

MEMORANDUM

From: William P. Kealey, Stuart & Branigin LLP
To: Members of Purdue University C-22 Investigation Committee
in the Matter of R.P. Taleyarkhan
Date: January 25, 2008
Re: Orientation notes in preparation for evidentiary hearing

At the committee's request, this memo orients the members to certain issues and evidence for the evidentiary hearing on February 1-3, 2008.

Allegations C2, D2.

Taleyarkhan intentionally left his name off of the publication in order to create a misleading impression of independent confirmation of sonofusion.

- This is an allegation of falsification of the author byline (not the reported research results). The premise of the allegation is that RT controlled the author byline. The core of the allegation is that RT's involvement would normally have caused him to claim author credit for the publication, but for a conscious desire to deceive the audience regarding the degree of his involvement.
- C2 is a narrower allegation than C3. C2 alleges: regardless whether Xu had autonomy in the performance of the research, RT's input amounted to at least co-authorship.
- An important piece of evidence is the publication text itself, including the acknowledgment section. As evidence of lack of intent to deceive, RT points to the acknowledgment section. He argues that, if he controlled the text and intended to deceive, his involvement would not have been acknowledged at all.
- Is degree of involvement an objective matter, or a matter of opinion? Does deliberately downplaying involvement equate to falsifying a fact?
- Note that the acknowledgment text varies between NED and NURETH. Is there any significance to this fact?

- None of the publication drafts shows RT as an author. Accordingly, there is no evidence that anyone removed RT from the author line.
- Butt was not listed as an author in the versions that were submitted to Science and PRL, prior to the submission to NED. Butt has stated that he had no involvement with the *publication* until he was asked to proofread the NED draft, but RT and Xu contend that Butt was involved in the work at an earlier stage. The lateness of the decision to add Butt as an author is undisputed, but who made that decision is unclear. What precisely is the significance of this fact? The specific allegation of falsification is that RT disguised his own involvement. However, determining who controlled the decision to add Butt as an author may have some relevance to the question of who controlled the decision whether to identify RT as an author. Xu's written responses to the inquiry committee speak to this issue.
- The 2007 inquiry committee asked RT for a sworn affidavit summarizing the history of drafts of the Xu paper. The 2007 inquiry committee made this request after receiving conflicting evidence about whether RT gave input to Xu's earliest publication drafts. (Compare the email trail to the 7-23-07 hearing transcript.) RT's lawyer submitted an affidavit that was unsworn and unsigned. RT did not respond to repeated requests that he sign the affidavit under oath. RT's reasons for refusing to sign his own affidavit may be relevant to the question whether he has accurately disclosed his involvement and, if not, why not.
- Relevant Compendium Tabs: 1-35 (emails relating to preparation and circulation of manuscript), 36 (relating to Xu loss of email), 37-42 (Xu-related correspondence during 2006 inquiry, including hard copies of certain publication drafts at 41.a-c), 43-44 (Xu-related correspondence during 2007 inquiry), 45 (unsigned RT affidavit).

Allegation C3.

Taleyarkhan managed the generation of the research reported in the NED paper.

- The acknowledgement sections credit RT with input into the experiment design. The publication drafts show some substantive analytical input from RT. Compendium Tabs 41.a-c.

- This allegation is more broadly stated than C2. Tsoukalas has characterized the NED paper as “staged” by RT. Does “staging” beg the question of what, precisely, was falsified? Organizing, structuring, and mentoring Xu’s research may bear on the question of independence. But even if RT “staged” the research, what research fact did RT falsify? Is this allegation anything more than a factual predicate to the C2 allegation of falsification of the author byline?
- Note the relatively high quality of text presentation in Xu’s submissions to the inquiry committee (Compendium Tabs 39, 41 and 44). RT’s lawyers acknowledge that they have assisted Xu. They may have taken a hand in the preparation of those responses.

Allegations C5, D3.

Taleyarkhan manipulated the press characterization of the Xu research to create a misleading appearance of independent supervision by Tsoukalas.

