

# Bubble Fusion Bubbles Up Again

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By Mark Anderson Posted 30 Jul 2013 | 19:50 GMT



The twelve-year-old "bubble fusion" saga reignited this week. Bubble fusion is the theory that nuclear fusion can be induced by rapidly collapsing bubbles in certain fluids. According to a [new investigative report](#) into Oak Ridge National Laboratory records, a highly publicized finding from 2002 that cast the controversial tabletop nuclear fusion experiment into doubt has itself been cast into doubt.

In fact, the reporter who examined the Oak Ridge document dump also found possible vindicating evidence that might have supported some of the embattled researchers—including lead author [Rusi Taleyarkhan](#), now at Purdue University.

The report by Steven B. Krivit, publisher of *New Energy Times* finds, Taleyarkhan's critics instead "said that they attempted their own experiment, but they didn't. They measured confirmatory data and later publicly said that they did not measure confirmatory data."

The report is a 12-part series that has appeared on the website [New Energy Times](#) over the past two weeks. (All but the report's [first installment](#) are behind *New Energy Times*'s paywall.) The report details the back-channel dealings and institutional politics behind Taleyarkhan's [peer-reviewed paper](#) in the 8 March 2002 issue of *Science*.

In the 2002 paper, "Evidence for Nuclear Emissions During Acoustic Cavitation," Taleyarkhan and his five co-authors fired neutron pulses into collapsing bubbles of the solvent acetone. When the acetone contained the isotope deuterium, they said they also observed statistically significant traces of both neutrons (beyond the flux of neutrons going into the experiment) as well as the radioactive isotope tritium. Both are hallmarks of nuclear reactions of some kind, whether fusion [or not](#).

However, technical reports posted on the Oak Ridge website in 2002 (one of which is [now archived](#) on *New Energy Times*'s site) claimed to contradict Taleyarkhan's controversial findings. At the time, publications such as the *New York Times* and the news pages of *Science* provided a platform for the non-peer-reviewed critiques, sometimes without a Taleyarkhan rebuttal.

Using Oak Ridge documents, Krivit investigated the critical claims about the experiment's generation of neutrons and tritium, particularly those claims of Oak Ridge scientists Dan Shapira and Michael Saltmarsh.

"Not only was there excess tritium production in the Taleyarkhan group's experiment, checked by a resident ORNL expert, but also Shapira and Saltmarsh knew it," Krivit writes. "Not only had the Taleyarkhan group measured excess neutrons with its detector, but so did Shapira and Saltmarsh, independently with their own detector."

Also published in the New Energy Times report is a recent interview with Shapira about his role in the 2002 controversy. "First, they asked me to review the paper [Taleyarkhan] wrote," Shapira told Krivit. "It didn't hold water."

The lab's associate director then told Shapira to perform an independent replication of Taleyarkhan's experiment, but in one-quarter of the time Shapira said he'd need to properly run such an experiment.

"He said, 'OK, well, you have three months, and together with Taleyarkhan, you should repeat the experiment,'" Shapira told Krivit. "So essentially, Taleyarkhan set it up. The only thing I brought is my own neutron detector. I told him to add it to the setup, that's all. I was asked to do it. I didn't volunteer to do it. I wasted a year on the analysis and the write-up and setting up the experiment."

Where the "bubble fusion" saga might go from here is unclear. Krivit's report concludes with a promise to investigate the [subsequent controversies](#) around Taleyarkhan's findings.

And as Taleyarkhan wrote in a [2005 feature](#) for *IEEE Spectrum*, science itself could provide the controversy's ultimate resolution. "There is just one way we can find out," Taleyarkhan wrote. "We will continue making bubbles."

Photo: Lynn Freeny/U.S. Department of Energy

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