

## BIAPWS ANNUAL REPORT 2014

### 1 INTRODUCTION

The British and Irish Association for the Properties of Water and Steam (BIAPWS) is the UK and Ireland national committee of the International Association for the Properties of Water and Steam (IAPWS) and the representative body for Power Plant Chemistry in the UK and Ireland. BIAPWS is a not for profit organisation. This is the annual report of the activities of BIAPWS for the period from September 2013 to August 2014.

2013/14 has been another productive year for BIAPWS. Membership remains strong and BIAPWS meetings and our annual power plant chemistry symposium have been well supported. A major activity for BIAPWS was the successful co-hosting with the Institution of Mechanical Engineers (IMEchE) of the 16<sup>th</sup> International Conference on the Properties of Water and Steam (ICPWS16) at the University of Greenwich, 1-5 September 2013.

With our annual reports, IAPWS requests that National Committees provide a listing of relevant technical publications that have originated from the respective nations during the year in order to assist the dissemination of the international body of work being done on topics of interest to IAPWS and to IAPWS members. The list of publications for the UK and Ireland for the 2013/14 period is provided in the Appendix to this report.

If you would like to know more about BIAPWS, please feel free to contact one of the BIAPWS Officers listed above, visit our web site [www.biapws.org](http://www.biapws.org) or e-mail [contact.us@biapws.co.uk](mailto:contact.us@biapws.co.uk).

### 2 BIAPWS MEMBERSHIP

BIAPWS membership remains strong, with current support provided by twenty-one industrial sponsors, six honorary members, four ordinary members and eleven corresponding members.

### 3 BIAPWS ELECTION OF OFFICERS

Elections for BIAPWS officers were held in January 2014. The existing officers were re-elected, these being:

Chair:	P. McCann, E.ON Technologies (Ratcliffe) Limited
Vice-Chair:	G. Aspinall, AMEC
Secretary:	Dr M. Robson, RWE npower
Treasurer:	E.G. Huff

E. Huff (Treasurer) is planning to retire from this position at the end of the year. Therefore, H Lloyd is shadowing him during the year with a view to taking over the treasurer's position in 2015.

### 4 BIAPWS MEETINGS

BIAPWS committee meetings are held three times a year and attendance at these continues to be good, with typically around twenty people present. BIAPWS committee meetings are preceded by a technical session with presentations on areas of interest to BIAPWS members, which always generate a high level

of interest. Technical sessions during the 2013/14 meetings included presentations on chemical monitoring instrumentation, condensate polishing ion exchange resin kinetics, steam purity during HRSG start-ups and Legionella risk management. Industrial member's representatives are able to bring a colleague to the meetings to benefit from and contribute to the discussions.

## **5 BIAPWS POWER PLANT CHEMISTRY SYMPOSIUM**

Each year, BIAPWS organises an annual symposia on power plant chemistry and water treatment. The 15<sup>th</sup> in this series of symposia was held at the Village Hotel, Nottingham, on 2 - 3 April 2014. This marked the return of the event after an absence in 2013 due to BIAPWS involvement in co-hosting ICPWS16.

The BIAPWS 2014 symposium consisted of introductory sessions on the fundamentals of Plant Preservation and Closed Circuit Cooling Water Chemistry, which were targeted at developing chemists and new entrants to the industry. This was followed by more detailed technical presentations on 'Power Plant Chemistry and Corrosion' and 'Environmental and Water Treatment Issues', which included a case study of poor steam quality as a result of boiler water carryover at a new plant, the application of film forming amines and the environmental consenting of a new build nuclear power plant in the UK.

Through contacts made via IAPWS, the opportunity was taken to invite guest speakers from across Europe to provide additional perspectives on power plant chemistry experiences and developments. Guest speakers were K. Thomsen (COWI A/S), D. Moed (TU Delft) and W. Hater (ICL Water Solutions).

The event was very well attended, with close to one hundred delegates. This demonstrated both the continued interest in developments in cycle chemistry and water treatment and the networking opportunities offered by the event. A summary of the proceedings of the symposium will be published in the Power Plant Chemistry journal.

## **6 IAPWS ACTIVITIES**

BIAPWS has continued to support IAPWS through its formal membership and participation in IAPWS activities. A number of BIAPWS committee members are represented on IAPWS working groups, in particular Power Cycle Chemistry (PCC). At the 2014 IAPWS annual meeting in Moscow, Russia, BIAPWS will be represented by P. McCann and J. Cooper. In addition, BIAPWS is represented on the executive committee of IAPWS.

## **7 16<sup>TH</sup> INTERNATIONAL CONFERENCE ON THE PROPERTIES OF WATER AND STEAM**

On 1 - 5 September 2013, the 16th International Conference on the Properties of Water and Steam (ICPWS16) was organised and hosted by BIAPWS and the Institution of Mechanical Engineers on behalf of IAPWS at the University of Greenwich. Around 230 delegates from 28 different countries attended what proved to be a very successful event. It had been over fifty years since the IAPWS conference was last held in the UK, so it was a welcome return to London, where the very first such conference was held in 1929. A press release on the Greenwich conference can be found on the IAPWS website at [www.iapws.org](http://www.iapws.org).

