# Press Release
# International Association for the Properties of Water and Steam
# 2009 Meeting

Continuing a series of conferences started in 1929, 60 scientists and engineers from 13 countries attended the annual meetings of the International Association for the Properties of Water and Steam (IAPWS), September 6-12, 2009 in Doorwerth, The Netherlands. The meeting was hosted and supported by KEMA, an international consulting company, headquartered in The Netherlands. A highlight of the meeting was the organization of a subcommittee on seawater. 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 KEMA, Germany and The Netherlands for a symposium on **The Role of Water in Energy Transition**. The symposium discussed new methods of power generation and current issues in water supply, such as the recovery of water from flue gas. In a separate session, issues in nuclear power plant chemistry, particularly those related to flow-accelerated corrosion, were featured.

The new IAPWS Subcommittee on Seawater met for the first time, filling out its membership with approximately 25 scientists and engineers from nine different countries. Task Groups were formed to address important areas related to seawater including SI traceability, pH, transport properties, and industrial applications such as desalination.

In June 2009 the Intergovernmental Oceanographic Commission (IOC) of UNESCO, representing all 140 maritime nation states of the world, adopted the three IAPWS thermodynamic formulations of fluid water, ice and of seawater as the official thermodynamic representation of seawater for use in marine science internationally. For the first time oceanographers now have consistent and accurate formulations to quantify the transport of heat in the ocean and the exchange of heat between the ocean and atmosphere. The new thermodynamic definition of seawater involves a new salinity variable which incorporates the small spatial variations in the composition of seawater. This new salinity variable is needed to more accurately calculate the density of seawater and thereby to quantify the ocean circulation.

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.

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.

The Power Cycle Chemistry Working Group completed a new technical guidance document, “Instrumentation for Monitoring and Control of Cycle Chemistry for Steam/water Circuits of Fossil-fired and Combined Cycle 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. This working group expanded its scope to 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 will be in eastern Canada, probably in September 2010. 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. People do not need to be citizens or residents of member countries to participate.