- For the press release to qualify as an independent incident of research misconduct, the committee must conclude that the press release is an element of the research record. See the C-22 definition of research misconduct.
- If the purpose of this type of press release is selective promotional disclosure, is this allegation quarreling with the press release process itself? Is the press release a threat to the research record? Would an interested scientist be expected to go read the publication itself to assess the independence of the research?
- “Manipulation” is not a defined research misconduct offense. To qualify as potential research misconduct, this allegation should be read as intentional falsification of the record of “supervision.” The precise contextual meaning of “supervision” matters. Was Tsoukalas a supervisor of this research in any sense?
- The Venere submission and the Inquiry Committee report map out factual information regarding the drafting process for the press release itself. RT has also submitted a set of relevant emails; see Compendium Tab 50, at section 1 of his 7-20-07 submission.

- What significance did Tsoukalas, Venere, and RT expect the press release audience to attribute to the identification of Tsoukalas as a supervisor? Do Tsoukalas, Venere, and RT align on this point?
- Does the intent element of this allegation hinge upon a finding of culpable intent under C2 and C3?
- Why does the press release highlight Tsoukalas' role, while the publication acknowledges only RT's role?
- The NED publication reports work performed by Xu in early 2004 (according to Tsoukalas himself; see his June 15, 2007 submission at p. 16 (posted on briefingbook). Since Tsoukalas was apparently aware of Xu's work, what distinction does Tsoukalas draw between awareness and supervision?
- Neither Xu nor RT has ever tendered any evidence of any substantive involvement of Tsoukalas in Xu's research.
- RT contends that Tsoukalas was still his research collaborator in 2004-5. The Xu research occurred in 2004. If Tsoukalas and RT were co-leaders of sonofusion research at Purdue at the time of the Xu research, what is the rationale for the press release to call out Tsoukalas but not Taleyarkhan?
- The Venere submission documents Tsoukalas' apparent approval of the press release. Tsoukalas has not yet been asked to answer the question why he signed off on the press release.

Allegation C6.

The *NED* and *NURETH-11* papers rely upon falsified and/or plagiarized calibration data.

- Xu has not yet been asked to speak to this issue.
- Query whether RT is answerable to this allegation even if he is cleared on C2 and C3. RT is credited in the acknowledgements with input into the configuration of the Xu experiment. If RT is the source of calibration information in the Xu papers, presumably RT would acknowledge his accountability for that information, even if he is not on the author byline.

Allegation E1.

MST data is the same as NED/NURTH data, lacking proper attribution to the original sources, leading to the claim that RT "was allegedly (wrongfully) presenting same results as outcome(s) of different experiments."

- RT acknowledges that the data is the same but characterizes the MST paper as a synopsis of the prior research, not a report of new research.
- Query whether this allegation of plagiarism requires a finding of intent to take credit for the work of another. RT and Xu assert that Xu permitted RT to present the data in MST, without any expectation of attribution. See RT's 6-10-07 submission at pp. 3-5 (posted on briefingbook). Does consent bear on the definition of plagiarism?
- Query whether RT's publication of the Xu data under his own MST byline supports the C2 and C3 allegations.

Allegation E3.

Figure 8b of the MST paper plagiarizes Xu's NED Figure 8 and NURETH Figure 6.

- See comments to E1.

Allegation F2.

Taleyarkhan was federally funded for the work reported in *Physical Review Letters* (PRL 96), and has since allegedly claimed he was not.

- For a finding of research misconduct, the committee would need to find that the PRL 96 work did in fact occur under federal funding, and that RT set out to suppress (falsify) that fact.
- What would be the motive for falsification? PRL 96 published a sonofusion signal. RT did not publish certain sonofusion null results that did occur under federal funding; see the inquiry committee's discussion of allegation M.1, which the inquiry committee did not refer forward to this committee. Thus, allegation F2 implies a motive for falsification: PRL 96 hid federal funding so that RT could justify nonreporting of null results that allegedly occurred under the same (federal) funding.

- As evidence of lack of culpable motive, RT contends that his publications dating back to his original *Science* paper have disclosed that his test cell frequently does not work.

Allegation G2.

In his published response to a forensic analysis by Dr. Brian Naranjo, Taleyarkhan claims to show the same fusion data but, allegedly, actually deleted some of his originally published research results data on fusion signal.

