goal was to get a new test cell made by ORNL to function properly with normal acetone. This took them most of the day. On the next day, similar experiments were to be done, but now with deuterated liquid.

19. I visited the laboratory on 9.19.03 from around 11:30am to around noon, and then again after lunch in the afternoon from around 2pm to the time Cho left for ORNL around 5pm or so. During this time the other people present in the sonofusion section of G60 were: me, Taleyarkhan, Jevremovic, Cho, and Tsoukalas. I do not recall either Walter or the other student Bougaev being there that day during my visit to G60 on 9.19.03. In the morning Cho showed me the data that he had logged in front of Tsoukalas, Jevremovic and Taleyarkhan, and said that Jevremovic had initiated the writing on the wall "Bubble Fusion Was Achieved Here." After

looking at the data, I also signed the wall and then Cho signed. There was simply no fabrication or fraud that I could see or attempted by Cho who was running the experiments whatsoever.

20. Taleyarkhan gave advice to the entire Tsoukalas group members about sonofusion experimentation. Xu was part of the group and asked for advice and guidance about set up and operation of test cells from Cho and Taleyarkhan. Taleyarkhan was approachable and willing to offer advice and to solicit review from his ex-team members. In my experience, Taleyarkhan was always willing to help and offered his help when requested.

21. I know of no evidence to suggest that Taleyarkhan was present during actual experimentation for any of the data presented in the NED manuscript, nor for the data in the NURETH-11 manuscript.

22. Taleyarkhan was not included as a co-author of the NURETH-11 paper because he did not participate in any part of reported experimentation or data gathering/analyses works of this NURETH-11 paper. Taleyarkhan's assistance, along with the assistance of others who contributed in meaningful ways (including J.Walter), were acknowledged, but we believed they were not appropriate co-authors. Taleyarkhan never asked to be a co-author, nor to my knowledge did he ask *not* to be a co-author. I feel sure he was aware he could be acknowledged, and, to my knowledge has never asked *not* to be acknowledged.

23. At the request of Taleyarkhan, I reviewed the papers in the special issue of MST journal in which an overview paper by Taleyarkhan, Lahey and Nigmatulin is published. From a look at the other papers in that manuscript and from my experience, the labeling of figures for the Taleyarkhan et al. paper appears to be in line with other manuscripts in the same volume. The person editing the manuscript would normally be the one ensuring uniformity of application of rules of formatting. The acknowledgments section of this MST paper appears reasonable in

terms of recognizing the contributions of several other co-authors of past affiliation who may have contributed to the content of this invited overview (review) article. I note that Xu is in the acknowledgment. I have learned (from Taleyarkhan and from Xu) that the data for Fig. 8b were supplied to Taleyarkhan to use as deemed appropriate. Fig. 8b is different from the Figure of our NURETH-11 paper which was more extensive. Taleyarkhan et al. did not simply reproduce a figure prepared by someone else; they used (legitimately) the raw data and formed their own graphic with permission of the original source who was included in the acknowledgment; it is common practice to use data from various sources to then use them to project a different theme. Therefore, this can not constitute plagiarism as alleged in the Press (Nature, 2006; USCongressman Brad Miller's letter published by the NYTimes during 2007), especially since the original source of the raw data himself supplied the same to Taleyarkhan to use as wished and that source was acknowledged, if not explicitly since the NURETH-11 paper was not then even contemplated.

24. I believe Taleyarkhan is one of the best research supervisors at Purdue University where high quality research activities are carried out. Having observed Taleyarkhan teaching, his interaction with students, and his research abilities over the years, I find Taleyarkhan to be the utmost professional, full of integrity, and an excellent faculty member.

25. I will be glad to provide further information if required in support of statements made here.

DR. SHRIPAD T. REVANKAR