

Minutes of the Meetings  
of the  
Executive Committee  
of the  
International Association for the Properties of Water and Steam  
held in  
Kyoto, Japan  
27th August – 1st September 2017

**Plenary Session. Monday, 28<sup>th</sup> August 2017. 9:00am**

The President of IAPWS, Professor Hans-Joachim Kretzschmar, welcomed the Executive Committee (EC) and other IAPWS members to Tokyo for the Executive Committee and Working Group (WG) Meetings of IAPWS. He first asked the Chair of the Japan National Committee, Professor Masaru Nakahara, to welcome the EC to Kyoto. The President then officially opened the 2017 EC Meetings by introducing the National Delegates. All of the Member countries of IAPWS were in attendance as well as Associate Members with the exception of Argentina/Brazil, France, Greece and Switzerland. In total there were 65 people assembled for the EC meeting.

1. Adoption of Agenda

Provisional agendas had been posted on the IAPWS Website for all IAPWS members by the Executive Secretary in May 2017. There were a few additions and the final agenda was then approved by the Heads of all National Delegations, and forms Attachment 1 of these minutes.

2. IAPWS Business and Appointment of Committees

2.1 IAPWS Business Since Last EC Meeting in Dresden, September 2016

The Executive Secretary first indicated that two documents had been circulated to the National Committees during the year since the Dresden meeting for final approval. The Executive Secretary reminded the EC of these documents:

- *Revised Release on the IAPWS Formulation 1995 for the Thermodynamic Properties of Ordinary Water Substance for General and Scientific Use.* Dresden EC Minute 7.2 indicated that the Revised Release could be finalized after the Dresden meeting. The minor changes and the editorial work were completed and the document was circulated for a Postal Ballot on 1<sup>st</sup> October 2016. No objections were received by 30<sup>th</sup> December 2016 so the Revised Release became an official IAPWS document.
- *IAPWS AN6-16. Relationship between Various IAPWS Documents and the International Thermodynamic Equation of Seawater – 2010 (TEOS-10).* The Dresden EC Minute 9.3 noted that IAPWS and ICSU would develop a new Advisory Note 6, on clarifying the IAPWS documents which contribute to TEOS-10. The Executive Committee (EC) authorized a Postal Ballot following review by the Editorial Committee. This review was completed after Dresden and the document was circulated to National Committees for the Postal Ballot on

6<sup>th</sup> October 2016. No objections were received by 6<sup>th</sup> January 2017 so AN6-16 became an official IAPWS document.

- Italy became an Associate Member after a postal ballot on 11<sup>th</sup> November 2016
- China became an Associate Member after a postal ballot on 24<sup>th</sup> March 2017.
- The Czech Republic National Committee nominated Dr. Jan Hruby to be the next IAPWS Vice President.

## 2.2 Press Release.

The President asked Cook to chair the development of the Highlights/Press Release on the IAPWS proceedings during the week. It was also suggested that Nakahara assist in this development. The Clerks of Minutes from each WG were asked to provide input. The Press Release is discussed in Minute 17.1 and is Attachment 10.

## 2.3 Evaluation Committee on International Collaboration.

The President indicated that no proposals had been received by the Executive Secretary prior to the meeting, and that any suggestions from WGs should be given to the Executive Secretary by the end of day. The President then reminded the EC that the Committee to review any proposals received would consist of the WG Chairmen, with the President and Executive Secretary as ex. officio members. A chairman would be chosen by the Committee. (See Minute 15.1 for further discussion on International Collaborations).

## 2.4 IAPWS Awards Committees

### 2.4.1 Helmholtz Award Committee

The President indicated that there was a Helmholtz Awardee this year, Dr. Pavel Gotovtsev, from the Kurchatov Institute in Moscow. Unfortunately, he was not able to attend the meetings in Kyoto.

The Executive Secretary then reminded the EC that the Helmholtz Committee for the 2018 award would consist of a member from SIAPWS, USA, BIAPWS, Canada and Czech Republic. SIAPWS will provide the committee chairman. The President asked SIAPWS delegate, Thomsen, to organize the committee and to report back to the EC on Friday with the names of the members of this committee (see Minute 16.1).

