

~~FROM:~~ Shripad T. Revankar (STR)
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~~TO:~~ Dr. Peter E. Dunn,
Associate Vice President for Research
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West Lafayette, IN 47907

~~DATE:~~ April 17, 2007

Dear Dr Dunn,

The research activities conducted by Dr. L. H. Tsoukalas (LHT), Dr. T. Jevremovic (TJ) and Dr. M. Bertodano (MB) and the process in the name of fact finding research enquiry conducted by LHT and Dr. C. Choi (CC) indicate research misconduct as per Purdue University POLICY ON INTEGRITY IN RESEARCH (Executive Memorandum No. C-22, November 6, 1991). The research misconduct by LHT and CC include fact falsification, and research activities by LHT, TJ and MB include practices that seriously deviate from those that are commonly accepted in research practices. I believe it is my responsibility to report research misconduct as there is substantive evidence against LHT, TJ, MB and CC. These I have addresses below in detail with evidence. I request for anonymity because I am a junior faculty in the School of Nuclear Engineering (SNE) and some of the persons against whom the allegations are raised are senior faculty members.

I would like to note you that the attached documents (DOC-3, DOC-4 and DOC-5) have several e-mails that are addressed in my name. I request that my name is held anonymous in all these documents for communication.

Fact falsification by LHT and CC

In February 2006 New York Times website (<http://www.nytimes.com/2007/02/12/science/13purdutimeline.html>) had an article with title "Timeline of Purdue University's Investigation." This article is attached as DOC-1. In this article: "E-Mail From Dr. Tsoukalas to Dr. Choi" is referred and this is attached here as DOC-2. In this email LHT asks CC to chair a fact finding committee appointed by LHT on research activity related to NURETH -11 paper (Ref :1) where LHT indicates " The allegations range from misconduct to ethical issues" related to this paper. LHT further states that Dr. F. M. Clikeman (FM) will serve as one of the committee member. It should be noted that during this period LHT, FM, MB, TJ, and other associates submitted a paper to the Nuclear Technology journal (Ref 2.), the results of this paper contradict that of the NURETH -11 paper (Ref 1) referred above. The paper by LHT et al (Ref 2) was received by Nuclear Technology on February 28, 2006, same week the enquiry committee by LHT was formed. The committee was formed in violation of the Executive Memorandum No. C-22 procedure which clearly states that:

"The following procedure shall be followed in any situation related to research misconduct. The major phases of the procedure are the inquiry, a process of information gathering and initial fact finding to determine whether an allegation or apparent instance of research misconduct warrants an investigation, and the investigation, which is the formal examination and evaluation of all relevant facts to determine if research misconduct has occurred.

1. The initial allegation of research misconduct must be reported in writing to the school Dean (the Dean of the Graduate School if the allegation involves a graduate student). The written allegation must be signed but requests for anonymity will be considered and final decisions with respect to such requests shall be made by the school Dean...."

The appointed committee member FM had conflict of interest as he was author of the paper (Ref 2) that exactly contradicted the NURETH-11 paper (Ref 1) he was assigned to enquire about. CC sent an email to STR on February 21, 2006 saying that the head of the school (LHT) has formed a committee and the purpose of the committee is a fact finding mission in that the committee is requested to inquire about the circumstances surrounding data reported, method of analysis and actual authorship and conclusions stated regarding the NURETH-011 paper (Ref 1) This letter did not state anything about alleged: "The allegations range from misconduct to ethical issues" in the LHT email (DOC-2) to CC! This is a deliberate falsification of the mission of the committee which was formed against the C-22 procedure. The allegations of misconduct regarding the NURETH-11 paper (Ref 1) were never brought to the attention of STR by CC or by LHT. The evidence of email communication between the CC and STR are in the DOC-5.

Research practices that seriously deviate from those that are commonly accepted in research practices by LHT, TJ and MB

The research data reported in a paper by LHT et al published in Nuclear Technology (Ref. 2) contains data on the sono-fusion research. The existing evidence suggest that the data of this paper (Ref 1) was discussed several times in group meetings and email communication by LHT, MB and TJ and was assumed to be problematic data at least until October 2004. The facts on the sono-fusion work are given below and in chronological order in DOC-4 supported by email and other support documents in DOC-5, show the evidence to this effect that LHT, TJ and MB used research practice that seriously deviated from those that are commonly accepted in research practices.

Sono-fusion experiments were planned since June 2002. Initial group members included LHT, TJ, MB, AB, JW, FM, and STR. STR started to work as support faculty member as STR was asked by LHT to contribute to the sonofusion work. STR gave advice to JW and AB in cooling system of the experiment from June 2002-April 2003. Even though JW was officially STR graduate student, STR did not supervising JW in sonofusion research work. JW reported directly to TJ, MB, FM, and LHT. STR attended some meetings of the sonofusion from June 2002-Dec 2004. STR was copied most of the emails that were sent to the SNE sonofusion group. STR role after April 2003 was very minimum just attending meetings:

From June 2002- October 2003, MB acted as key person for the sonofusion project. MB communicated with RPI, and with RT at ORNL. Once the experiments with cavitation started in August 2003, TJ was assigned by LHT to supervise JW and AB in experiments even though TJ did not know much about experiments than MB.

Though the sonofusion experiments were started in August 2002, the experiment did not work until JW and AB visited ORNL and returned after some training at ORNL in June 2003. It appeared to STR that none of the group members understood all the experimental issues in the sonofusion experiments. During this time several times MB and LHT consulted RT and people at RPI. MB constantly sought help from RPI until data were obtained. When the data were counted everybody relied on FM to interpret the data. The counting on PCM was carried out by FM, JW, AB, EM. LHT did not participate in any experimental or data analysis. LHT provided SNE budget and encouragement. STR thought LHT had no technical contribution to the sono-fusion work.

