Press Release
15th International Conference on the Properties of Water and Steam
and
International Association for the Properties of Water and Steam
2008 Meeting

Continuing a series of conferences started in 1929, 202 scientists and engineers from 23 countries met from Sept. 7-11 in Berlin, Germany at the 15th International Conference on the Properties of Water and Steam. Over 150 papers were given on thermodynamic and transport properties of pure water and steam, on critical phenomena, on chemistry in subcritical and supercritical water, on seawater, on chemical processes occurring in power plant equipment, and on power cycle chemistry. The conference connects academic researchers with engineers who use their information. It provides the researcher with guidance on useful problems and provides the engineers with the latest research.

The International Conference on the Properties of Water and Steam (ICPWS) is sponsored approximately every 4 years by the International Association for the Properties of Water and Steam (IAPWS). The General Assembly of IAPWS met at the conference and reviewed the progress since the 14th ICPWS in 2004. Major progress was demonstrated in the thermodynamic understanding of seawater, formulation of the viscosity of steam and water, properties of steam in the high temperature-high pressure region. Work continues on properties of metastable steam. IAPWS also produces guidelines, certified research needs, and has started to issue technical guidance documents. Information may be found at the IAPWS website: **www.iapws.org**.

Highlighting the conference and the IAPWS meeting were the conference sessions on seawater and the release of the "IAPWS Formulation 2008 for the Thermodynamic Properties of Seawater." Keith Alverson from of the Intergovernmental Oceanographic Commission of UNESCO attended the ICPWS to explain the new formulation's importance for global ocean observation and modeling. The release is the culmination of a cooperation with the Scientific Committee on Oceanic Research (SCOR) and the International Association for the Physical Sciences of the Ocean (IAPSO) that started at the 2006 IAPWS meeting. This thermodynamic description of seawater replaces the previous standard developed more than thirty years ago. The new IAPWS standard will significantly improve global ocean circulation models as well as the prediction of global climate change. At the same time, it serves as the first thermodynamic seawater standard to be used in the rapidly growing area of energy-efficient freshwater production facilities.

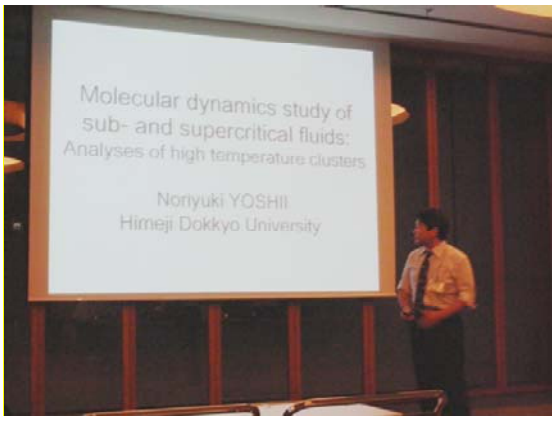
A new viscosity formulation for water and steam was released as "The IAPWS Formulation 2008 for the Viscosity of Ordinary Water Substance," replacing older versions. This was the culmination of a long multinational cooperative effort involving both IAPWS and the International Association for Transport Properties, and represents a significant improvement over the previous standard formulation which was over 20 years old.

The Power Cycle Chemistry Working Group completed a technical guidance document, "Procedures for the Measurement of Carryover of Boiler Water into Steam". The working group keeps a priority list for research related to power plant chemistry. It is currently headed by the Behaviour of Aluminium in the steam / water cycle, the quantification of risk of asset damage relating out of specification chemistry to damage to equipment, and the metal-water/steam interface in advanced ultra supercritical plants.

IAPWS produces Certified Research Needs (ICRN) as guidance for funding agencies and as an aid to people doing research in defining important research. While no new ICRN's were issued this year, 11 remain active in a variety of areas related to the properties of water and steam and the chemistry of power plants.

Wolfgang Wagner presents the Gibbs lecture "From the Beginning to this Day – My First Naïve ideas and the Research Results Achieved."

The IAPWS Gibbs award was presented to Professor Wolfgang Wagner. The IAPWS Gibbs Award is given at the ICPWS for a distinguished career body of work of interest to IAPWS. The IAPWS Helmholtz Award was presented to N. Yoshii, of Hemeji Dokkyo University, Japan. The IAPWS Helmholtz award is given annually to a young scientist who is working in a field of interest to IAPWS. It includes a trip to the IAPWS meeting to present a paper. In addition, there were 5 awards for best presented student papers at the ICPWS.



Nobuyuki Yoshii presents the IAPWS Helmholtz Award talk "Molecular dynamics study of sub- and supercritical fluids: Analysis of high temperature clusters," furthering IAPWS interests in molecular modeling of thermophysical properties of water and aqueous systems.

IAPWS has prepared a book, *Hydrothermal Properties of Materials*, edited by Vladimir M. Valyashko, containing chapters on phase equilibria, pVTX, calorimetry, potentiometry, electrical conductivity, thermal conductivity and 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 published by Wiley by the end of 2008.

IAPWS welcomes scientists and engineers with interest in the thermophysical properties of water, steam, and aqueous systems and in the application of such information to industrial uses. The next IAPWS meeting is will be in Arnhem, the Netherlands, probably September 6-11, 2009. Further information on meetings can be found at the IAPWS website, www.iapws.org, as it becomes available.

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, bdooley@structint.com. People do not need to be citizens or residents of member countries to participate.