### 2.4.2 Honorary Fellow Award Committee

The President indicated that there had been no nominations for an IAPWS Honorary Fellow in 2017. He then requested that Friend (Chairman) and Nakahara form the Committee for 2018. The President would be ex. Officio.

#### 2.4.3 Gibbs Award

The President indicated that there were two nominations for the IAPWS prestigious award which would be presented at the 17<sup>th</sup> ICPWS in Prague. He reminded the EC that the Gibbs Award is awarded every five years at each ICPWS. The selection committee was formed at the 2016 EC Meetings in Dresden, Germany but because of changes in Working Groups and absences for the 2017 EC Meetings, the President indicated that the committee would consist of Friend (TPWS)(Chair), Okita (IRS), Pawlowicz (SCSW), Nakahara (PCAS) and Rziha (PCC). The results of this committee's review is included in Minute 16.3.

#### 2.5 Promoting IAPWS

The President requested each Working Group to discuss options for promoting IAPWS worldwide, and for the Chairs to report back to the EC with suggestions.

#### 2.6 17th ICPWS. Activities of International Program Committee (IPC)

The President requested the Chair of the Organizing Committee for the 17<sup>th</sup> ICPWS, Hruby, to introduce this topic. Hruby first reminded the EC of the 2<sup>nd</sup> - 7<sup>th</sup> September 2018 dates for the ICPWS to be held at the Marrott Hotel in Prague, Czech Republic. He then briefed the EC on the location, the formation of the local organizing committee and the sponsors. The International Program Committee (IPC) had met during the Dresden IAPWS EC Week and will meet again during the Kyoto EC week. A further report on the 17<sup>th</sup> ICPWS is found in Minute 14.2.

#### 2.7 OPAL Website for IAPWS Documents and Presentations

The President reminded the EC of the Opal Website for storage of IAPWS Working Group files and presentations. This is a password protected site for use by the IAPWS Working Groups.

#### 2.8 Other Business Requiring Extensive Discussions

No other business was raised by the EC.

### 3. EC Mandate to Working Groups and Membership

The President then provided the following mandates to the WG Chairmen for action during the week.

#### 3.1 Releases, Guidelines and Certified Research Needs.

The Executive Secretary indicated that three ICRNs needed attention during the week: #22 on steam chemistry in the phase transition zone (PTZ), #29 on uncertainties in coolant sampling for low concentration metals, and #27 on thermodynamic properties of humid gases and CO<sub>2</sub> - rich mixtures needs a closing statement

### 3.2 Working Group Directions.

The President emphasized that each WG Chairmen should only report to the EC on Friday about those activities that need approval or discussion by the EC.

#### 4. Preview by the Working Group (WG) Chairmen of the Week's Activities

President Kretzschmar requested each WG Chairman to review briefly the main topics which would be covered in their WGs during the week. The details of the WG meetings are covered in detail in Minutes 7 to 11 (Attachments 4 to 8).

Following this item, the President closed the opening session of the EC at 9:50 am.

#### **Activities During the Week in Kyoto**

The first day activities of the WGs and Executive Committee were followed by the separate and joint WG meetings on Monday, Tuesday and Thursday.

The full IAPWS program for the week is shown in Attachment 2.

The IAPWS Symposium was held on Wednesday, 30<sup>th</sup> August 2017 and the Symposium Program is shown in Attachment 3.

#### **Executive Committee Meeting. Friday, 1<sup>st</sup> September 2017**

President Kretzschmar opened the continuation of the EC Meeting at 9:00 am. Each of the Member countries of IAPWS except Germany was in attendance as well as Associate Members with the exception of Argentina/Brazil, France, Greece and Switzerland. In total there were 25 people assembled for the EC meeting. Kretzschmar first asked the EC if there were any additional items that should be added to the Agenda. None were suggested.

#### 5. Acceptance of Minutes of Previous Meeting

President Kretzschmar asked for comments and changes to the minutes of the EC meeting held in Dresden, Germany in 2016. No changes were noted, thus the 2016 Minutes were accepted.

