

PCAS WG Minutes
Kyoto, Japan, 27 August - 1 September, 2017

Present:

Masaru Nakahara (Chair, on behalf of Andre Anderko)	nakahara@scl.kyoto-u.ac.jp
James C. Bellows	jcbellows2@aol.com
Milan Sedlar	m.sedlar@sigma.cz
Masakatsu Ueno	mueno@kvd.biglobe.ne.jp
Shigeki Senoo	shigeki1_senoo@mhps.com
Ken Yoshida	yoshida.ken@tokushima-u.ac.jp

Masaru Nakahara opened the meeting on behalf of the chair Andre Anderko, who was not able to attend the Meeting in Kyoto. The agenda was approved without any additions. Ken Yoshida was appointed as the clerk of minutes.

Minutes of the 2016 meeting were approved.

The possibility of issuing international collaboration was discussed and no proposals were made.

The possibility of issuing ICRNs was discussed and no proposals were made.

PCAS Workshop (Monday)

The following presentations were made in the PCAS workshop:

Dr. K. Yoshida gave a brief summary of his talk in IAPWS Symposium on Wednesday about the formulation of the self-diffusion coefficient and the analysis of the temperature and density effects in combination with MD simulation. It was indicated that a guideline in preparation on this topic is to be proposed in TPWS/PCAS Joint session on Thursday and EC on Friday, and the attendees adopted this proposal unanimously.

Dr. M. Sedlar summarized and discussed the topics related his talk in PCC/PCAS/IRS Joint WG Meeting on Tuesday in the afternoon, titled “Cavitation phenomena in balancing drums of high-performance feed pumps”.

Dr. S. Senoo summarized and discussed the topics related his talk in IAPWS Symposium on Wednesday, titled “Nonequilibrium Condensation Model and Numerical Analysis for Wet Steam Turbines”.

PCAS Workshop (Tuesday morning)

The following presentation was made in the PCAS workshop:

Prof. N. Matubayasi gave a talk about the free energy calculation of water in various polymers and its application to the rational design of polymers to improve the energy efficiency of separation processes. He showed his strategies to treat the polymers as the “solvent” for water for the analysis of adsorption and permeation of water in polymers, and shed light on the discussion about the segment size of the polymer chains that can be treated as a unit size of a “solvent molecule”.

PCC/PCAS Joint Workshop (Tuesday afternoon)

The following presentations were made:

Cavitation phenomena in balancing drums of high-performance feed pumps (M. Sedlar)

Presentation has shown the possibilities to predict numerically cavitation phenomena inside the balancing drum of a feed pump. Calculations include full bubble dynamics and real properties of water (nuclei number density distribution). Also a new grand project has been introduced, aiming to capture the influence of acoustic phenomena inside the drum.

Features and problems of the geothermal steam turbine cycle (N. Yamaguchi)

Novel technology for silica scaling control in geothermal power plant (Y. Kawahara)

PCAS Workshop (Tuesday afternoon)

The draft of the paragraph for the Press Release was composed and accepted.

The proposal of international collaboration of SIAPWS was considered. It is decided that PCAS WG is going to suggest the improvement of the proposal; especially it was suggested that the goals of the project need to be more clearly specified. The PCAS WG’s position in the Evaluation Committee is entrusted to Prof. Nakahara.

TPWS/PCAS Joint Workshop (Thursday)

The following presentations were made:

Non-equilibrium condensation model and numerical analysis for wet steam turbines (S. Senoo)

Progress toward improved ideal-gas properties of ordinary and heavy water (J. Hrubý)

First-principles calculation of second and third virial coefficients for H₂O and D₂O (A. Harvey)

Possible guideline on the self-diffusion coefficient of light and heavy water over wide ranges (K. Yoshida)

K. Yoshida proposed to move forward the evaluation processes of the guideline of the self-diffusion coefficient. The proposal was approved.

Membership

It was decided that Dr. James C. Bellows (James Bellows and Associates, USA) and Dr. Shigeki Senoo (Mitsubishi Hitachi Power Systems, Ltd., Japan) will be recommended to EC Friday Meeting as the new PCAS WG members.

Miscellaneous

Masaru Nakahara attended as the PCAS representative for the Gibbs Award Committee on behalf of Andre Anderko.