The organisation of ICPWS16 represented a major undertaking for BIAPWS and we would like to gratefully acknowledge the ICPWS sub-group, comprising E. Huff, J. Cooper, H. Lloyd, P. Calver and P. McCann, and the IMechE, S. Love, H. Atkins and A. Duggal, for their considerable work, time and effort to make this important event for IAPWS a success. The input of A. Rudge and R. Harries in the organisation of the conference is also gratefully acknowledged.

## **8 BIAPWS AWARDS**

BIAPWS offers selected sponsorship opportunities for student placements and schools events that aim to raise the awareness and generate new interest amongst students in the areas of science and technology relevant to the properties of water and steam, including power plant chemistry. This initiative has in the past proven highly successful, with many previous winners of the BIAPWS Student Award going on to full time employment in power generation. However, as student placements in most industrial companies are now arranged by in-house schemes, a BIAPWS sub group is currently reviewing the type and feasibility of student awards that BIAPWS could most beneficially offer in the future.

To encourage student awareness of BAPWS and IAPWS activities, four awards were presented by BIAPWS for the best student papers at ICPWS16 in memory of Dr Geoff Bignold. These were:

- Joachim Reimer, of the Paul Scherrer Institute, Switzerland, for his paper entitled “Biomass Related Salt Solutions at Hydrothermal Conditions: Investigations with Isochoric Differential Scanning Calorimetry.”
- David Moed, of TU Delft, Netherlands, for his paper entitled “Degradation kinetics of six alkalizing amines.”
- Masaki Hiratsuka, of Keio University, Japan, for his paper entitled “Ab initio calculations of vibrational spectra and guest-host interaction in clathrate hydrates.”
- Isabelle Bergonzi, of Universite d’Orleans, France, for her paper entitled “Thermodynamic properties of interfacial water from its infrared signatures.”

BIAPWS is also looking to support this year’s Royal Society of Chemistry (RSC) Energy Sector Nuclear symposium in Manchester by subsidising up to five student awards. One of our BIAPWS members, J. Greene, is part of the organising committee for the event.

For schools events, BIAPWS has continued to sponsor and judge prizes for energy related projects at a science fair in Hinckley, Leicestershire.

## **9 BIAPWS WEBSITE**

The BIAPWS website is currently being re-designed. The public facing pages of the new site have been completed, with the members area currently being developed.

In developing the new website, the main aims were to promote a better understanding of what the aims of BIAPWS and IAPWS are and what our activities include and, importantly, to be a key point of reference for information on events and technical information of relevance to our members.

BIAPWS wishes to gratefully acknowledge the contribution of K McGrath in managing and maintaining our previous website for many years.

## **10 BSI REPRESENTATION**

BIAPWS is currently represented on three British Standards and Euro Norm Committees of relevance to power plant chemistry and water treatment:

- PVE/2: Water Tube and Shell Boilers. The UK standards committee has responsibility for BS EN 12952-12:2003: “Water-tube Boilers and Auxiliary Installations - Requirements for Boiler Feedwater and Boiler Water Quality” and BS EN 12953-10:2003: “Shell Boilers - Requirements for Feedwater and Boiler Water Quality”. Whilst the European body responsible for these standards has agreed to their revision, there have not been any significant developments.
- CII/62: Treatment of water for boilers. The UK standards committee also has responsibility for BS 2486:1997: “Recommendations for Treatment of Water for Steam Boilers and Water Heaters”. Currently, this committee is not active.
- EH/3/6: Water quality - sampling. The UK standards committee is responsible for BS 6068-6.7:1994 (ISO 5667-7:1993): “Guidance on Sampling of Water and Steam in Boiler Plants”. The standard is due for revision, but even in its current state, it remains a technically sound and useful document.

## **11 INTERACTION WITH PROFESSIONAL ORGANISATIONS**

BIAPWS maintains correspondence with a number of professional bodies with the aim of sharing information and closer working.

- BIAPWS is represented on the Energy Sector Interest Group of the Royal Society of Chemistry by John Greene;
- BIAPWS is also represented on the Water Science Forum of the Royal Society of Chemistry by Eric Huff;
- Richard Hill, who is a committee member of the Institution of Chemical Engineers (IChemE) Water Subject Group, is also a Corresponding Member of BIAPWS.

BIAPWS also organised the 16<sup>th</sup> International Conference on the Properties of Water and Steam with the Power Industries Division of the IMechE on behalf of IAPWS.

Paul McCann  
Chair, British & Irish Association for the Properties of Water and Steam  
June 2014

**APPENDIX: List of UK and Ireland Originated Reference Papers in areas of interest to IAPWS,  
published between September 2013 and June 2014**

Spellissy, F., Hickey, W., Griffin, F. and Stack, E., (2014), “Analysing the Influence of Anions on After Cation Conductivity of HRSG Steam Samples during Start-Up Using Ion Chromatography”, *PowerPlant Chemistry* 2014, 16(1)