#### 6. President's Report

President Kretzschmar provided a short report. He was most enthused about the new IAPWS Membership of New Zealand and the Associate memberships of China, Italy and Egypt. He encouraged the IRS working group that they should continue advising IAPWS of the industrial requirements. He noted that the Technical Guidance Documents (TGD) of PCC are penetrating into the power plant chemistry and creating worldwide interest. These are putting IAPWS in a leadership position. The President thought the new IAPWS Release on Heavy Water will be very important. IAPWS needs to find new areas of activity and some possibilities are: renewables, solar power, refrigeration, air-conditioning, supply and disposal technology, and geothermal technology. He recognized that members with longterm experience in IAPWS are very important to help find the right future directions and decisions. Finally, he indicated that the working groups and national committees should try to make IAPWS better recognized around the world.

7. Report and Recommendations of the Thermophysical Properties of Water and Steam (TPWS) Working Group

TPWS Chairman Harvey opened this item by indicating that he would report on the activities relating to TPWS although a number of joint meetings with IRS and SCSW had taken place during the week. Full Minutes and the Agenda for TPWS can be found in Attachment 4.

- 7.1 The Working Group (WG) considered a new Release on the IAPWS Formulation 2017 for the Thermodynamic Properties of Heavy Water Substance. The WG voted to approve the draft Release, with the condition that members be given until the end of October 2017 to bring up additional issues. The WG Chair and Chair of the Evaluation TG were authorized to resolve any such issues that are raised. The WG requests the EC to authorize a Postal Ballot to be conducted after this additional period has passed and after the Editorial Committee has approved the draft.

**The EC approved this Request Unanimously.**

- 7.2 Harvey next provided the EC with seven informational items:

- A Task Group of Harvey and Wagner with input from Feistel will work on refinements to the uncertainty statements in IAPWS-95 for the properties of vapors at low pressures, with the intention to have a revision ready in time for the 2018 meeting.
- A Task Group was appointed to assess aspects of the IAPWS-95 formulation where there may be room for improvement. Members are Harvey, Hrubý, Okita, Span and Orlov.
- Kalová replaces Vinš as the Chair of the Task Group working toward revising the IAPWS formulation for the surface tension of pure water.
- A Task Group (Holten, Harvey and Feistel) was appointed to work on a formulation for the vapor pressure of supercooled liquid water, to be added to the IAPWS Guideline on Thermodynamic Properties of Supercooled Water. The goal is for the Revised Guideline to be ready for IAPWS adoption in 2018.
- A joint Task Group between TPWS and PCAS (Yoshida, Harvey and Meier) was appointed to work on an IAPWS Guideline on the Diffusivity of Water and Heavy Water.
- A joint Task Group between TPWS and IRS was formed to prepare a new ICRN on the dew point for acid gases. Members are Okita (chair), Span, and Orlov.
- The Task Group on Interfacial Properties of Supercooled Water is no longer active and was officially dissolved.

7.3 ICRNs.

Harvey reported that ICRN-27 (properties of humid gases and CO<sub>2</sub>-rich mixtures) was closed in 2014. Span and Harvey will prepare closing statement before the 2018 meetings in Prague.

#### 7.4 TPWS Membership.

Chairman Harvey requested EC approval for three new TPWS WG members who had been approved by the WG:

- Kishor Nayar (MIT, USA),
- Vito Fericola (INRIM, Italy),
- Raffaella Romeo (INRIM, Italy).

Harvey also requested EC approval for Meier (Helmut Schmidt University, Hamburg) to be elected as an additional Vice Chair of TPWS.

**The EC approved these Membership Changes Unanimously.**

#### 7.5 Promoting IAPWS.

Chairman Harvey informed the EC that the TPWS/IRS/SCSW combined working group had discussed the following items that could be used to promote IAPWS around the world:

- Inviting top level people of other international organizations to ICPWS (and try to get our people similarly invited to their meetings).
- Translations of TGDs into other languages.
- Online communities, etc.
- Encourage people publishing IAPWS work to mention IAPWS in prominent place (like Abstract or Title).
- Wikipedia pages.
- IAPWS-related software can be a point of contact. Or some sort of table of values for key properties available on web.
- Mention of IAPWS in organization of related conferences.

### 8. Report and Recommendations of the Industrial Requirements and Solutions (IRS) Working Group

IRS Chairman Okita indicated that many of the activities of IRS during the week had been reported in the TPWS report. Minutes for IRS and the Agenda can be found in Attachment 5. In response to Dresden Minute 8.5 which questioned the future of the IRS Working Group with the EC, Chairman Okita indicated that IRS will continue as an active IAPWS Working Group. He then reported on the following informational items for future activities.

