

Joint March Meeting
Australian Institute of Physics – NSW Branch &
Sydney Association of Astrophysics (SAfA)

From Earth's Aeronomy to Solar System Physics
From Ground-Based Observations to Space-
Based Experiments - An Institute in transition

Prof. Tor Hagfors

Tuesday 15th March @ 5.00PM

Slade Lecture Theatre, School of Physics, Sydney University

Summary of talk: The Max Planck Institute for Aeronomy (MPAe) has gone through a gradual transition from its original field of research to Solar System Research (MPS). This transition has been characterized by participation in a number of space missions both supported by NASA, ESA and IKI, the Russian space agency. The participation has involved development of instrumentation and data analysis of the results. I describe some of the experiments and selected results, from the Giotto mission taking pictures of the nucleus of comet Halley, to the construction of a stereo camera IMP for the Pathfinder mission to Mars for a detailed view of the surface structure, to studies on SOHO of the solar corona between 1.1 and 30 solar radii with three coronagraphs, LASCO, to instrumentation for the study of the composition and charge state in the corona with SUMER and CELIAS, to Rosetta experiments with a camera and a radio transmission experiment, to search with a radar system on MarsExpress for water deep under the surface of Mars, to the successful landing of Huygens on Titan with a complex camera system revealing both surface structure and some properties of the atmosphere. Future plans involve Venus, Mercury and the Galilean satellites. The brief review, hopefully, shows that the MPS plays an important role in the international space science community and will continue to do so in the future.

Details: For more information please contact Dr Fred Osman (phone (02) 4736-0750, email: f.osman@uws.edu.au) or Dr Kate Brooks (phone (02) 9372-4683, email: Kate.Brooks@csiro.au)

Brief Biography of the Speaker: Prof Tor Hagfors is an internationally known pioneer in studies of the interaction of electromagnetic waves with ionized plasmas and solid surfaces. He was one of the early directors of the Arecibo Observatory in Puerto Rico and from 1982 to 1992, was director of the

observatory's managing organization, the National Astronomy and Ionosphere Center (NAIC). In 1992 he joined the directorate of the Max Planck Institute for Solar System Research (formerly the Max Planck Institute for Aeronomy) in Germany. He is now professor emeritus of electrical engineering and astronomy at Cornell University, Ithaca, N.Y., and scientific member emeritus of the Max Planck Institute for Solar System Research.

Prof Hagfors' current research interests include HF induced modification of the ionosphere, radar astronomy of the solar system, radar observations of planetary surfaces from space craft, observational techniques in radio observations, scattering from rough surfaces, fluctuations in dusty plasmas, antennas, radio wave propagation

Detailed Schedule for Tuesday, 15 March 2005:

- **5:00-5.15 pm** **Drinks and nibbles, Slade Lecture Theatre.**
- **5.15-6.05 pm** **Talk by Prof. Tor Hagfors.**
- **6.15 pm** **Dinner with the Speaker at Buon Gusto (Italian),
368 Abercrombie Street, Chippendale.**
E-mail Dr Fred Osman if you will be able to join us for dinner.

Travel Directions:

- Train to Redfern station and walk to the School of Physics.
- Buses 422, 423, 426, 428, 448, and 450 from Circular Quay to City Road / King, or 412, 435, 438, 470, 483 etc. along Parramatta Road from Circular Quay.
- Drive and park in various parking lots. You will need to pay for parking (\$6 flat-rate after 4 pm) and display the ticket in your car. You may also find parking places on public roads outside the Uni.