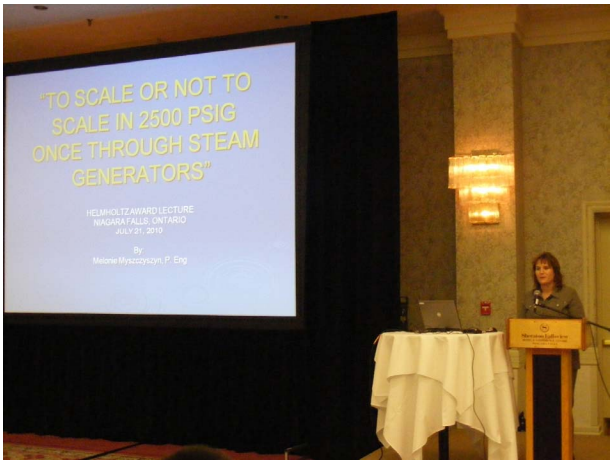
Press Release
International Association for the Properties of Water and Steam
2010 Meeting

Continuing a series of conferences started in 1929, 56 scientists and engineers from 10 countries attended the annual meetings of the International Association for the Properties of Water and Steam (IAPWS), July 18-24 in Niagara Falls, Ontario, Canada. The meeting hosted by the IAPWS Canadian National Committee with support from the CANDU Owners Group and Atomic Energy of Canada Limited. 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 additional people from Canada for a symposium **Building on Synergies: Chemistry Research, Sampling and Monitoring in High-Temperature Water and Steam-Water Systems**. The symposium opened with the IAPWS Helmholtz award lecture "To Scale or Not to Scale in 2500 psig Once-Through Steam Generators." This presentation introduced IAPWS to steam used in producing oil in Alberta. The symposium continued with presentations on chemistry and water sampling in more conventional power plants, then moved to the research needed for supercritical systems.



Melonie Myszczyszyn presents the IAPWS Helmholtz Award Lecture, introducing the audience to steam and produced water issues.

IAPWS produces releases, guidelines, certified research needs, and has started to issue technical guidance documents. Information may be found at the IAPWS website: www.iapws.org. The ICRN is guidance for funding agencies and an aid to people doing research in defining important research. An ICRN expressing the need for improved theory and/or experimental data for the thermal conductivity of high-temperature steam was approved this year.

With the adoption of the IAPWS Guideline on Humid Air in Contact with Seawater and Ice, the fifth and final IAPWS document was released on which the new thermodynamic description of seawater including its phase transitions to ice or water vapor, TEOS-10, is based. The Intergovernmental Oceanographic Commission (IOC) of UNESCO has recently endorsed the use of TEOS-10 to replace the previous description of seawater which has been used for the past 30 years. IAPWS' extensive and continued work on TEOS-10 began with the presentation of a new equation of state of ice on the XIV. ICPWS in Kyoto 2004 and culminated in the IAPWS Release on seawater properties on the XV. ICPWS in Berlin 2008.

A joint IAPWS/IUPAC project titled "Establishing Recommended data on Thermodynamic Properties of Hydration for Selected Organic Solutes and Gases" is near completion. The collected properties will be available for testing and development of new physico-chemical models and methods of molecular simulation.

IAPWS is working toward a revision of its formulation for thermal conductivity of water and steam which dates back over 30 years. Both experiment and molecular theory are contributing to this effort. Work continues on properties of metastable steam.

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.

The Power Cycle Chemistry Working Group completed a new technical guidance document, "Volatile Treatments for The Steam-Water Circuits of Fossil and Combined Cycle/HRSG Power Plants". The working group keeps a priority list for research related to power plant chemistry. It is currently headed by the behavior of aluminum 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, and the accuracy of water and steam sampling in power plants. 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 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 Pilsen, Czech Republic, September 4-9, 2011. Further information on meetings 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.