#### 8.1 Wet Steam Properties Calculation for Industrial Use.

A new Task Group (Nový, Hrubý, Orlov, Span and Meier) was formed on how to correctly calculate or estimate thermophysical and transport properties of wet steam which are not part of the IAPWS-IF97 standard.

## 8.2 Scientific Formulation

A new Task Group (Hrubý, Harvey, Okita, Orlov and Span) has been set up to revise and upgrade the existing IAPWS-95.

## 8.3 Wet Steam Data from Operating Turbines

A new Task Group (Okita, Nový, Senoo, Weber, Singh, and Hiegemann) has been set up to gather steam turbine measured wet steam data and share it among the members.

## 8.4 IRS Membership.

Chairman Okita requested EC approval for two new IRS WG members who had been approved by the WG:

- Olaf Lemp (GE, Germany),
- Shigeki Senoo (Mitsubishi Hitachi Power Systems, Japan),

Okita indicated that Lemp was replacing Daur, who had retired and should be removed as a member of IRS.

**The EC approved these Membership Changes Unanimously.**

## 9. Report and Recommendations of the Sub-Committee on Seawater (SCSW)

SCSW Chairman Pawlowicz reported on the following items. Minutes for SCSW and the Agenda can be found in Attachment 6.

### 9.1 Information for EC.

The Chairman first provided four informational items:

- The Task Group on extending the range of formulation for thermodynamic properties of seawater was ordered to continue their work, including evaluation of new compressibility data.
- Reports on Joint Committee on the Properties of Seawater (JCS) and IAPWS/BIPM Cooperation. Two of the four Metrologia papers published in 2017 received a “Highlight of 2016” award from the journal.
- Successful trip by IAPWS representative (Feistel) to BIPM-CCT meeting in May 2017. Next step in cooperation focussed on traceably defining relative humidity and moving it into the SI is to invite key BIPM representative(s) to planned seawater property workshops at ICPWS.
- Task group for the Surface Tension of Seawater has been formed (Nayar, Hruby, Harvey) with an Evaluation Task Group (Feistel).

## 9.2 Membership.

Pawlowicz proposed four new members who had been approved by SCSW:

- Yohei Kayukawa (AIST, Japan),
- Kishor Nayar (MIT, USA),
- Aina Wu (NCOSM, China),
- Jeremy Lovell-Smith (IRL, New Zealand) (already a member of TPWS).

**The EC approved these Membership Changes Unanimously.**

## 10. Report and Recommendations of Physical Chemistry of Aqueous Systems Working Group (PCAS)

Chairman Anderko couldn't attend the Kyoto meetings so Nakahara acted as chairman. He provided the PCAS Report to the EC. Full Minutes can be found in Attachment 7. He indicated that the PCAS working group had a number of presentations and joint sessions which are delineated in the PCAS Minutes. He also informed the EC that the PCAS working group expects more applications of computational approaches in the future.

### 10.1 Membership

Acting Chairman Nakahara proposed two membership additions for PCAS:

- James Bellows (James Bellows & Associates, USA) (already a member of other working groups)
- Shigeki Senoo (Mitsubishi Hitachi Power Systems, Ltd., Japan)

**The EC approved these Membership Changes Unanimously.**

## 11. Report and Recommendations of Power Cycle Chemistry Working Group (PCC)

Chairman Rziha who had chaired the PCC all week had to leave Kyoto for business activities on Friday and did not attend the EC meeting. Executive Secretary, Dooley, provided the PCC Report to the EC. Full Minutes can be found in Attachment 8. The following items were covered:

### 11.1 Technical Guidance Documents (TGD).

The PCC working group had discussed extensively the TGD developments. The TGD Task Group (Chair: Dooley) activities can be summarized as follows.

