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Purdue integrity panel completes research inquiry

WEST LAFAYETTE, Ind. - A Purdue University committee appointed to conduct an initial inquiry into internal allegations of research misconduct at Purdue by a professor of nuclear engineering has concluded its work. The committee determined that the evidence does not support the allegations of research misconduct and that no further investigation of the allegations is warranted.

The committee was appointed in the College of Engineering under the university's policy on integrity in research to consider allegations against Professor Rusi P. Taleyarkhan regarding a reported confirmation at Purdue of sonofusion, the use of sonic waves in a table-top apparatus to produce nuclear fusion.

Purdue's policy on integrity in research requires that all allegations of research misconduct be reviewed under procedures that ensure strict confidentiality. The policy states:

"The mere suspicion or allegation of wrongdoing, even if totally unjustified, is potentially damaging to a person's career. Consequently, no information about charges of a lack of integrity in research may be disclosed except to the appropriate university and federal authorities."

However, in the interest of ending speculation regarding Purdue's inquiry, Dr. Taleyarkhan has agreed to allow the university to confirm the existence of the internal review and disclose its final result, according to Joseph L. Bennett, vice president for university relations at Purdue. "Professor Taleyarkhan cooperated fully throughout the inquiry," Bennett said.

"Research at a university must be conducted with absolute integrity. When Purdue received internal allegations of research misconduct, Purdue pursued those allegations thoroughly to conclusion in accordance with the confidential procedures required by its published policy. Professor Taleyarkhan is engaged in very promising, significant research, and we hope he will now be able to give his full attention to this important work. Purdue believes that vigorous, open debate of the scientific merits of this new technology is the most appropriate focus going forward."

Taleyarkhan led a research team at the Oak Ridge National Laboratory that first reported the "bubble fusion" phenomenon in a 2002 paper published in the journal *Science*. Those researchers later conducted additional research at Oak Ridge, Rensselaer Polytechnic Institute and the Russian Academy of Sciences before Taleyarkhan came to Purdue in 2003 to continue his research. In March 2004 and January 2006 his group published their second and third papers on this subject.

Scientists have long known that high-frequency sound waves cause the formation of cavities and bubbles in liquid, a process known as "acoustic cavitation," and that those cavities then implode, producing high temperatures and light in a phenomenon called "sonoluminescence." Researchers have estimated that temperatures inside the imploding bubbles reach 10 million degrees Celsius and pressures comparable to 1,000 million earth atmospheres at sea level.

Nuclear fusion reactors have historically required large, expensive machines, but acoustic cavitation devices might be built for a fraction of the cost.

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Related Web site:

Purdue policy on integrity in research:

http://www.purdue.edu/policies/pages/teach_res_outreach/c_22.html

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