

# XIIIth Polish Hydropower Conference **HYDROFORUM 2024**

Premier Kraków Hotel / Świnna Poręba HPP, 16-18 October 2024



## BULLETIN NO 2

### Practical information for delegates

#### Organisers

**Towarzystwo Elektrowni Wodnych**



iha affiliate  
member



**Szewalski**  
**Institute of Fluid-Flow Machinery**  
**of Polish Hydropower Association**



**Polish Association**  
**of Small Hydropower Development**



**Cracow University of Technology**  
**Faculty of Electrical**  
**and Computer Engineering**

#### Collaboration and patronage



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**Gospodarstwo Wodne**  
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**WODOCIĄGI**  
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**Energia Odnawialna S.A.**

#### *Ladies and Gentlemen, dear colleagues!*

There is not much time left until the start of our this year conference. We are pleased to announce that the number of registered participants of HYDROFORUM 2024 has already exceeded 130. This number is the highest one since 1985, which is already a success in itself. Among the delegates there are 16 people from abroad –the Czech Republic, Lithuania, Germany, Portugal, Romania, Ukraine as well as South Africa and China. This year conference promises to be extremely busy. In addition to 31 paper presentations, we have two one-and-a-half-hour debates, which will be led by the honorary president of the Polish Hydropower Association, Mr. Stanisław Lewandowski, and two-hour workshops, which will be moderated by representatives of Andritz Hydro GmbH.

As we have already informed, the conference will be held in the four-star Premier Kraków hotel located in the Biały Prądnik district, in the immediate vicinity of the northern ring road of the city (14a Opolska Street, 31-323 Kraków), which makes it very easy to get there by car. Access to and from the railway station by public transport takes less than half an hour. You can use bus line 130 from in front of the Politechnika stop (direction Azory, Różyckiego stop) or the local train to the Kraków Łobzów stop, and from there on foot (1.4 km) or bus 130 (2 stops). Balice Airport is 13 km away. For those traveling by plane, it may be a good option use the local train to/from the Kraków Łobzów stop. The cost of getting there by taxi is usually less than PLN 100. Conference participants (mainly English-speaking) are offered an afternoon walk around Krakow on October 15. Meeting at 2:30 p.m. in the hotel lobby. If you are interested, please contact the Organising Committee by 10 am at latest.

The conference will begin with an inaugural session with addresses delivered by representatives of the four co-organisers. As in the previous year, we are planning 9 substantive sessions. We have allocated the average time of 20 minutes for each speech, which includes also the time allocated to the chairman of the session and a short discussion. Therefore there will be no more than 12 to 15 minutes left for the speaker. We kindly ask you to maintain time discipline, as we do not want to exceed the for providing the organizers with the presentation files as far in advance as possible - by e-mail (address: [steller@imp.gda.pl](mailto:steller@imp.gda.pl)) or on a data carrier, during breaks. Due to simultaneous interpretation provided, please speak clearly into the microphone and avoid rushing.

The off-site session on 18 October will proceed following the time schedule delivered at the end of this communication. Those interested in participating in the study trip are asked to sign one of the two lists available at the conference desk on the first day of the meeting. The first list applies only to domestic participants traveling in private cars and interested in a trip without visiting the sanctuary in Kalwaria Zebrzydowska. The second list applies to other participants, including all English-speaking delegates and those intending to travel by the rented bus. For the convenience of people traveling in their own cars, the itinerary of the trip session includes GPS coordinates of the consecutive destinations. We would like to draw your attention to keep to the regulations for visits to hydraulic civil engineering facilities of PGW Wody Polskie. We would also like to inform you that Polish Hydropower Association has taken responsibility for the consequences of any unfortunate events



## 9:00 Welcome addresses and opening of the Conference

### Opening Session

Session is chaired by: **Janusz Steller** (IMP PAN/TEW), Chairman of the Conference Organising Committee

- 9:00 **J. Steller** (IMP PAN/TEW): Welcome address from the Polish Hydropower Association and the Conference Organising Committee
- 9:10 **M. Sułowicz** (WIEiK PK/TEW): Welcome address from the Faculty of Electrical and Computer Engineering of the Cracow University of Technology
- 9:15 **E. Malicka** (TRMEW):  
Welcome address from the Polish Association for Small Hydropower Development
- 9:20 **M.Lackowski** (IMP PAN): Welcome address from IMP PAN and opening of the Conference

## 10:20 Coffee break

### Session I: Water management and small hydro – innovations and legal-economic constraints

Session is chaired by: **L.Opyrchal** (Military Academy of technology, Warsaw)