- *Monitoring Corrosion Products in Flexible (cycling and two-shifting) Plants.* The Task Group (Addison and Thomsen (Joint Chairs), Cook, McCann, and Dooley) will finalize a White Paper for the 2018 Meeting. Extensive plant sampling and detailed evaluation is on-going. An IAPWS Map on corrosion product decay will be formulated
- *Ensuring the Integrity and Reliability of Demineralised Makeup Water Supply to the Unit Cycle.* The Task Group (Joy, Chair) plan to develop the final TGD by the 2018 Meeting



- *Application of Film Forming Products (FFP) in Nuclear Plants*. The Task Group (Cook, Chair) will develop a White Paper by the 2018 Meeting.
- *Application of Film Forming Products (FFP) in Industrial Plants*. The Task Group (Dooley, Hater and Lendi (Joint Chairs), Rziha, and Carvalho) plan to develop the final TGD by the 2018 Meeting. The development will involve the same team that developed the TGD on FFP in Fossil and Combined Cycle Plants (TGD8-16) plus a number of new contributors from industrial plants.
- *Air In-Leakage in Steam Water Cycles*. The Task Group (Carvalho (Chair), Dooley, Rziha and Thomsen) plan to develop the final TGD by the 2018 Meeting.
- *Aspects of Geothermal Steam Chemistry*. The Task Group (Addison, Chair, plus representatives from Geothermal Countries) will develop a White Paper for the 2018 Meeting. This will be used to determine if a TGD can be developed.
- *Condensate Polishing*. Discussion took place on developing a new TGD. Because the overall subject was considered enormous, a Task Group (Khalifa (Chair), Addison, Buecher, Thomsen, Leidich and Joy) was formed to explore developing a White Paper for the 2018 meeting with a concentration on application of condensate polishing for combined cycle/HRSG plants. This will not be a design document, but will provide guidance on justifying polishing for these plants.

#### 11.2 IAPWS Certified Research Needs (ICRN).

The PCC Working Group had discussed the ICRNs and the following information was provided to the EC for approval.

- ICRN 22 on *Steam Chemistry in the Phase Transition Zone (PTZ)*. This document has been finalized and will have a new expiry date of September 2019. The document will receive a light review by the Editorial Committee and then be sent for Postal Ballot.
- ICRN 29 on *Uncertainties in Coolant Sampling for Low Concentration Metals* (Fe, Cu, Co, etc). This document has been finalized and will have a new expiry date of September 2021. The document will receive a light review by the Editorial Committee and then be sent for Postal Ballot.

**The EC approved these ICRN Actions Unanimously.**

#### 11.3 PCC Membership.

The PCC Working Group requested that the following new members be approved:

- Adam Caswell (EdF Energy, UK)
- Steve McGee (COG, Canada)
- Tian Li (TPRI, China)

**The EC approved these Membership Additions Unanimously.**

## 12. Editorial Committee Report

Editorial Committee Chairman Harvey reported that in the preceding year, the Editorial Committee had reviewed the documents delineated in Minute 2.1. The Committee had also inserted new document identifiers on all title pages and the IAPWS Logo on some title pages (including TGDs). They had also updated Advisory Note 2 (role of different IAPWS documents for pure water thermodynamic properties).

Harvey then indicated that a large number of documents will need editorial review over the next year and requested early notification.

## 13. Membership and Associates

### 13.1 Member Dues.

The Executive Secretary indicated that all IAPWS Members had paid their 2017 dues.

### 13.2 Reports on Current Associate Members

Status Report on IAPWS Associate Member, Australia. Chairman Joy provided a short presentation. The Australian National Committee (AUSAPWS) has continued to focus on the Power Cycle Chemistry area but is also developing a wider focus in seawater, carbon sequestration and thermodynamics. AUSAPWS currently has over 70 members from the power generation industry, universities, service companies and consultants, including the Australian Power Institute (API). It has good involvement with the API Chemistry Conference and the IAPWS supported Australasian HRSG Users Group (AHUG). Joy indicated that AUSAPWS has developed By-Laws and is finalizing funding arrangements with API, other companies and sponsorships to complete AUSAPWS funding. Joy indicated that AUSAPWS is planning to apply for full IAPWS Membership in 2018 maybe before the Prague meetings.

Status Report on IAPWS Associate Member, China. Delegate Tian Li provided a short report and indicated that the Associate Membership had been approved by the Chemical Standardization Technical Committee of Power Plants within the China Electric Power Enterprise Federation in May 2017. This Chemical Standardization Technical Committee is an academic group composed of nearly 40 experts from various research institutes in China, and mainly carries out the formulation and revision of China's standards in Power plant chemistry, and organizes some academic activities in power plant chemistry. For example, they have just completed review of the criteria: 1) inspection procedures for on-line chemical instrument of power plant, 2) quality criteria of water and steam for power plant and steam-generating equipment, and 3) guideline for the acceptance of biological aerated filter in fossil fuel power plants. Another IAPWS interest in China is the Marine Information Technology Research Institute with two delegates attending the Kyoto meeting, mainly to participate in the discussions of the Subcommittee on Seawater.

