# Highlights
# International Association for the Properties of Water and Steam
# 2012 Meeting

Continuing a series of conferences started in 1929, 75 scientists and engineers from 13 countries attended the annual meetings of the International Association for the Properties of Water and Steam (IAPWS), September 30-October 5 in Boulder, Colorado, USA. The meeting was hosted by the United States National Committee of IAPWS. The meeting 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. 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.

The IAPWS delegates were joined by several additional people from the United States for a symposium on **The Energy-Water Nexus: Status and Prospectus**. The symposium opened with the IAPWS Helmholtz award lecture "Molecular Theory of Liquids: Approaching Chemical Accuracy", given by Maxim V. Fedorov of the University of Strathclyde. The Helmholtz Award is given annually to a young scientist for work of interest to IAPWS. The symposium continued with presentations on the Energy-Water Nexus, Desalination Technologies, and new technological developments in water reuse, water management and power plant condenser cooling systems.

Maxim V. Fedorov presents the IAPWS Helmholtz Award Lecture, introducing many in the audience to molecular integral equation theory.

IAPWS produces releases, guidelines, technical guidance documents, and certified research needs (ICRN's). Information may be found at the IAPWS website: www.iapws.org.

Following the success of the new seawater standard TEOS-10, which was created with the assistance of IAPWS, IAPWS has now formally approved participation in a permanent Joint Committee on the Properties of Seawater (JCS), in collaboration with the Scientific Committee on Oceanic Research (SCOR) and the International Association for the Physical Sciences of the Oceans (IAPSO). This new international committee will serve as a permanent source of scientific expertise on the properties of seawater and will develop and maintain international standards related to seawater. An important initial goal is to develop a means of tracing the definition of salinity to the 7 base units in the International System of Units (SI), which is maintained by the International Bureau of Weights and Measures (BIPM). Workshops on this topic, open to all interested parties, are scheduled to take place at the 16th International Conference on the Properties of Water and Steam (ICPWS).

IAPWS has developed a new Guideline on the Critical Locus of Aqueous Solutions of Sodium Chloride. A new equation for the properties of supercooled water, relevant to

atmospheric and biological systems, has also been developed. Correlation of properties of systems important to carbon capture and sequestration is becoming an important interest of IAPWS.

A joint IAPWS/IUPAC project titled "Establishing Recommended Data on Thermodynamic Properties of Hydration for Selected Organic Solutes and Gases" is approaching completion. An IAPWS guideline on the thermal conductivity of seawater is in preparation.

The Power Cycle Chemistry Working Group revised new technical guidance document, “Instrumentation for Monitoring and Control of Cycle Chemistry”. The working group keeps a priority list for research related to power plant chemistry. It is currently includes the behavior of aluminum in the steam / water cycle and the corrosion mechanisms that are related to the presence of contaminants in steam/water circuits, particularly in boiler-water. This working group includes in its scope the concentrated solutions found in the cooling water that goes through power plant condensers, makeup water and waste streams.

IAPWS will be sending a questionnaire to industrial organizations eliciting needs for steam properties and new priorities. People interested in receiving the questionnaire are encouraged to contact the Executive Secretary of IAPWS.

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 will be held in conjunction with the 16$^{th}$ International Conference on the Properties of Water and Steam, September 1-5, 2013 in Greenwich, England. Further information on meetings and the conference can be found at the IAPWS website, www.iapws.org, as it becomes available. IAPWS documents may also be found on the 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., 2616 Chelsea Drive, Charlotte, North Carolina 28209, USA, e-mail: bdooley@structint.com. People do not need to be citizens or residents of member countries to participate.