Randell Mills

Randell L. Mills (born September 3, 1957) is an American businessman known for his controversial hydrino theory. In the conventional theory of the hydrogen atom, the electron can release energy by dropping to a lower orbital. However, this process ends at the "ground state", below which there are no stable solutions to the quantum-mechanical wave equation. Mills claims that there is an energy state lower than the ground state, and that energy can be released by arriving at this state using a catalyst, forming what Mills calls a 'hydrino'. He claims that this releases as much as 1,000 times the energy of the ground state (this is far below fission and fusion energies). This energy state does not exist in the hydrogen atom, according to quantum mechanics, and no naturally-occurring hydrogen has ever been observed as a hydrino. Due to lack of verification, the scientific community considers Mills' work to be pseudoscience.

Mills' work has been largely ignored by the scientific community (as of November 2007, only four papers discussing hydrinos were present in the arXiv physics database, three of which say that hydrinos cannot exist [http://arxiv.org/find/all/1/all:+hydrino/0/1/0/all/0/1]). The only peer-reviewed evaluation, published in 2005 by Andreas Rathke of ESA, found "severe inconsistencies" in Mills' work, including a lack of "solutions that predict the existence of hydrinos". Rathke also noted that Mills' equations are not Lorenz invariant, a requirement of any theory that explains the behavior of particles moving close to the speed of light. Several scientists have issued informal evaluations of Mills' work, which are almost entirely negative. One evaluator noted that those portions of Mills' book which appeared valid were copied verbatim from various physics textbooks, with Mills treating multiple pages of plagiarism as a simple citation of previous work.

Mills claims to have built a prototype power source using hydrino technology, and also to have investors ready to offer tens of millions of dollars to finance his invention. Mills is the CEO of BlackLight Power, Inc., a company formed for 'commercial exploitation of hydrino technology'. BlackLight had raised over $50M in venture capital as of 2006.

Professional background

Mills received a Bachelor of Arts in chemistry from Franklin and Marshall College in 1982, and an MD from Harvard Medical School in 1986. Following a year of graduate work in electrical engineering at the Massachusetts Institute of Technology, Mills began his work on energy technology.

He is the founder and principal stockholder of Black Light Power, Inc., which he formed in 1991.

Publications

*Mills describes his ideas regarding hydrinos in his book The Grand Unified Theory of Classical Quantum Mechanics, which he distributes free online.

*In 1988, Mills was lead author on a paper in Nature, "A novel cancer therapy using a Mössbauer-isotope compound", which claimed he was able to incorporate an iron isotope with high gamma ray absorption into tumor cells, which would aid radiotherapy. In 1995, a review of this work, by F.M. MacDonnell of Harvard's chemistry department, concluded that the procedure did not result in any damage to cancer cells beyond that caused by the radiation directly and noted that Mills et al. had not performed the control experiments necessary to test their hypothesis.

Mills maintains a list of his papers on

Patents

* Mills received for "Lower-energy hydrogen methods and structures".

Controversy

2000

In a Space.com article on May 23, Douglas Osheroff, a Nobel Prize winner and professor of physics at Stanford University, is quoted as saying: may be creating compounds with unusual properties. This is obviously a rather clever guy, and he may be onto something, but he seems to think it's more fundamental than it really is. Furthermore, Osheroff remained certain that hydrinos were a "crackpot idea".

2002

A NASA Institute for Advanced Concepts (NIAC) Phase I study was conducted at Rowan University, led by mechanical engineering professor Anthony Marchese, to investigate the so-called BlackLight Process for use in spacecraft propulsion. The team spent some time replicating results obtained by BlackLight, Inc., such as the observation of line broadening and excess heat (although the final report stated "Additional studies are required to rule out all other possible explanations other than 'excess power' for these observations.").

On October 27 2002, Bob Park, a professor at the University of Maryland, wrote a follow-up:

Mills has written a 1000 page tome, entitled The Grand Unified Theory of Classical Quantum Mechanics, that takes the
reader all the way from hydros to antigravity (WN 9 May 97). Fortunately, Aaron Barth (not to be confused with Erik Baard, the Randy Mills apologist), has taken upon himself to look through it, checking for accuracy. Barth is a post doctoral researcher at the Harvard-Smithsonian Institute, and holds a PhD in Astronomy, 1998, from UC, Berkeley. What he found initially were mathematical blunders and unjustified assumptions. To his surprise, however, portions of the book seemed well organized. These, it now turns out, were lifted verbatim from various texts. This has been the object of a great deal of discussion from Mills's Hydrino Study Group. Mills seems not to understand what the fuss is all about.

Aaron Barth, now a professor at UC Irvine, evaluated Mills' work in a piece in the , in which he concluded that hydrino theory was not in accordance with observational evidence. In particular, Barth debunked claims by Mills that 'hydrino emission lines' had been detected in astronomical spectral data. In later postings to the Yahoo Groups 'Hydrino Study Group', Barth observed that Mills had copied large blocks of text from several physics texts and that in each case Mills gave a single footnote that cited the original source but never said he was copying text from it.

2004-2005
Andreas Rathke of the European Space Agency published an evaluation that appeared in the New Journal of Physics. He concluded:
We found that CQM is inconsistent and has several serious deficiencies. Amongst these are the failure to reproduce the energy levels of the excited states of the hydrogen atom, and the absence of Lorentz invariance. Most importantly, we found that CQM does not predict the existence of hydrino states!

2006
Blacklight Power announced it had raised over $50M in venture capital.

In June, the subsidiary Molegos, Inc. was formed to market a molecular-modelling software application based on CQM theory. In October 2006, Molegos was renamed to Millsian. On June 14th 2007, Millsian made the beta-version of their molecular modeling software available for download.