

UNIVERSITY OF TEXAS AT DALLAS - DEPARTMENT OF PHYSICS

PHYSICS COLLOQUIUM

<http://www.utdallas.edu/dept/physics/colloquia1.htm>

Tuesday, October 26, 2004; Kusch Auditorium, FN 2.102
Networking 3:30-4:00 PM; Presentation 4:00-5:00 PM

Mars: Follow the Water

Professor John Hoffman

Department of Physics, UTD

Mars, the 4th planet from the sun, is the subject of intensive study by NASA and the European Space Agency (ESA). NASA's theme for Mars is "Follow the Water". Several NASA spacecraft are orbiting the planet producing data on topology, mineralogy, and magnetic anomalies, mapping the surface in great detail, and seeking locations of possible water (ice) accumulations. The two rovers, Spirit and Opportunity, continue their explorations on the surface studying the mineralogy of rocks and looking for evidence of the presence of water, either at present or throughout the history of the planet. This presentation will focus on missions to the surface of Mars and on the 2007 launch opportunity for which we at UTD are constructing an instrument as part of the lander mission called Phoenix to look for ice and possibly hydrocarbons within a meter below the surface.

About the speaker: John Hoffman received his PhD from the University of Minnesota under the mentorship of Professor A. O. C. Nier who pioneered the field of mass spectroscopy. Dr. Hoffman's dissertation was on the helium isotopic distribution in large iron meteorites. He spent 7 years at the U. S. Naval Research Laboratory, Washington, D. C., in pioneering work developing miniaturized mass spectrometers for space flight. He joined the Graduate Research Center of the Southwest in 1966. His main interest has been in the study of atmospheric/ionospheric composition and isotopic ratios for which he has developed instrument packages that have flown on many rockets and satellites. He had instruments on Apollos 15, 16, and 17, the latter being part of the ALSEP surface package. His instrument flew on the Pioneer Venus mission to Venus in 1978 where the discovery of markedly different isotopic ratios of hydrogen and argon lead to a reassessment of the formation of planetary atmospheres. He was a member of the team who flew a mass spectrometer on the Giotto ESA mission to Halley's Comet in 1986. A current project is an instrument for the 2007 launch opportunity to Mars.