- 10:00 **W. Kozak** (RZGW Kraków): *Świnna Poręba Water Reservoir. Flood protection and hydropower use of water resources* (PL)
- 10:20 **Z. Kowalski** (IGSME PAN), **B. Tkocz** (Tauron Serwis SA): *The technology to produce the natural aggregate substitutes out of the Roznow Lake sewage deposits* (PL)
- 10:40 **E. Malicka** (TRMEW):  
*Economic and legal constraints for small hydropower development in Poland* (PL)
- 11:00 **D.Wygoda**, **P. Kisielewski** (Kisielewski Sp. z O.O.):  
*A highly efficient modular hydrogenerator for small hydropower installations* (PL)
- 11:20 **T. Żaba** (Cracow City Waternetworks): *Hydraulic energy recovery installations in the infrastructure of the Cracow City Waternetworks* (PL)
- 11:40 **M.Lackowski** (IMP PAN): *Heat storage as one of energy storage technologies*

## 12:10 Coffee break

### Session II: HYDROFORUM Debate "The duties of subjects using civil engineering infrastructure of multipurpose water barrages "

Session is chaired by: **Stanisław Lewandowski** (EasyServ / TEW).

- 12:30 **Opening of the debate** (S.Lewandowski)

## 14:00 Lunch break

### Session III: Power grid elasticity and hybridization of hydropower plants

Session is chaired by: **Prof. Dariusz Borkowski**

Faculty of Electrical and Computer Engineering of the Cracow University of Technology

- 15:00 **R. Koropis** (Renpro/TRMEW): *Ancillary and elasticity services - new opportunities for hydropower collaboration with the National Power Grid* (PL)
- 15:20 **J. Skrzypacz**, **A. Machalski**, **P. Szulc**, **D. Błoński**, **M. Nemš**, **A. Nycz** (WME PWr):  
*D-Hydroflex. Digital solutions for improving the sustainability performance and FLEXibility potential of HYDROpower assets. System functionality and architecture* (PL)
- 15:40 **J. Jurasz**, **B. Bochenek** (PWr), **E. Kasiulis** (VDU):  
*Hybrid hydro-solar systems: a straightforward solution in challenging times*
- 16:00 **A. Kamonciak** (Energa Wytwarzanie): *A PV installation as used to support the internal needs of an SHP installation at an example of the Radunia River Cascade* (PL)
- 16:20 **E. Kasiulis** (VDU), **J. Jurasz** (PWr):  
*Small hydropower and solar PV hybridization assessment: a case study from Lithuania*
- 16:40 **Y. Cui**, **J. Jurasz** (PWr): *Hydropower-dominated multi-energy complementary system in the low carbon era: a case study of Longyangxia, China*

## 17:00 Coffee break

**Session IV: HYDROFORUM Debate " Technical opportunities for hydropower contribution to the energy transformation by rising the regulatory potential of hydropower installations"**

Session is chaired by: **Stanisław Lewandowski** (EasyServ / TEW).

**17:30 Opening of the debate** (S.Lewandowski))

**19:00 Closing of the first day of Conference**

**20:00 Conference Dinner (Premium Cracow Hotel, Cracow)**

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**8:00 Opening of the debate and Organising Committee's communications**

**Session V: Workshop "Pumped Storage Technology - The Renewable Battery"**

**08:05 B.Benz, M.Schmid** (Andritz Hydro GmbH)

**10:05 Coffee break**

**Sesja VI: Pumped storage hydropower projects**

Session is chaired by: **Janusz Łobacz** (Żarnowiec PSPP.)

**10:30 M. Kubecki** (IOZE): *Energy storage including pumped storage technology - market review, domestic and foreign trends* (PL)

**10:50 A. Chyc** (Energoprojekt Warsaw), **W.Poręba** (HzBud): *Rehabilitation of the Porąbka-Żar PSPP upper reservoir - project implementation from the viewpoint of the project manager* (PL)

**11:10 A. Voychenko, M. Levytskyi** (Ukrhydroproject): *The updated design of the Kaniv PSP construction as a response to current challenges and changes in the United Energy System of Ukraine*

**12:00 Coffee break**

**Session VII: Life NEXUS: hydraulic energy recovery and fittings**

Session is chaired by: **Prof. Petras Punys** (Vytatutas Magnus University, Kaunas)

**12:00 A. Kuriqi, H. M. Ramos, P.S.M Guruprasad** (CERIS, University of Lisboa): *Integrated strategies to improve the sustainability of urban water infrastructures through energy recovery*

**12:20 M.Piekoś** (MPEC Cracow): *The use of micro turbines for the heating network automation*

**12:40 A. Chlapek** (T.I.S. Poland): *T.I.S. hydraulic fittings for the needs of hydropower and energy recovery from the waternet network infrastructure. Reliability, safety, individual solutions* (PL)

**13:00 S. Wróblewski** (TB Hydro): *Numerical computations as applied in design process of valves to be used in hydropower installation* (PL)s

**13:20 Lunch break**

**Session VIII: Research & development works I**

Session is chaired by: **Dr. Przemysław Szulc** (Wrocław University of Science and Technology)

