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## **Bung, Daniel B.; Tullis, Blake P.; Ercicum Sébastien; Crookston, Brian M. 7th international symposium on hydraulic structures - a retrospect**

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# 7<sup>TH</sup> INTERNATIONAL SYMPOSIUM ON HYDRAULIC STRUCTURES: A RETROSPECT

MAY 14-18 2018, AACHEN, GERMANY

BY DANIEL B. BUNG, BLAKE P. TULLIS, SÉBASTIEN ERPICUM & BRIAN M. CROOKSTON

The seventh International Symposium on Hydraulic Structures (ISHS2018) was held in Aachen, Germany May 14 to 18, 2018. The event aimed to provide a platform for researchers and practitioners from all over the world to discuss recent advances in hydraulic structures design, field applications and future research needs. A total of 108 delegates attended the symposium representing 27 countries and 5 continents.

## Short course on basic principles of open channel hydraulics

The five-days event began with a short course on the basic principles of open channel hydraulics, being offered by Prof. Hubert Chanson at the University of Applied Sciences in Aachen. The full-day short course was offered free-of-charge and attracted more than 28 attendees from 8 different countries and 4 continents.

## Workshop on non-linear weir design

A specialized workshop on the hydraulics and design of nonlinear weirs took place on the second day. The aim of this workshop was the transfer of knowledge from theory to practice. The workshop was organized by two speakers from research (Prof. Blake Tullis from Utah State University, United States; Dr. Sébastien Erpicum from Liege University, Belgium) and two

additional speakers from practice (Dr. Brian Crookston, Schnabel Engineering, United States; Frédéric Laugier from EDF, France) and included summaries on piano key weirs and labyrinth weirs. 20 individuals (full room capacity) attended the specialty workshop.

## Symposium

The symposium itself took place May 16-17 in the SuperC building, located in the city center of Aachen. It was run in two parallel tracks with a total of 14 technical sessions. 74 papers were presented in oral presentations of 20 minutes length and 3 additional papers were presented in a poster session. The themes of the single sessions were:

- Dam Safety and Management
- Weirs and Spillways
- Nonlinear Weirs
- Energy Dissipators

- Fish Passages (two sessions)
- Case Studies
- Sedimentation and Erosion
- Intake Structures
- Waterway Structures
- Physical Modelling
- Hybrid Modelling
- Numerical Modelling
- Coastal Structures and Waves

In addition to these technical sessions, three invited keynote lectures were given. To follow the aim of ISHS to close the gap between research and practice, keynote speakers were invited from all fields. The speakers were:

- Paul Schweiger (Gannet Fleming Engineering): Lesson-to-be-Learned from the Oroville Dam Spillway Incident.
- Prof. Dr. Robert Boes (ETH Zürich): Multi-phase flow at hydraulic structures: water-sediment, air-water, and water-structure-fish interaction.
- Prof. Dr. Andreas Schmidt (Federal Waterways Engineering and Research Institute): Modelling in Waterways Engineering – Expectations and Challenges.



Attendees of the short course offered by Prof. Hubert Chanson



Workshop session with Dr. Erpicum presenting

### Philip H. Burgi Best Paper Award

ISHS 2018 was the inaugural year of the Philip H. Burgi Best Paper Award, named after the first chair of the Hydraulic Structures Technical Committee and awarded to the best paper of the Symposium. Members of the International Scientific Committee created a short list of 5 best-paper candidates and the best paper was determined by symposium attendee voting. The ISHS2018 Philip H. Burgi Best Paper award was given to Dr. Svenja Kemper from University of Wuppertal, Germany. Schnabel Engineering (USA) donated an iPad to accompany the award. Announcement of the Best Paper award winner was part of the closing dinner program.

### Field trip

The final day of the symposium included a technical tour of Eupen Dam and Water Treatment Plant (Belgium) and the Coo Pump-Storage Plant (Belgium). Approximately 60 individuals attended the tour. Eupen dam and water treatment plant, which includes nanofiltration, have been an important source of clean drinking water in the region since 1951. The

Coo pump-storage plant was built between 1971 and 1979 to support the Tihange nuclear power plant located next to river Meuse. It has a generation capacity of 1,164 MW with 6 pump-turbine groups located in an underground cavern. Two upper reservoirs provide a combined storage capacity of 8.5 million m<sup>3</sup> and are located 279 m above the lower reservoir. The plant is operated by ENGIE company and is a key component of the overall power production system in which intermittent renewable energy sources play a growing part.

### Proceedings

All papers are published in the Proceedings and have been thoroughly peer-reviewed for technical quality and presented at ISHS2018. The Proceedings were published by Utah State University and are available open access at <http://digitalcommons.usu.edu/ishs/2018/>. Each manuscript includes the ISBN of the

Proceedings as well individual direct object identifiers (DOI). Each manuscript is indexed by Scopus and Compendex and available to users through the USU digital commons portal pursuant to a Creative Commons Attribution-NonCommercial CC BY 4.0 license.

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