Status Report on IAPWS Associate Member, Egypt. Chairman Khalifa provided a short report based on the Country Report in Attachment 14. Khalifa indicated that four seminars had been organized during the last year to introduce IAPWS to the Egyptian industry and to review the IAPWS TGD. They plan to continue the promotions through 2018 and conduct the necessary administrative tasks.

Status Report on IAPWS Associate Member, Italy. Delegate Vito Fernicola provided a short report and indicated that they are trying to revamp the national committee with ENEL, Universities and manufacturers in Italy.

Status Report on IAPWS Associate Member, Switzerland. The Secretary of the Swiss National Committee (SCPWS) provided a country report in Attachment 20. This report indicates that no team of sponsors has yet been assembled to commit on a mid- or long-term basis to supporting a regular Swiss membership fee. The SCPWS has been very active and hosted the First International Conference on Film Forming Amines and Products in April 2017 in Lucerne, Switzerland. The conference was very successful and found wide international acceptance, but the goal of finding new participating institutions was not achieved.

Activities of other Associate Members of IAPWS. The Executive Secretary provided short updates on Argentina/Brazil, France and Greece, and indicated that there was little activity in any of these Associate Members. After some discussion and referral to the IAPWS Statutes and By-Laws, the EC agreed unanimously at this time to keep these Associate Members and to initiate further discussion during the 17<sup>th</sup> ICPWS in Prague in 2018.

#### 14. Executive Secretary's Report

##### 14.1 IAPWS Bank Accounts, Financial, Auditors and IAPWS Dues

The Executive Secretary reported that IAPWS is on a sound financial footing with currently about £58,000GBP in total in the UK and US bank accounts. The status as at 4<sup>th</sup> August 2017 in the bank accounts had been provided to each National Delegate prior to the EC meeting.

The Executive Secretary next reported that the 2016 financial statements had been forwarded to the IAPWS Auditors in January 2017. Professor Savarik in Czech Republic and Dr. Hencke in Germany had reviewed and approved the financial statements. These approvals had also been provided to the Heads of all the National Delegates present prior to the EC meeting.

The Executive Secretary proposed that these organizations continue to act as auditors.

**The EC Approved this Unanimously.**

The Executive Secretary proposed to the EC that the dues structure for member countries remains unchanged for 2018. He also mentioned that IAPWS By-Law #1 provided the basis of the dues structure, and that this would be used to assess the dues for Australia if they apply for membership in 2018.

### **The EC Unanimously Agreed to this Proposal.**

The Executive Secretary had also provided a rough estimate of the income and known planned expenditures for 2017 / 2018.

#### **14.2 Time and Place of the 2018, 2019 and 2020 Meetings**

2018 IAPWS Meetings and the 17<sup>th</sup> ICPWS. The Head of the Czech Republic NC, Hruby, continued his report as a continuation from Monday (Minute 2.6). He indicated that the International Program Committee (IPC) had met during the Kyoto week and had developed a list of suggested symposia topics representative of all the IAPWS working groups. The third IPC meeting will take place in Prague on 22<sup>nd</sup> and 23<sup>rd</sup> March 2018 after abstracts have been received.

2019 IAPWS Meetings. The Executive Secretary informed the EC that Canada had been requested to consider hosting the 2019 IAPWS meetings. Canadian NC Chair, Cook indicated that the meetings will be in Banff, Alberta in mid- to late- September 2019.

#### **15. Guidelines, Releases, Certified Research Needs, and International Collaborations**

The President indicated that the Releases and ICRNs had been discussed within the WG Reports so no further action was required by the EC.

