

Seminars in Emerging Science
Panhandle Area Educational Consortium
Marianna, Florida
Friday, April 25, 2008

Presenter Information

**Charles C. Ouimet, Ph.D., Professor and Faculty Scholar in
Neuroscience, College of Medicine, Florida State University**

Dr. Ouimet obtained both B. A., and M. A. degrees, from Bridgewater State College in Biology. His Ph.D., was earned from Brown University in Neuroscience. He completed postdoctoral training in the area of neuroscience at Yale University School of Medicine and The Rockefeller University, Laboratory of Molecular and Cellular Neuroscience. Currently Dr. Ouimet is Professor and Faculty Scholar in Neuroscience, Department of Biomedical Science, College of Medicine, at Florida State University.

Dr. Ouimet taught high school Biology for seven years prior to entering graduate school. Upon completion of his doctoral training, he taught human neuroanatomy in the medical school at Brown University. He has also assisted in teaching Human Neuroscience at the medical schools of both Yale and Cornell Universities. During his tenure at Florida State University, he has taught neuropharmacology, Biological Basis of Behavioral Disorders, Biological basis of Brain Dysfunction and a laboratory on Alzheimer's disease, all at the undergraduate level. At the FSU College of Medicine, his current teaching assignments include Clinical Neuroscience, Systemic Pathology, General Pathology, Clinical Microanatomy, Clinical Biochemistry and Physiology for both first and second year medical students. Described, by his peers at the Florida State University College of Medicine, as an outstanding instructor, he has received the Excellence in Teaching Award for the past eight consecutive years.

Why do Nerve Cells in the Brain Die, and What Can be Done About It?

In this seminar we will discuss various neurological disorders in which neurons (nerve cells) die. These disorders include many that are already familiar to you: Alzheimer's disease, Parkinson's disease, and Huntington's disease. There is compelling research that in these disorders, neurons don't simply die; instead, they actually commit suicide. In today's presentation, we will describe one line of research aimed at preventing neurons from killing themselves.

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Presenter Information

Harold Kroto, FRS, Nobel Prize Winner for Chemistry, 1996

Sir Harold Kroto - Nobel Prize for Chemistry 1996, Francis Eppes Professor, Department of Chemistry and Biochemistry, Florida State University

Sir Harold (known as Harry) obtained a B.Sc. in Chemistry (1961) and a Ph.D., in Molecular Spectroscopy (1964) at the University of Sheffield. After a post-doctoral position at the National Research Council in Ottawa from 1964 to 1966, he spent a year at the Murray Hill Bell Laboratories in New Jersey and in 1967, he started his academic career at the University of Sussex in Brighton, U.K.

By 1970, he had carried out research in the electronic spectroscopy of gas phase free radicals and was moving on to liquid phase Raman studies. By 1974, he had finally obtained a much awaited microwave spectrometer and the first molecule he used it for was the carbon chain species HC₅N. Laboratory and radio astronomy studies on long linear carbon chain molecules led to the surprising discovery that they existed in interstellar space and also in stars. Laboratory experiments with co-workers at Rice University, which simulated the chemical reactions in the atmosphere of red giant stars, uncovered the existence of C₆₀ in 1985. C₆₀ is an elegant molecule shaped as a soccer ball and named Buckminsterfullerene to honour the American architect who had conceived the geodesic dome that the molecule, on a microscopic scale, seems to replicate.

The discovery of C₆₀ caused Kroto to shelve his dream of setting up a studio specialising in scientific graphic design (which he had been doing semi-professionally for years). He therefore decided to probe the consequences of the C₆₀ concept and to exploit the synthetic chemistry and material sciences application. In 1990 he was elected a Fellow of The Royal Society and in 1991 he was awarded a Royal Society Research Professorship which enabled him to concentrate on research. From 1990 – 1998 he was chairman of the editorial board of the Chemical Society Reviews. In 1995, he inaugurated the Vega Science Trust (www.vega.org.uk) to create science films of sufficient high quality for network television broadcast. The following year he was knighted for his contributions to chemistry and awarded the Nobel Prize for Chemistry together with Robert Curl and Richard Smalley.

Science
Collaboration:
immersion
inquiry
innovation

Sci:iii



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Presenter Information

Harold Kroto, FRS, Nobel Laureate

From 2002-2004 he was President of the Royal Society of Chemistry.

In 2007 he he started a new educational initiative at Florida State University known as GEOSSET – Global Eduaction Outreach in Science, Engineering and Technology – www.geoset.info

He has received honorary degrees from a number of universities in the UK and abroad, as well as many scientific awards, including the International Prize for New Materials by the American Physical Society (1992), the Italgas Prize for Innovation in Chemistry (1992), the Royal Society of Chemistry Longstaff Medal (1993), the Faraday Award (2001) and the Copley Medal of the Royal Society (2002). He was elected to the National Academy of Sciences in 2007.

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Presentation Description

***GEO - Global Educational Outreach via the Internet - the Second
Revolution in Education***

All advanced technologies are double-edged swords, with great promise for good but also great power for harm and it is not at all clear that all the leaders of our highly developed society have the necessary wisdom to ensure safe and humanitarian application of the 21st Century's increasingly powerful technologies. Thus Science awareness and understanding are particularly necessary at every level in order to realize both the humanitarian possibilities and impose the limitations that can safely constrain the dangers of technological advances. Ignorance of the sciences and technologies that underpin our everyday lives is leading to serious misunderstanding and is a recipe for disaster. *Although wise action cannot be guaranteed by knowledge, common sense suggests that wisdom is not a likely consequence of ignorance.*

On the global education front there is no longer any point throwing up our hands in despair, bemoaning the fact that we have not enough teachers for this or that subject – the sciences and mathematics in particular. Communications technology is now available that allows us to work with the cohort of teachers presently in place and enable them to improve dramatically: a) The quality of their teaching material and b) Their expertise in the presentation of this material. New Internet hardware and software can now make material, created specifically for teachers and packaged for immediate use in the classroom, available on a global scale. Students can of course also gain greatly but initially our perceptive teachers must be the primary target of this initiative as they are the medium through which children will continue to be educated and in particular encouraged to develop their individual creative talents. It is now possible, essentially “overnight” to provide teachers wherever they are in the world with the best teaching material created by the world's best teachers. Heretofore educational systems and the educational process have invariably stifled the creativity and sapped the energy of our teachers. This must change if education is to improve.

In these difficult times it is increasingly important that teachers encourage children to persevere in areas in which they show promise and in areas on which the future well-being of the human race depends. Now, more than ever, the development of critical thinking is needed if we are to avoid both the destruction of our planet and any further deterioration in the harmony in our interpersonal relationships. Never before has the need for the development of Global Citizenship been more vital – Education is our last hope and the Internet may be the only viable medium we have to transmit the message! Such a program is now vital in order to develop the Global Citizenship necessary to foster the collaboration and harmony among nations needed to create a sustainable global socio-economic future.