Luis Sancho
PO Box 411
Honomu, HI 96728
808-964-5535
pro se

IN THE UNITED STATES DISTRICT COURT

DISTRICT OF HAWAII

--oo0oo--

LUIS SANCHO, et al.,)	Civil No. _____
)	
Plaintiffs)	**AFFIDAVIT OF JAMES R. BLODGETT**
)	**IN SUPPORT OF TRO AND**
vs.)	**PRELIMINARY INJUNCTION**
)	
US DEPARTMENT OF ENERGY, et al.,)	
)	
Defendants)	
_____)	

I, James R. Blodgett, affirm, state and declare under penalty of perjury of the laws of the state of Hawaii as follows:

1. I am Coordinator of the "*Global Risk Reduction Special Interest Group*" in *American Mensa*, Contact Person and Webmaster for *www.risk-evaluation-forum.org*, a member of the *Ethics Board* for the *Lifeboat Foundation*, and a member of the *Society for Risk Analysis*. I have a Master of Science degree in Biometry and Statistics from the

School of Public Health at the *University at Albany, State University of New York*; a Master of Business Administration degree from *Rensselaer Polytechnic Institute*; and a Master of Arts degree in Sociology from the *University at Albany, State University of New York*.

2. I have been working on issues of existential risk, that is, risks to the very existence of the human species, risks that could make the human race extinct, for several years. One of these risks is the risk that upcoming particle colliders could create particles that could destroy the Earth. Two of the particles that are predicted by some theories that might do this are micro black holes and strangelets. The collider of concern is the Large Hadron Collider [LHC] at CERN, which is currently scheduled to begin operation in the summer of 2008. This collider will be several times more powerful that existing colliders. Because of this, it is expected to probe beyond the standard model of physics and to produce particles that have not previously been seen by scientists.

3. There has been a controversy about the safety of colliders at least since 1999, when *Scientific American* published a letter to the editor by Walter Wagner, with a responding letter by Frank Wilczek. Collider advocates have continued to maintain that colliders are safe. At times some collider advocates appear to have ignored and even covered up evidence to the contrary. "Many, indeed most, of them seemed to me to be more concerned with the public relations impact of what they, or others, said and wrote, than in making sure the facts were presented with complete scientific objectivity." [Francesco Calogero, "Might a Laboratory Experiment Destroy Planet Earth?" *Interdisciplinary Science Reviews* 25, 191-202 (Autumn 2000)]

4. Initially it appeared (even to Wagner) that black hole creation would require energy beyond the reach of any collider. This is the position of Brookhaven's "nothing can go wrong" paper. [Busza et al, "Review of Speculative 'Disaster Scenarios'", Brookhaven, 2000]

5. Beginning in 2000, a large number of physics papers were published, based on new string theory, predicting (if the relevant theories are true) creation of miniature black holes at colliders.

6. In approximately 2003, I used Google to search for material pertaining to black holes at colliders. As part of its listing of search results, Google offers users the option of looking at a cache of the webpage at the time it was scanned by Google. I found the following material in a Google cache of a CERN beta website that contained brief descriptions of presentations at the Atlas Lund workshop in 2001. "John Ellis was given a yellow card and cautioned by the convener during his theory introduction when he mentioned the possibility of black hole production as a signature in some extra-dimension models. The mention of the controversial term has been banned since the heavy ion media frenzy two years ago which resulted in the average teenager's expertise being extended from dungeons and dragons, Pokemon, and Gameboy, to include earth-engulfing black holes at RHIC." When I looked at the underlying web page, this material had been removed.

7. The ban on the term "black hole" was not successful. I guess that this is because there were too many papers predicting black hole production at colliders. By 2003 collider advocates were touting the great science that could be accomplished if

black holes were created by colliders. A CERN "nothing can go wrong" paper, [Blaizot et al, "Study Of Potentially Dangerous Events During Heavy-Ion Collisions At The LHC: Report Of The LHC Safety Study Group" CERN, 2003] anticipated black hole production, but maintained that black holes will dissipate by "thermal processes," which in this context means Hawking radiation. Hawking radiation was also mentioned as a safety factor by several other sources.

8. It was surprising to me that CERN would rely on Hawking radiation as a safety factor, since even in 2003 it was well known that Hawking radiation was totally theoretical and had never been seen. The probability that it would work did not seem adequate to protect Earth. I wondered how physicists would judge this probability. In 2004, I circulated a series of questionnaires in which I asked Ph.D. physicists to estimate the probability that Hawking radiation would fail. Those who responded estimated that probability as follows: 0, 0, 1E-10, 0.001, 0.01, 0.01, 0.01, 0.02, 0.02, 0.07, 0.1, 0.1, 0.3, 0.35, and 0.5. (Five of these responded to a questionnaire that asked for the probability that Hawking radiation would work, rather than the probability that it would fail. Their responses are subtracted from one here to give the probability of failure.) At the time I circulated these questionnaires I was unaware, and respondents were apparently unaware, of two physics papers that appeared at about that time that questioned the theory behind Hawking radiation. [Adam D. Helfer, "Do Black Holes Radiate?" *Reports on Progress in Physics*, Vol. 66 No. 6 (2003) pp. 943-1008; and William G. Unruh and Ralf Schützhold, "On the Universality of the Hawking Effect," *Physics Review D* 71 (2005) 024028] Had we known of these papers, it seems likely

that respondents would have estimated the probability of the failure of theoretical Hawking radiation to work as predicted to be somewhat higher.

9. Discussions of collider risk have appeared in several books and several papers, including in Sir Martin Rees' "*Our Final Hour*", (Basic Books, 2003); and in Richard A. Posner's "*Catastrophe: Risk and Response*" (Oxford University Press, 2004). Most such discussions conclude that the risk is low, but that the risk is nevertheless important because of expected value considerations. (Expected value is the product of probability times value, or negative value in this case. Expected value is used by decision theorists to evaluate decisions. In the case of destruction of Earth, any reasonable probability results in an enormous negative expected value.) I would say that the risk is somewhat higher than these authors consider, since they did not take into consideration some of the safety factors that subsequently evaporated. I would not say that the risk is high, since the theories that permit trouble appear to be a relatively small subset of the set of all possible theories. But I would say that there is definitely a risk, and that the risk is considerably higher that was thought until recently. Most of the authors who have written on the subject agree that there is a risk.

10. CERN's Chief Scientific Officer, Jos Engelen, was recently quoted in *The New Yorker* as instructing CERN scientists not to say that the risk from colliders is low, but to say that the risk is zero. [Elizabeth Kolbert, "Crash Course," *The New Yorker*, May 14, 2007]. This appears to be an attempt to skew the risk analysis by administrative fiat.

11. WHEREFORE, I respectfully request that this Court issue a Temporary Restraining Order that will preclude operation of the LHC until I, my associates, the scientific community, the risk assessment community, and the public have had the opportunity and a reasonable time period to review and analyze the CERN safety report that defendants are presently preparing, and which was originally scheduled for release prior to January 1, 2008, and since delayed.

DATED: March 8, 2008

_____

James R. Blodgett

NOTARIZATION

Before me, the undersigned Notary, today appeared James R. Blodgett, known to me to be the person whose name is subscribed to the foregoing instrument, who being by me first duly sworn on his oath, deposes and says the text of this affidavit on this eighth day of March, 2008.

_____
Notary Public, State of New York

_____
(Typed or Printed Name of Notary)

My commission expires: _____ [seal]

[Note: the Notary will sign and affix his/her notary seal, which should include the state where issued, and the expiration date.]