

## Press Release for IAPWS Annual Meeting at Lucerne, Switzerland, August 26-31, 2007

Seventy-one scientists and engineers from fifteen countries attended the annual meeting of the International Association for the Properties of Water and Steam (IAPWS), August 26-31, 2007 in Lucerne, Switzerland. IAPWS provides standards for steam and water properties and serves as a forum where engineers from the power industry and academic scientists can communicate problems and solutions to each other. IAPWS has traditionally concentrated on the science underlying the thermodynamics and chemistry in steam power plants, but is broadening into other aspects of power generation and high-temperature aqueous systems as well as seawater and ice. Discussions range from puzzling power plant chemistry results to reports on solutions to such problems to practical implications of fundamental theory and molecular modeling of thermodynamic and transport properties.

This year IAPWS welcomed a Swiss national committee as a new member.

The IAPWS delegates were joined by an additional five people from Switzerland for a symposium on power cycle chemistry. The chemistry of nuclear power plants and new research in materials for advanced power plants were features of this symposium. Nuclear power plant chemistry and flow-assisted corrosion were prominent topics in the discussions of the Power Cycle Chemistry Working Group.

A highlight of the 2007 symposium was the Helmholtz Award Lecture (see picture). The Helmholtz Award is given annually to a young scientist for work of interest to IAPWS. It includes a trip to the IAPWS meeting to present a paper.

IAPWS adopted a modification of the IAPWS Industrial Formulation 1997 that extended the high temperature region to higher pressures and a new "Release on the Ionization Constants of H<sub>2</sub>O." IAPWS also approved "Revised Releases on the Viscosity and Thermal Conductivity of Heavy Water." New documents should appear on the IAPWS website shortly. Work continues on new documents which will describe the viscosity of water and the melting and sublimation curves of ice.

IAPWS produces Certified Research Needs (ICRN) as guidance for funding agencies and as an aid to people doing research in defining important research. Several new ICRN's have been approved in the last year and appear on the IAPWS website. The ICRN's approved this year concerned mechanism of decomposition of ion-exchange resin; development and application of ambient and high temperature sensors; and improved analysis of low concentration of metals.

A plan to understand the corrosion and catalysis at metal surfaces related to ultrasupercritical power plants continues. It includes a symposium on "Interfacial Electrochemistry and Chemistry in High Temperature Media" to be conducted at the Joint Electrochemical Society (ECS)-IAPWS Symposium (Washington, D.C., 2007). Details of the symposium may be found at the IAPWS website under IAPWS News.

IAPWS is preparing a Databook, with six chapters: Phase equilibria, pVTX, Potentiometry, Electrical conductivity, Thermal conductivity, Viscosity. This book evaluates various high-temperature techniques and collects and summarizes all of the relevant experimental data available in the literature with emphasis on results obtained above 200°C. The book is expected to be completed by the end of 2007.

An international collaboration project on "Equilibrium Constants and Speciation of Aqueous Transition Metal Complexes over a Wide Range of Temperatures and Pressures" will be carried out by Jitka Felcmanova, a Czech Republic student, from the Technical University of Liberec at the University of Guelph (Canada).

A task group was set up to support European members in a European Standards matter. This task group illustrates the organization's support of its members with expertise in their national concerns.

The next IAPWS meeting will be at the 15<sup>th</sup> International Conference on Properties of Water and Steam, to be held in Berlin, September 8-11, 2008. Details of the meeting will be available through links from the IAPWS website at [www.iapws.org](http://www.iapws.org), and at the Conference website [www.icpws15.de](http://www.icpws15.de). Minutes of the 2007 meeting will appear on the IAPWS website shortly. The meetings are open to anybody interested in the general topics of IAPWS (see website for registration details). The proceedings from the 14<sup>th</sup> International Conference



Dr. Karsten Meier presenting the Helmholtz Award Lecture on speed of sound measurements at high temperatures and pressures.

on Properties of Water and Steam, *Water, Steam, and Aqueous Solutions for Electric Power*, are available (see link on Website).

People interested in IAPWS documents and activities should contact the chairman of their IAPWS National Committee (see website) or the IAPWS Executive Secretary, Dr. Barry Dooley, Structural Integrity Associates, Inc., 2904 South Sheridan Way, Suite 303, Oakville, Ontario L6J 7L7, Canada, email: [bdooley@structint.com](mailto:bdooley@structint.com). People do not need to be citizens or residents of member countries to participate.