The sono-fusion experimental data were taken during September –December 2003. However the tritium counting was done repeatedly with the same samples as late as six months after the irradiation experiments were completed. The tritium if produced in sono-fusion is in gaseous state and can diffusive out of the liquid sample and this was known to LHT, MB and TJ. However, the same samples were used to count tritium at measured at different times. The irradiation tests samples were given identification on the day experiments were conducted. The data of October 27, 2003 were counted for tritium consecutively from 27 October 1003 to October 31, 2003 each once a day. The data was sent to all by MB who clearly expressed that the counts per minutes decreased systematically and was not random. (please see attachment DOC-3). So it was clear to LHT, TJ and MB that the count rates decreased with time. The counting performed by FM, JW, AB, EM was never reproduced. Each counting carried out gave different dpm number. The dpm counts done for run 10/27/03 D-acetone test done at different time decreased systematically from 1.65 ± 0.97 to 0.17 ± 0.67 . Similar problems persisted with all PCM data. FM sent out several version of the summary of data and each time different aggregate dpm count was shown.

YX did counting using BCM using the same test samples given by FM, JW, EM and AB. There were differences between two counting methods. FM did not trust BCM data even though FM was showed/given raw and processed data, and the efficiency vs. H# calibration curve. STR did check BCM raw data to dpm conversion. STR never checked raw data to dpm conversion from PCM. The data examination processes was discussed by STR in separate meetings on five occasions with YX and two occasions with FM. STR kept the copy of the datasheet from BCM and showed to FM during separate meetings. During these two meeting FM declared that BCM data were inferior and told that the calibration of BCM was wrong.

During July 2004 LHT seemed to seek compromise between two data counting methods and asked STR to help. LHT told STR that LHT does not trust PCM data. In a email to RT, LHT wrote: "Not an expert in the machines, but I know about measurements, and just by looking at uncertainties and signs, had a lot more confidence at the Beckman machine than the Packard from the beginning. Also, it appears that the Beckman machine is better calibrated at the low cpm measurement end."

By October 2004 LHT had reversed his position. LHT along with FM, MB, TJ, JW, EM and AB had separate plans and were writing a separate paper unknown to STR knowledge at that time.

The experiments with cavitation were started in August 2003 and the radiation counting was done with PCM. The BCM arrived in mid December 2003. YX started counting the test samples prepared by FM, JW, EM, AB. YX had processed some data and FM was aware of these data. STR at that time (December 2003) did not know anything about the nature of these YX produced BCM data. By January 2004 TJ wrote a draft paper claiming positive tritium count in the PCM measured data. Now there arose a dispute on how BCM data were processed and the dispute was initiated by FM.

In the first week of February LHT asked STR who had almost no active participation in sonofusion since April 2003 as an independent reviewer of the BCM raw data conversion. STR had two meetings with YX and checked BCM data on 13th and 14th Feb 2004. LHT asked STR to meet and discuss with FM about the dispute in data processing with two machines PCM and BCM. STR met FM and discussed YX's BCM processed data on March 9, 2004. Though FM agreed with actual BCM data converted from raw to processed data FM disagreed on the calibration process used in BCM. There were two to three times FM sent summary of PCM data and every time dpm count rate decreased. In DOC-5 these data summaries are attached in chronological order.

By May 2004, LHT was worried about changing PCM data summaries and the fact that FM did not agree with RT method of calibration. LHT told STR that LHT trusted YX processed BCM data and PCM data would be ignored in the reporting paper. STR told LHT that STR did not prefer one data versus other and gave opinion that both PCM and BCM data should be considered. The dispute with FM remained. Other than these meetings with LHT, FM, YX, STR was not doing much on sonofusion research.

In July MB submitted an abstract to NURETH-11 conference with authors in order: AB, JW, YX, TJ, MB, FM, EM, STR, LHT. The abstract indicated emphasis on YX processed BCM data and claimed positive tritium count in the sonofusion experiments. In October 2004, the situation on the dispute had taken a new turn. In December 2004 draft paper for the NURETH-11 was written initially by JW and then by TJ. Now the theme of the paper was exactly reversed and that PCM data were used for the paper and no BCM data were used. MB, FM, TJ, AB, JW, MB, LHT all were together in this new paper and STR did not agree to go along with this version of the paper as it did not contain BCM data along with PCM data. Then in an email communication LHT stated to STR that BCM data will be included in the paper. However the abstract was withdrawn suddenly in early January 2005 by LHT and no reason was given to STR.

Then LHT et al published the Nuclear Technology paper (Ref 2.) in August 2006 which contains the same data for which once STR was co-author. STR was not even acknowledged for the help given to the experiments when they were started in June 2002.

Sincerely



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List of attachments used is attached herewith.

Attachments: DOC-1, DOC-2, DOC-3, DOC-4, DOC-5

References:

1. Y. Su, A. Dittmann & S. E. Brumback, Bubble dynamics and fission oscillations during bubble fission experiments, The 11th International Topical Meeting on Nuclear Thermal-Hydraulics (NUTH-11), Paper No. 546, Avignon, France, October 2-6, 2005
2. L. Turchetto, P. Cichowski, M. Inghelami, J. Lewandowski, J. Walter, A. Drogosz and E. Mucci, Nuclear Technology, Vol. 155, 348-354, 2009