

**AFFIDAVIT OF ROBERT I. NIGMATULIN**

This confidential affidavit of Robert I. Nigmatulin is made in connection with the investigation currently in process at Purdue University. I, Robert I. Nigmatulin, 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 am the editor of various international journals, and I am a decorated scientist of the previous Soviet Union. I presently head one of the largest scientific institutes of the Russian Academy of Sciences. I hold 2 doctorate degrees and am the past president of the RAS (the largest branch located at Ufa). I was also a Senator in the Russian Duma. My CV is attached.

3. I was a co-author with Dr. Rusi P. Taleyarkhan ("Taleyarkhan") and others of the 2002 publication in *Science* entitled "Evidence of Nuclear Emissions During Acoustic Cavitation." I collaborated with Taleyarkhan as a member of the research team in sonofusion studies. I was also a co-author with in the 2006 PRL paper and supplement entitled "Nuclear Emissions During Self-Nucleated Cavitation" by R.P. Taleyarkhan, C. D. West, R.T.Lahey,Jr., R.I.Nigmatulin, R.C.Block and Y.Xu.

4. Offering Review Comments and Assistance for Publication of Xu et al. work. I believe there is nothing wrong in offering review comments, and advice (when solicited) on where to submit for publication. Taleyarkhan did nothing wrong in offering such advice to Xu et al. for the reported Xu et al. studies in NED.

5. I see no problems or conflicts in the scientific community with offering feedback (when solicited by Xu) on responding to misguided comments from PRL referees as long as

there was no influence on the technical content being presented. Also, it is important to note that people associated with a particular reported piece of research (either as co-author or acknowledged) do not make decisions related to independent reviews and acceptance by journals. In the Xu et al. 2005 NED manuscript the review process as well as the decision to invite or reject was performed at the sole discretion of Guenter Lohnert (principal editor of NED journal). Therefore, the publicized charges of Nature (3/8/2006) alleging that Talearkhan managed the reviews and acceptance of the Xu et al. NED manuscript are completely wrong.

6. Authorship vs Acknowledgment Helping to write/compose a manuscript does not qualify for co-authorship. Co-authorship should require <sup>such as,</sup> 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 determined based on the invitation by the lead (corresponding author) and it is the right of the invitee to accept or decline. Acceptance for 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).

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7. It is a duty as a scholar to accept to offer time and advice to review manuscripts when requested by colleagues, both junior and senior. 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 the mother-tongue). This happens regularly in non-English speaking countries, including Russia. Markups also at times include extensive and independent evaluation and analysis of data by the reviewers; if errors are found they are pointed out and revised estimates are provided for the author's consideration. The original manuscript

authors acknowledge such assistance, guidance and counsel but in no case is it mandatory.

Furthermore, such assistance certainly does not qualify for expecting nor accepting co-authorship.

8. It is also common practice of authors to seek assistance from professional technical writers. Indeed, the 2002 *Science* manuscript co-authored by Taleyarkhan et al. (including me) was first drafted by ORNL's technical writers and finally, also modified in composition of language and presentation by Science magazine editorial staff. Participation in composing language of manuscript for publication in journals does not meet the standard for co-authorship.

9. I did not participate in reported sonofusion experiments conducted by Xu et al. (NED 2005 nor NURETH-11 paper). I personally know of no one from the original team (*Science*, 2002; PRE 2004) that participated in the conduct of experiments or acquisition of data of the reported Xu et al. studies.

10. Based on published public materials (article by Emile Venere, Purdue University News, 07/12/2005) Xu has openly and repeatedly testified and declared that neither Taleyarkhan (nor anyone from his team) played a role in the published Xu et al. experiments, nor influenced the data or conclusions.

11. I believe that Taleyarkhan and Jae Seon Cho ("Cho") are appropriately acknowledged in the Xu et al. NED manuscript. The assistance or guidance of Taleyarkhan and Cho do not rise to the level of co-authorship nor would it be appropriate to include them as co-authors of the NED manuscript, or for that matter, the NURETH-11 manuscript.

