Nobel Laureate Public Lecture Series at ODU

Spring 06 Lecture

"Time, Einstein and the Coolest Stuff in the Universe"

Professor Bill Phillips
Nobel Laureate in Physics (1997)

Monday, March 13, 2006.
10:00 AM to 12 Noon
Constant Convocation Center
43rd St and Hampton Blvd
Old Dominion University
A public lecture open to all

Abstract

2005 celebrated Einstein's "miraculous year" of 1905 when he published three revolutionary ideas that changed forever how we view Nature. This talk addresses Einstein's view of time, and how his thought guided the development of atomic clocks at NIST, producing the best timekeepers ever. Atomic clocks are essential to military, industrial, and commercial interests and are the heart of the Global Positioning System, which guides aircraft, land vehicles, and hikers to their destinations. Today, atomic clocks are still being improved, using Einstein's ideas to cool the atoms to incredibly low temperatures. NIST scientists make the coolest stuff in the universe, now less than a billionth of a degree above Absolute Zero, producing clocks accurate to better than a second in 40 million years as well as both using and testing some of Einstein's strangest predictions.
This will be a multimedia presentation, suitable for a general audience of children and adults, with live demonstrations and down-to-earth explanations about physics that is literally out of this world.

Biography

Bill Phillips was born in 1948, in Pennsylvania to Mary Catherine Savine who had married William Cornelius Phillips. His mother was born in Italy while the senior William Phillips' heritage traces back to ancestors from Wales who fought in the American Revolution. The young Bill and his siblings grew up in a family which valued strong faith and had a commitment to community affairs. Professor William Phillips remains a man of faith who also cherishes the idea of inclusiveness and leads by continuing to live such a life.

He attended Juanita College, as had his father, mother and several other members of his nuclear and extended family. His interest in science and physics, which had always been present, when as a child he had played with erector and chemistry sets and other such "toys", was fueled further by his Physics professor, Ray Pfrogner, at Juanita. Professor Pfrogner who was an excellent teacher, also exposed his students to the incisive thinking of the great Richard P. Feynman by holding showings of Feynman's public lectures on "The Character of Physical Laws". While in his senior year at Juanita, William Phillips spent a semester at Argonne National Laboratories where he experienced the joys of working with fulltime professional researchers. His choice for graduate school was the Massachusetts Institute of Technology, where he worked in Professor Dan Kleppner's group. Bill Phillips' philosophy of doing frontier research is one of competing with the best in the world with openness, humanity and cooperation. He attributes this to the formative influence that Professor Kleppner had on him. After getting his doctorate at MIT, Dr. Phillips accepted a Chaim Weizman fellowship, which allowed him to work on a project of his own choice. He continued working in the area of his dissertation research (which included the study of collisions of laser-excited atoms) but also began to work on Bose-Einstein condensation.

In 1978 he accepted a position at the National Bureau of Standards (later the National Institute of Standards and Technology) and began to work on precision measurements of the proton gyromagnetic ratio and of the Absolute Ampere. He also was able to work on cooling of atoms by using lasers. In 1979, after moving to Gaithersburg, Md., Jane and Bill joined the Fairhaven United Methodist Church, which has a congregation that is racially and ethnically diverse. The personal philosophy of Bill Phillips is perhaps best summarized by his own words:

"Since the announcement of the award of the 1997 Nobel Prize in Physics, I have been honored to receive greetings and congratulations from colleagues and friends all over the world, as well as from many people whom I did not know. One such greeting came, not to me but to my children, from Susan Hench Bowis. She had read newspaper accounts of the announcement and recalled to my teenage daughters that she had been 17 when in 1950 her father, Philip Hench, had been awarded the Nobel Prize in Physiology or Medicine. He had been far from home at the time of the announcement, as I had been, and, like Caitlin, (my daughter) Susan Hench had been away at school. Transatlantic telephone calls were not common in those days, and so when she eventually made contact and congratulated her father, it was by cable. He cabled back to her, 'Prouder of you, my darling, than of any prize.' Surely the Nobel Prize is the highest award a scientist could hope to receive, and I have received it with a sense of awe that I am in the company of those who have received it before. But no prize can compare in importance to the family and friends I count as my greatest treasures."

Reference:Les Prix Nobel, The Nobel Foundation, Stockholm, 1998

In addition to the public talk in the morning there will be a smaller informal session that Professor Phillips will host. This setting will be one that encourages a free and open discussion between the audience and Dr. Phillips.

Open Forum

2:30-4:30 PM

March 13, 2006

Rectors Room (Room 1310)
Webb Center, ODU