**14:20 A.Neagoe, G.-E.Dumitran, L.-I.Vuță, E.-I.Tică, B.Popa** (Politehnica, Bukareszt), **M.-V. Birsan** (IG AR): *Computer based and physical model for flow forecasting for hydropower*

**14:40 P. Punys, .L Jurevičius** (Vytatutas Magnus University, Kaunas): *Software for assessment of small hydropower project feasibility: a review*

**15:00 M. Kaniecki, M. Lewandowski** (TG DNALOP), **Z. Krzemianowski** (IMP PAN): *The mechanisms of non-stationary phenomena development in the Francis turbine flow system and the methods of their mitigation* (PL)

**15:20 Z. Krzemianowski, J. Steller** (IMP PAN), **M. Kaniecki** (TG DNALOP): *Model tests of a low head and high specific speed Francis turbine* (PL)

**15:40 A. Olszewski, K. Rafał** (IOT), **A. Góralczyk** (IMP PAN), **P. Szulc** (PWrr), **W.Lorenz** (Hydrovacuum): *Hydrokinetic water turbine. From a concept to the prototype* (PL)

**16:00 K. Kusukana** (CUT, PWrr) , **J. Jurasz** (PWrr): *Harnessing Untapped Potential: A Review of Hydrokinetic Systems in Hydropower Tailraces*

16:20 Coffee break

**Session IX: Good practices and research & development works II**Session is chaired by: **Dr Maciej Kaniecki** (IMP PAN)

- 16:50 **L. Kalina** (IOZE): *Increasing technical potential of hydropower installations - selected examples* (PL)
- 17:10 **D.Liszka**, D.Borkowski, S. Grądział (WEiK PK): *An innovative technique of the hydraulic turbine runner vane angle adjustment during turbine operation - especially in low head hydropower installations* (PL)
- 17:30 **G.Wiszniewski** (WTW): *High efficiency Kaplan turbines - R&D works conducted by WTW Poland Sp. z O.O.* (PL)
- 17:50 **R. Masek** (Belse): *Belzona composites in hydropower installations* (PL)
- 18:20 **K. Górlicka**, J. Przydatek (PFTechnology): *The use of self-cleaning filters in hydropower sector* (PL)
- 18:40 **M. Lis**, E.Bogacka (Energetyka Wodna): *Study tours in the process of developing expert knowledge for the hydropower sector* (PL)

19:00 Closing of the Conference

20:00 Joint Dinner

18 October 2024

**The study visit to Cracow Waternetworks and Świnna Poręba HPP and Dam**

8:15	Departure to Plaszów Sewage Treatment Plant		
09:00	The visit to Plaszów Waste Water Treatment Plant (GPS 50°01'52.1"N 20°01'03.8"E)		
10:30	Transfer to KP-3 Pressure Reduction Chamber (GPS 49°57'55.2"N 20°02'25.6"E)		
11:00	The visit to KP-3 Pressure Reduction Chamber		
11:30	Transfer to Kalwaria Zebrzydowska Sanctuary		
	<b>Group I (only private cars)</b>		<b>Group II (bus + private cars)</b>
12:30	The visit to Świnna Poręba HPP and Dam	12:00	Sight seeing of the Sanctuary
14:30	The end of the visit to Świnna Poręba HPP	13:00	Lunch in the Pilgrim's House
15:00	Lunch in the Pilgrim's House	13:45	Departure to Świnna Poręba HPP
15:45	<b>The end of the study visit</b>	14:15	The visit to Świnna Poręba HPP and Dam
		16:15	<b>The end of the study visit</b>
		17:30	Arrival to Premier Cracow Hotel (bus)
		17:45	Arrival to Cracow Railway Station (bus)

**Abbreviations**

CUT - Central University of Technology  
Free State, South Africa

IG AR - Institute of Geography, Romanian Academy

IGSME PAN - Mineral and Energy Economy Research Institute  
Pol.Ac.Sci., Cracow

IMP PAN - Institute of Fluid-Flow Machinery, Pol.Ac.Sci.

IOT - Institute of Technology Optimisation, Warsaw

IOZE - Institute of Renewable Energy Sources, Kielce

MPEC - Municipal Heat Power Enterprise

PK - Cracow University of Technology

PWr - Wrocław University of Science and Technology

RZGW - Regional Water Management Authority

TEW - Polish Hydropower Association

TRMEW - Polish Association for Small Hydropower Development

VDU - Vytautas Magnus University, Kaunas

WAT - Military Academy of Technology, Warsaw

WEiK - Faculty of Electrical and Computer Engineering

WME - Faculty of Mechanical and Power Engineering

<sup>1</sup> The visit will start in front of the PGW Wody Polskie administrative building in Świnna Poręba (GPS 49°50'13.6"N 19°31'48.6"E)

<sup>2</sup> The participant will meet at the parking in front of the Pilgrim's House in Kalwaria Zebrzydowska (GPS 49°51'35.1"N 19°40'15.9"E)

**Publishing collaboration and media patronage**