

## Purdue "Findings of Fact" Cross-Referenced with Source References for Allegations A.2 and B.2

Allegation	A.2	B.2
Total Findings of Fact by Purdue	14	8
"Facts" that Withstand Scrutiny	1 (FF6)	0
Omitted Findings of Fact by Purdue	8	1
Testimony Listed by Purdue as "Fact"	8	(6+1)

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### FF1

One of the referees of the version of the manuscript submitted to PRL wrote, "It is also unusual that the experiment reported was apparently done by one person so that needed cross checks and witnessing of results seem lacking." The paper was later rejected.

#### Source of Fact:

Reference 28. ONR Inq.C. 2007 041130 YX to RT.2.

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### FF2 (a)

Dr. Taleyarkhan subsequently contacted Mr. Butt on January 26, 2005 and asked Mr. Butt to check some of the numbers (the correspondence between numbers in a data sheet and the paper) and to proofread the manuscript.

#### Source of Fact (a):

Reference 29. February 2008 Hearing Transcript p. 169; 1/26/05 email from Taleyarkhan to Butt re: no subject.

### FF2 (b)

Within 24 hours his name was added as an author. The manuscript was submitted to NED on January 27, 2005 and accepted on January 30, 2005.

#### Source of Fact (b):

Reference 30. February 2008 Hearing Transcript p. 170; 1/26/05 email from Taleyarkhan to Xu and Butt re: revised NED paper.

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### FF3 (a)

Dr. Taleyarkhan and Dr. Xu state that the suggestion to add Mr. Butt came from Dr. Xu.

**FF3 (b)**

According to Dr. Taleyarkhan, “Xu first approached Dr. Taleyarkhan for permission to involve Mr. Butt.”

**FF3 (c)**

Therefore, Dr. Taleyarkhan controlled the decision whether to add Mr. Butt as an author. According to Dr. Xu, Dr. Taleyarkhan told Dr. Xu that adding Mr. Butt as an author “was a good idea.”

**Source of Fact (a):**

Reference 31. **February 2008 Hearing Transcript pp. 73. 273:** 1/31/08 Xu letter p. 2.

**Source of Fact (b):**

Reference 32. 4/7/08 Taleyarkhan submission p. 22.

**Source of Fact (c):**

Reference 33. 1/31/08 Xu letter p. 2; **February 2008 Hearing Transcript p. 73:15-16.**

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**FF4**

Mr. Butt was not cited as a collaborator on the manuscript submitted to and rejected by PRL or previous manuscripts prepared for Science, Physical Review-E, or Physical Review Letters.

**Source of Fact:**

**No Reference (Self-evident)**

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**FF5**

On the morning of January 26, 2005, Dr. Taleyarkhan asked Mr. Butt, his master’s student, to become an author on Xu’s NED paper. From the outset of Mr. Butt’s involvement with the NED paper, Mr. Butt’s contact on this issue was Dr. Taleyarkhan.

**Source of Fact:**

Reference 34. **February 2008 Hearing Transcript pp. 169-70.**

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**FF6**

Dr. Taleyarkhan managed the submittal of the manuscript to which Mr. Butt was added.

**Source of Fact:**

Reference 35. 1/26/05 email from Taleyarkhan to Xu and Butt re: NED paper (revised); 1/27/05 email from Xu to Taleyarkhan and Butt re: NED paper final

manuscript; 1/27/05 email from Xu to Taleyarkhan and Butt re: updated final version: 1/27/05 email from Xu to Taleyarkhan and Butt re: wrong version again, this time is right: 1/27/05 email from Taleyarkhan to Xu and Butt re: Communication with NED.

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#### **FF7**

On January 26, 2005, Dr. Taleyarkhan asked Mr. Butt cc: to Dr. Xu, to review Dr. Xu's tritium-neutron work as soon as possible because Mr. Butt would be a co-author on the NED paper.

#### **Source of Fact:**

**Reference 36. 1/26/05 email from Taleyarkhan to Butt and Xu, re: no subject.**

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#### **FF8**

Later on January 26, 2005 Dr. Taleyarkhan told Dr. Xu and Mr. Butt that the paper (which newly showed Butt as an author) looked good and recommended adding a figure, and asked Butt to keep the process confidential until published.

#### **Source of Fact:**

**Reference 37. 1/26/05 email from Taleyarkhan to Xu and Butt re: NED paper (revised).**

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#### **FF9**

In a third email on January 26, 2005 Dr. Taleyarkhan wrote Dr. Xu and Mr. Butt:

"Adam: You need to send me a separate email stating that you have examined the data with Dr. Xu and find the presentation of data in the manuscript for NED to be accurate (as best you can tell).

"Yiban: upon discussion with Adam, after you are done modifying the manuscript with the figures etc. send me a separate email note stating you feel the manuscript is ready for journal submission to NED (to enable me to confirm with the editor-in-chief)."

#### **Source of Fact:**

**Reference 38. 1/26/05 email from Taleyarkhan to Xu and Butt re: Revised NED paper.**

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#### **FF10**

None of Mr. Butt's changes to the NED manuscript are substantive. Most are editorial. Several changes are in the area of neutron detection.

#### **Source of Fact:**

**Reference 39. 1/27/05 email from Butt to Xu and Taleyarkhan re: Revised NED paper.**

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#### **FF11**

Mr. Butt testified that he only checked the transfer of numbers from a spreadsheet to the manuscript and suggested a few minor editorial changes to the NED manuscript on the day before it was submitted.

