

UNIVERSITY OF TEXAS AT DALLAS - DEPARTMENT OF PHYSICS

PHYSICS COLLOQUIUM

<http://www.utdallas.edu/physics/lectures/info/>

Wednesday, April 11, 2007; 4:00-5:00 PM
Kusch Auditorium, FN 2.102

GPS Technology and its Applications in Space Physics

Professor Phillip C. Anderson

Department of Physics, The University of Texas at Dallas

The Global Positioning System (GPS) is a constellation of more than two dozen GPS satellites in circular orbits at altitudes of ~20,000 km. It is managed by the United States Air Force 50th Space Wing and transmits signals allowing GPS receivers on the ground, in the air, and in space to determine the receiver's location, speed and direction. Originally designed as an aid to navigation around the world, it has since become an indispensable aid to scientific research, including studies of earthquakes, continental drift, glacier movement, ocean topography, tropospheric weather, and the ionosphere. Prior to coming to the University of Texas at Dallas three years ago, I spent 12 years at the Aerospace Corporation, where the first GPS satellite was developed and where the Air Force GPS program office is located, working closely with the program office and using the GPS system for ionospheric studies. I will discuss the technical aspects of the GPS system, its history and operations. The wide variety of scientific uses of the system will be discussed with a special focus on its applications in space research.

About the speaker: Dr. Anderson received his PhD in Physics from the University of Texas at Dallas in 1990 after which he spent 2 years at Goddard Space Flight Center, a National Aeronautics and Space Administration (NASA) facility, as a Research Associate under the prestigious National Research Council Postdoctoral Fellowship. He spent the next 12 years at the Aerospace Corporation, a federally funded research and development center and a leader in space technology applications for the benefit of US national interests before joining the physics faculty at UTD three years ago. He conducts independent research in space plasma physics funded by various sources including NASA, the National Science Foundation (NSF), and the U. S. Air Force and has served in various committees and panels at NASA. He has received several awards and honors for his research and has more than 45 publications in leading space science journals.