



Quantum Information Science

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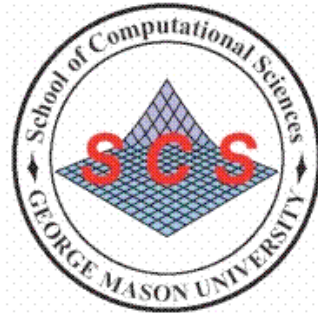
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Editor's Note

Entanglement in quantum mechanics and politics is scheduled for Mch 02 because creating a backlash of intense skepticism is an occupational hazard. We need to learn from past mistakes. This newsletter also describes the discussion that was held in the absence of the scheduled speaker.

-- Dr. Rudolph A. Krutar, QISS Coordinator

2006 Mch 02 QISS Seminar

Speaker: Dr. Scott Chubb (IEM)

Title: Low Energy Nuclear Reaction Entanglements in Quantum Physics & Politics

Abstract: Most mainstream scientists have not been paying attention to it, but behind the scenes, since 1989, considerable research has continued related not only to the separate, "Cold Fusion" claims by Pons and Fleischmann (PF) and Jones, but to new effects that have been observed. The effects observed by PF and by Jones were quite real, and the associated phenomena were triggered in fact by nuclear reactions. However, PF did

not observe a "Colder Version" of conventional fusion but found something else: a new form of nuclear fusion that does not create high-energy particles or radiation. In fact, with time, it has become apparent that other forms of nuclear reactions can take place in solids, in which the only by-products appear to be new elements and heat. As a consequence, as opposed to "Cold Fusion", PF actually discovered a form of Low Energy Nuclear Reaction (LENR). However, a clash of ideas, and a form of "political entanglement" evolved as a result of confusion about the initial claims by PF and Jones. Subtleties in the different forms of fusion and the need for quantum entanglement in one form (like that seen by PF) also contributed to the clash of ideas. In particular, PF discovered a variant of one of the forms of conventional deuteron fusion. But as opposed to the energy being released through a gamma ray, this new form of fusion releases energy *without any gamma radiation*. Since electromagnetic (EM) interaction is involved, this reaction breaks near-perfect "SU2" symmetry, presumably explaining why it is significantly suppressed relative to the dominant fusion reactions. But this intuitive idea is wrong!

Dr. Chubb will explain why some intuitive ideas are wrong and will provide an overview of the present status of LENR research with additional material on potential LENR entanglements both in quantum physics and politics.

About the Speaker: Scott Chubb was born in 1953 in Manhattan NY. He received his B.A. degree in physics from Princeton University in 1975 and his M.A. and Ph.D. degrees, also in physics, from the State University of New York (SUNY) at Stony Brook, in 1978 and 1982 respectively. Since



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1989, Scott Chubb has been a research Physicist at the U.S. Naval Research Laboratory (NRL), in Washington, DC. His interests are in condensed matter physics, many-body physics, precision measurements of time, general and special relativity, electromagnetic scattering, non-linear wave dynamics, statistical physics, nuclear physics, Low Energy Nuclear Reactions in solids, remote sensing of the ocean from air- and space- borne platforms, Ethics in Science, Laser-Cooled Atoms, and Atomic Bose Einstein Condensates. His involvement with Low Energy Nuclear Reactions in solids, at NRL, ended in the early 90's. But since 1992, he has continued working in this area as a consultant with Research Systems, Inc. (Burke and Arlington, VA) and (between 1994 and 2000) with Oakton International Corporation (Oakton, VA). Since 2004, he has also been a technical editor of Infinite Energy Magazine (IEM), specializing in areas related to Cold Fusion.

Time and Location: The Quantum Information Sciences Seminars (CSI 991-006) for Spring 2006 are held on Thursdays from 3:00-4:15pm in the Science Showcase, which is room 237 in the George W. Johnson Center. See the QISS master schedule at:

<http://scs.gmu.edu/%7Ergomez/qc/seminar/spring2006>

Feb 16 QIS Seminar Rescheduled

Owing to a transcription error, Dr. Dutton arrived on time at the wrong room on Feb 16. At the unanimous request of the attendees, his seminar on ultra-slow and stopped light and its applications has been rescheduled (for Mch 30).

Summary of QIS Discussion

The seminar became a QIS discussion group over light refreshments. Three of the topics covered were:

Richard Gomez (QIS director), who created the course Quantum Computation I (now CSI 615) described the history of QIS at GMU and the seven QIS courses that have been developed.

Jon Determan, who is registered for the QIS seminars as a course, expressed concern about the multidisciplinary aspect of QIS, wondering what is required of a serious student. Clearly the QIS seminars provide a means of learning about projects supporting to QIS from researchers working in related fields.

Rudy Krutar (QISS coordinator), who created the course Quantum Computer Programming (now CSI 717), suggested that owing to the *fungibility*[©] of quantum computers, programming them will not require the same level of expertise in Quantum Mechanics (QM) as building them. If QM expertise were required of anyone attempting to program a quantum computer, then quantum computers will ultimately fail. The QC programmer mostly needs an abstract understanding of the parallelism involved. The QM treatment is too detailed and not scalable. Fixing that is one of his objectives.

Others, who want to add their recollections of the QIS discussion, are welcome to respond to rudy@krutar.org.

[©] An object or person (such as a sailor) is *fungible* if instances are interchangeable in respect to function, office, or use. See www.dilbert.com (2006 Feb 19) for humor on the term.