- Note that assessing intent to deceive requires a distinction between a falsified statistic and a poorly conceived/executed statistic. Negligence and incompetence are different from falsification.
- Consider the context of the statistic: Is the anomaly disguised, or apparent to a knowledgeable reader? Does the anomaly amount to a false representation of fact? Can a statistic be false if it uses non-false data?
- RT and his coauthors have not yet been asked to explain their intent in designing and reporting the statistic as they did.

Allegation K1.

Taleyarkhan fabricated a fusion demonstration in RHPH G60.

- RT has supplied screen shots of the signal from that demonstration. See Compendium Tab 47 (6-29-07 submission from Selander to Kealey, in response to 6-18-07 query from Kealey to Selander).
- RT has acknowledged that he promoted the demonstration as a sonofusion signal, by enlisting witnesses to sign a wall poster attesting that sonofusion had occurred.
- Walter contends that only he and Purdue Prof. Frank Clikeman had the necessary expertise (neutron signal measurement) to see the flaws in RT's demonstration. According to Walter, Clikeman was not invited to the demonstration. Walter contends that RT must have known that the demonstration was phony because the amplitude of the signal would have indicated an obvious human health hazard if the signal represented neutrons (rather than gamma rays). See Compendium Tabs

48-50 (Walter materials). See the Inquiry Committee report at p. 44 for further details of Walter's written submission.

- The demonstration occurred on September 19, 2003, while RT was visiting Purdue shortly before he began his full-time work at Purdue. Walter was at that time also attempting sonofusion experiments and was collaborative with RT. However, the degree of collaboration between RT and Walter is now disputed by both, perhaps because of Walter's eventual skepticism of potential sonofusion signals. See Compendium Tab 50 (Walter's report of his own sonofusion research near date of RT's 9-19-03 demonstration).
- Walter contends that RT organized the demonstration. At the 7-23-07 hearing, RT said that others were running the experiment and asked him to get involved at the last moment. There is no corroboration for this characterization. RT has not explained why/how the experiment became a group demonstration. The invitation of witnesses suggests that the experiment was organized and was intended to be persuasive.
- RT's 6-10-07 submission, at page 8 and Table 3, describes the 9-19-03 demonstration as a successful sonofusion run, in contrast to an unsuccessful run the previous day. The table says that the unsuccessful 9-18-03 experiment used normal acetone, and the 9-19-03 run used deuterated acetone.
- In the July 23, 2007 hearing, RT seemed to acknowledge that the 9-19-03 screen shot is not consistent with his other published evidence of a sonofusion signal.
- Tsoukalas and Jevremovic signed the witness poster. Other witnesses to the demonstration included Bougaev (now at UCSD) and Bertodano (current Purdue faculty member). None of these individuals has submitted any statements or other evidence relating to this event, even though they were asked in April 2007 to submit all evidence of RT research misconduct in their possession. It is conceivable that embarrassment regarding the wall poster is a current motivating factor for Tsoukalas, as a lead accuser. It would be reasonable to interrogate Tsoukalas regarding both what he saw then and how the experience bears on his potential for bias against RT.

Allegation L1.

Taleyarkhan falsely cited the Xu publications as an independent confirmation of sonofusion.

- RT does not dispute the fact that he has characterized the research reported in NED/NURETH as “independent.”
- At times RT has attempted to draw a distinction between “confirmation” and “observation.” The opening paragraph of the PRL 96 publication characterizes the Xu work as an independent *observation*. This appears to be an attempt to distinguish between data acquisition, on one hand, and experiment design (acknowledged to involve RT). Xu states that he performed data acquisition without RT (there is no contrary evidence).
- RT analogizes Xu to a pilot who independently flies an RT-designed plane and thereby “independently” reports flight. This argument begs the question whether Xu, as the witness, is independent. If RT genuinely (but misguidedly) believes that Xu is an independent witness, does RT have an intent to falsify or deceive? Did RT falsify the record of Xu’s independence? Does it matter that Xu’s connection to RT and Purdue is readily evident to anyone who actually reads Xu’s papers?

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