12. My colleague Robert C. Block ("Block") has spoken at length with E. Forringer ("Forringer") of LeTourneau University in relation to his reported manuscripts (co-authored by

Forringer and his students). These manuscripts have been presented at two international conferences during November 2006. Forringer et al. has appropriately acknowledged the assistance provided by Taleyarkhan and Xu. The fact that Taleyarkhan and Xu offered assistance in the conduct of experiments which were under the independent control of Forringer and that Forringer independently performed data gathering, analyses and conclusions has been confirmed by Forringer to Block. The manuscripts and presentation by Forringer during November 2006 are similar to the works of Xu in relation to the 2005 NED publication.

13. I note that Seth Putterman (February 2006) and Lefteri Tsoukalas (February 2007) both published manuscripts that failed to include Taleyarkhan et al. as providing assistance, technical or otherwise. This practice is offensive, and highlights the appropriateness of Xu in acknowledging Taleyarkhan and others in his NED manuscript. How can the detractors of bubble fusion now claim that Taleyarkhan was not properly listed as a co-author of NED or NURETH-11 papers? This does not make sense.

14. Statement on independence made in 1/06 PRL manuscript. The only statement made in the joint January 2006 PRL manuscript (of which I was a co-author) was “These observations have now been independently confirmed.” This language is appropriate, was not intended to be misleading, and is accurate for the following reasons:

15. Most importantly, the “observations” were made by someone other than the original group.

16. Also, compared with what we (Taleyarkhan, Lahey, me et al.) did earlier, Xu et al. performed their experiments in a totally different experimental configuration, the experiments were performed at a different laboratory in a different state and institution, they used a radically different method for nucleation (Xu et al., used randomly emitted neutrons of various energies

from an isotope source versus the use of a microsecond duration pulse of monoenergetic neutrons from an accelerator at ORNL), used different test cells, used different detection systems, performed their own calibrations, and obtained their own data without the participation of or influence from any one of the original Taleyarkhan et al. team.

17. None of the co-authors (including Xu himself) nor the referees nor editorial staff of PRL saw anything wrong with or challenged the statement on independent observations as documented. It was written, reviewed and agreed upon in a forthright manner.

18. Therefore, the use of the stated language is appropriate and should be considered accurate.

19. MST article. I was a co-author of the publication styled, R.P. Taleyarkhan, R.T. Lahey, Jr., R.I. Nigmatulin, "Bubble Fusion Nuclear Technology," 17 *Multi-phase Science and Technology* pp. 191-224 (2005) (hereinafter, "MST article"). The MST article was peer reviewed and first accepted for a keynote lecture at the Two-Phase Seminar in Japan, 2004, and automatically, as-is, for the MST journal.

20. Contributions from several collaborators were acknowledged, including that of Xu et al. (whose NED manuscript was not published at the time nor even contemplated).

21. Use of figures (previously published in our own other publications) was done uniformly for all MST manuscripts in the special series of the journal.

22. When we learned of issues of proper citation (through Purdue) with the MST article, a letter of clarification specifically citing the source for each figure and also directly citing the Xu et al. NED manuscript for Fig. 8b was transmitted to the Editor-in-Chief. This demonstrates responsiveness on part of the authors involved (including Taleyarkhan).

23. I am aware of the allegation against Taleyarkhan that the MST article contains self-plagiarism. This allegation is completely unfounded and should not constitute research misconduct. I am aware of similarities between the MST article text and that of text contained in other publications. There was never any intent to mislead the public or MST in preparing the MST article. We never tried to show the public experiments from one source and claim them as many.

24. There was never any plagiarism. If anything, honest oversights or omissions may have occurred, and were promptly addressed by the authors when the concern was voiced. More importantly, I and Taleyarkhan never had any intent to plagiarize or somehow mislead the public.

25. The similarities between the article in MST and the Phys. Rev. E69 article pointed out by the previous committee are there, but they do not rise to self-plagiarism for an untoward purpose. Rather, the similarities are merely due to our recounting of past experiments, and figures in the public domain to provide a full picture of the state of bubble fusion studies. There was no intent to mislead, plagiarize, or commit any type of research misconduct.