#### **Source of Fact:**

**Reference 40. February 2008 Hearing Transcript pp. 165, 174; 9/22/06 Butt-Dunn exchange.**

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#### **FF12**

Mr. Butt testified that he did not know his name was on the NURETH-11 presentation until the manuscript was completed.

#### **Source of Fact:**

**Reference 41. February 2008 Hearing Transcript pp. 166-67.**

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#### **FF13**

Mr. Butt testified that he did not contribute any of the data in the NED and NURETH papers. Neither Dr. Xu nor Dr. Taleyarkhan contend that Mr. Butt participated in the acquisition of any of the data published in the NED and NURETH papers.

#### **Source of Fact:**

**Reference 42. February 2008 Hearing Transcript p. 167.**

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#### **FF14**

Mr. Butt's progress report of July, 2004, corroborates that he did not participate in the experiments reported in the NED and NURETH-11 papers. Mr. Butt was, however, doing thesis work in 2004-05 on fusion.

**Source of Fact:**

Reference 43. "Sonofusion Lab 2004 Summer Activities" Adam Butt, 8/6/04; M.S. Thesis, Aeronauts and Astronautics, "Acoustic Confinement Fusion: Potential Applications to Space Power and Propulsion", 12/1/05, Ivana Hrbud, Dr. Taleyarkhan, Advisors, M.S. Thesis Nuclear Engineering, "Acoustic Confinement Fusion: Characterization of Reaction Chamber", 12/1/05. Taleyarkhan, Ivana Hrbud. Advisors.

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**Allegation B. 2**

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**FF1**

Dr. Taleyarkhan's Purdue appointment was effective on August 18, 2003.

**Source of Fact:**

Reference 62. 6/18/03 letter from Tsoukalas to Taleyarkhan.

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**FF2**

Dr. Xu has consistently asserted that he did the NED experiment alone and independently. Dr. Xu asserts that he took all the data alone and did the data analyses without input from Dr. Taleyarkhan.

**Source of Fact:**

Reference 63. 10/27/06 letter from Xu to Dunn; 7/31/07 letter from Xu to Dunn; **February 2008 Hearing Transcript p. 58.**

Reference 64. 10/27/06 letter from Xu to Dunn.

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**FF3**

Dr. Xu asserts that he was qualified to perform an independent confirmation of the bubble fusion experiments, having experience with bubble dynamics in his PhD thesis research and prior experience with radiation detectors. He received some instruction on setting up the equipment from Joshua Walter and Anton Bougaev in Dr. Tsoukalas' group. In his testimony to the Committee, he did not have good answers to questions related to detectors.

**Source of Fact:**

Reference 65. **February 2008 Hearing Transcript p. 54.**

Reference 66. February 2008 Hearing Transcript p. 56.

Reference 67. February 2008 Hearing Transcript pp. 59-63.

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#### **FF4**

Dr. Xu used Dr. Taleyarkhan's equipment for the most part, though some of the parameters in the measurements were different. Dr. Taleyarkhan was closely involved with Dr. Xu's experiment – providing the equipment, the training in the use of the equipment, and considerable continuing advice in the course of the measurements. According to Dr. Revankar, only when Dr. Taleyarkhan was at Purdue and advising the researchers on most aspects of the experiments were positive results obtained.

#### **Source of Fact:**

Reference 68. FF2, allegation A-1.

(Circular logic, cannot source finding of fact to another finding of fact)

Reference 69. 9/22/06 Revankar-Dunn exchange.

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#### **FF5**

Dr. Xu described Dr. Taleyarkhan's tutoring to a C-22 committee and testified to the Investigation Committee that they conferred several times a week and that Dr. Taleyarkhan checked the equipment set-ups.

#### **Source of Fact:**

Reference 70. 9/22/06 Xu-Dunn exchange.

Reference 71. February 2008 Hearing Transcript p. 64.

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#### **FF6**

Dr. Xu already had some experience with cavitation equipment because of his involvement with the Tsoukalas group which was (unsuccessfully) attempting to reproduce Dr. Taleyarkhan's results. Dr. Xu's thesis of February 2004 was entitled "Direct Contact Condensation with and without Noncondensable Gas in a Water Pool." Dr. Xu had very little, if any, specialized experience connected with the techniques of fast neutron detection (which was a crucial issue in the controversy) or with the detection of tritium.

#### **Source of Fact:**

Reference 72. February 2008 Hearing Transcript pp. 61-63.

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**FF7**

On October 12, 2004, Dr. Taleyarkhan wrote in an email to his collaborator, Richard Lahey: "Dick: I'd like to discuss where a certain entity (that I've helped reproduce our bubble fusion experiments) will publish/present confirmatory results for maximum impact."

**Source of Fact:**

**Reference 73. ONR Inq.C. 2007 041012 RT to DL. 1.**

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**FF8**

According to Dr. Taleyarkhan, in December 2007 he made an internet post as a "clarification for the record" regarding statements that he first made at Wayne State University in September 2005 about the work reported in the NED paper. In that 2007 post, Dr. Taleyarkhan stated that "Xu et al ... conducted their own experiments" (thus indicating that Dr. Xu's co-authors were involved in the data acquisition) and the post asserted the NED work as "independent experimentation." The post notes the NED paper's acknowledgment of Dr. Taleyarkhan's "advice, guidance, and assistance" along with his contribution of the test cell and its set up for the experiments, but his continuous involvement in guiding the research and in the publication process are not disclosed in the "clarification."

**Source of Fact:**

**Reference 74. 12/18/07 Taleyarkhan submission pp. 103-104-.2/6/08 Taleyarkhan submission, Appendix 4 pp. 16-19.**