

Date: Mon, 04 Jan 2010 11:45:01 -0500
To: Kerry Rowe <rowek@queensu.ca>
From: Mort Shirkhanzadeh <shirkhan@queensu.ca>
Subject: Allegation of data fabrication and deceptive data selection- Josee Robert, MSc. Thesis (Queen's University) (1999).
Cc: Marie.Emond@nserc-crsng.gc.ca
Bcc: shirkhan@queensu.ca

Dear Dr. Rowe,

**Re: Allegation of data fabrication and deceptive data selection-
Josee Robert, MSc. Thesis (Queen's University) (1999) (ATTACHED)**

The research described in this thesis appears to be funded by NSERC. There are a significant number of ethical problems with the experimental data presented in the thesis. These problems undermine the validity of the conclusions. The conclusions of the thesis based on a set of experimental data that are fabricated.

Temperature values shown in Fig. 14 (page 41) for the lead - gold samples processed under isolated mode are not real measured values

Temperature values given in Figure 14 for the samples processed under isolation mode are fabricated. Real measured temperatures were required for accurately calculating diffusion coefficients, but according to Smith (FINAL REPORT), these temperatures could not be measured due to the problems associated with the thermocouples and mechanical failure during the space experiments. A copy of the Final Report was sent to you earlier.

According to the Final Report by Smith, the astronaut that performed the experiments on MIR noted that a large number of samples were not fully inserted into the furnace while they were being heated (see page 92 of the report). According to the Final Report, only 11 of the 37 samples were fully inserted into the furnace and so could be processed as desired. According to the Final Report, lead - gold samples processed on MIR in isolated mode (samples no. 1, 2, 3, 4, and 5 in Table VI-3, page 88) were among those samples that were only partially inserted into the furnace. The results obtained from sample # 2, 3, 4, and 5 are used in Figure 14 in the thesis. According to the Final Report, these samples did not experience the desired processing temperatures. According to the Final Report (page 92), it was hoped that the oxide film on the tubes would provide specific information about the furnace temperature, the treatment time, and the degree of container insertion into the furnace.

The subjective procedure that was used to deduce the processing time and temperatures is not disclosed in the thesis. An accurate account of the research performed is not presented. The scientific community has been led to believe that temperatures given in the thesis are real temperatures of samples and were scientifically measured in the MIR space station. But, according to Smith, these temperatures are only "probable processing temperatures" (see Table VI-3, page 88 (Final Report)) that were deduced by visually inspecting the samples tubes after the samples were returned to earth. What are the real processing temperatures that readers need to have in order to calculate the real diffusion coefficients (D) and to find the true relationship between D and T?

In the Final Report , Smith states that the experimental results from lead-gold diffusion couples (sample # 1, 2,3, and 4) should be of “particular concern” (see the conclusions drawn on page 101). But this serious concern is not disclosed by Josee Robert in the thesis.

Despite the fact that temperatures and diffusion coefficients could not be scientifically determined, the data presented in Fig. 14 of the thesis show a remarkably perfect linear relationship for these samples! Given the fact that serious problems were encountered during experiments, the precision in Fig.14 is unrealistic. The conclusion of the thesis that D varies linearly with T under isolation mode is erroneous. Furthermore, the author of thesis has eliminated her own data (sample # 67, Table IV-1, page 99) from Fig. 14 because it does not fall on the straight line. The conclusion of the thesis appears to be based on a set of experimental data that were made up to fall on a straight line.

In addition, conflicting data have also been eliminated from figure 15 (page 43) in the thesis. The omitted data are shown in Acta Astronautica 64, 256-263 (2009). When one includes the omitted data in the analysis, a non-linear relationship emerges that again seriously undermines the validity of the conclusion in the thesis. A more detailed description of the ethical problems in the thesis and in the relevant publications is given in Acta Astronautica 64, 256-263 (2009) which is attached here. This paper and the references cited therein are relevant documents for investigating the allegations.

Please let me know if you need a copy of any other papers or documents.

Sincerely,

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