26. I serve on the editorial board of MST journal and based on my worldwide experiences, there simply can not be any research misconduct associated with Taleyarkhan's involvement with this manuscript for which I myself served as co-author. Honest oversights happen all the time and it depends on whether the respective authors take steps to clarify, which Taleyarkhan and I have indeed done.

27. Acknowledgment of sponsorship. Acknowledgment of sponsors by Taleyarkhan, Lahey, West, and me et al. for our January 2006 PRL publication is accurate and truthful. It has been publicly alleged that DARPA should have been acknowledged but this allegation has no

merit. Several co-authors, including me, worked alongside with Taleyarkhan, at my own expense, to answer the last remaining technical question from detractors (*i.e.*, to be able to produce evidence of D-D fusion neutrons without use of external source of neutrons). As is also permitted in Russia and elsewhere in the world (unless one is working in a factory stamping out widgets), I am aware it is common practice at universities or even at national laboratories (beyond the normal 8 hour workday) to use part of their time to pursue scholarly work as they can accommodate beyond their normal routine duties. From evidence produced by Taleyarkhan, the gap in funding from DARPA was filled by the DoE specifically for deriving the technology of this work (and federal funding from the DoE with their permission was not recognized by Taleyarkhan – based on email evidence provided by Taleyarkhan).

28. Taleyarkhan has provided details of work that Taleyarkhan et al. performed at Purdue with the newly obtained funds from DARPA (via UCLA) during mid-2005 to February 2006. The tabulated list of tasks conducted by Taleyarkhan et al. and the funds utilized for that purpose are reasonable by any measure. The work for DARPA-UCLA project was identical to what our group had already published in 2002 (*Science*). For one knowledgeable in the field, this is radically different from that conducted for the January 2006 PRL studies for which our first draft was already being prepared for transmittal to journals by the time the DARPA-UCLA funds were put in place in mid-2005.

29. It would be inappropriate to include acknowledgment for DARPA as having supported the research leading to the 1/2006 PRL publication, when in fact it was sponsored from other sources (DoE, internal discretionary university support, and even personal efforts).

30. Ultimately, it is unusual to say the least, that DARPA itself has not voiced any concern over a lack of acknowledgment, but that Seth Putterman and other of our well-known

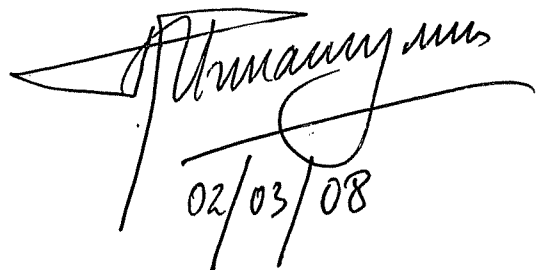
detractors such as Ken Suslick are doing so. Even Brian Josephson (“Josephson”) called this allegation “Putterman’s Flawed Case.” Just because a sponsor had provided support in the past does not entitle it to be recognized in the future for research accomplishments that it did not provide funding for. Where DARPA did indeed provide funding, our group has gratefully, and accurately, acknowledged their support. Also, Josephson’s web-posting reveals that when challenged, Putterman himself has backed out of alleging that DARPA-UCLA funds were misused in any way. What merit is left now in such accusations?

31. Quite frankly, I am shocked that Purdue would issue or would want to issue an investigation of this type against Taleyarkhan. I think it is important to let these scientific fights to be vetted in scientific journals and laboratories of the world, rather than in this most unfortunate institutional hearing regarding alleged misconduct. I am willing to offer any support or evidence I can to assist this Committee in dismissing all allegations against Taleyarkhan.

32. I am sure that the entire group of collaborators that have worked with Taleyarkhan unconditionally and fully support the published works of our group and stand solidly behind Taleyarkhan. The experimental results are not only valid, but they now have strong theoretical foundations and many of them were already predicted (see 2005 manuscript by me et al., Phys. Of Fluids.)

33. I have known Taleyarkhan since 1995 and increasingly so, after 1999. I have interacted with Taleyarkhan as a mentor and as a colleague for close to 15 years and can vouch for his upstanding nature, his scholarly abilities, and more importantly for this investigation, his ethics and integrity in research.

Robert I. NIGMATULIN



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