##### **15.1 International Collaborative Project.**

The President requested the Chairman of the 2017 International Collaboration Committee (WG and SC Chairs) to report on the findings of that committee during the week. Chairman Harvey reported that one collaborative project had been proposed. The following is an overview of the proposed project. The details are provided in Attachment 9:

- *Corrosion Product Sampling, Analysis and Assessment.*  
The IAPWS sponsors are Thomsen (SIAPWS), Addison (New Zealand) and McCann (BIAPWS). The young scientist is thought to be a student in the Chemical Department of Aarhus University in Denmark who is currently taking a semester on water chemistry at Stavanger University in Norway. It is proposed that IAPWS funding of £20,000GBP would cover subsistence and travel for visits to power plants in UK, Ireland, and New Zealand. The location may be exchanged dependent on availability of local staff. The student will also spend time at a laboratory in SIAPWS to analyze the data and to ensure quality control.

Harvey indicated that the Evaluation Committee supported the proposal, but had raised concern about whether the time proposed for each visit would be sufficient. and that the technical content was of interest to IAPWS. He indicated that the proposal was directly

in line with amending the current TGD on corrosion product sampling and analysis so that IAPWS could take a leadership position for flexible plants. The Chairman then proposed to the EC that the project is approved for up to £20,000GBP, and if further funds are required to complete the work then the PCC Chairman should come back to the EC. The President indicated that the IAPWS finances were in good condition and conducted a vote by the EC.

**The EC Approved the Motion to Fund this Collaborative Project Unanimously.**

16. IAPWS Awards

16.1 IAPWS Helmholtz Award

The President asked the SIAPWS Delegate, Thomsen, for the names of the 2018 Helmholtz Award Committee. The 2018 Helmholtz Committee will consist of: Chairman Jensen (SIAPWS), Friend (USA), Cooper (BIAPWS), Cook (Canada) and Vins (Czech Republic).

**Action: Nominations will be due to the Executive Secretary by 31<sup>st</sup> January 2018.**

16.2 IAPWS Honorary Fellowships

The President reminded the EC of the Awards Committee for 2018 with Friend (USA) as Chairman and Nakahara (Japan) as member with the IAPWS President as ex.-officio member.

**Action: Nominations are due to the Executive Secretary by 31<sup>st</sup> January 2018.**

16.3 IAPWS Gibbs Award

The President requested the Chair of the Selection Committee to provide an update to the EC. Chairman Friend told the EC that the committee had met twice during the Kyoto week and that deliberations were still on-going. He expects that a decision will be made by mid-October 2017 to select one of the nominations or request a further solicitation.

17. New Business

17.1 Press Release

The President mentioned that Cook had been asked at the EC meeting on Monday to develop a Press Release. This was developed with input provided by each WG and SC. Cook indicated that a document had been prepared. The final version is Attachment 10. The President indicated that this release will be sent to all NCs and WGs of IAPWS and it should be distributed as widely as possible and sent to any journals and publications.

## 17.2 Japan National Committee Feedback on the Kyoto Meetings.

The Conference Chair, Nakahara, thought the IAPWS meetings had been a great success with 80 full time participants. He was very happy with the feedback and thanked everybody for attending. The EC applauded in thanking the Japan NC team for the great organization of the meetings, symposium and IAPWS Dinner.

## 17.3 Other New Business

President Kretzschmar asked the EC if there was any further business.

No other business was raised.

## 17.4 Reports from National Committees.

Written reports on progress in member countries were not reported to the EC but were either distributed to other members and the Executive Secretary during the IAPWS week, or sent to the Executive Secretary after the meetings. They are attached to these minutes as follows:

BIAPWS	Attachment 11
Canada	Attachment 12
Czech Republic	Attachment 13
Egypt	Attachment 14
Germany	Attachment 15
Japan	Attachment 16
New Zealand	Attachment 17
Russia	Attachment 18
SIAPWS	Attachment 19
Switzerland	Attachment 20
USA	Attachment 21

## 17.5 Participants

Attachment 22 provides a list of participants at the IAPWS EC and WG Meetings in Kyoto, Japan in August/September 2017.

## 17.6 List of Members

An up-dated list of members of the Executive Committee, Working Groups, and Honorary Fellows will be developed by the Executive Secretary following the Kyoto Meetings. This will be forwarded electronically to the Head of each National Committee and the Working Group Chairs.

## 18. Closing Remarks and Adjournment

The President thanked everybody for participating at this EC meeting. Then he formally closed the 2017 EC meeting at 12:08 pm.