

INTERNATIONAL
**ENERGY AND
ENVIRONMENT**
CONFERENCE



**SEPTEMBER
7-9, 2026**
HOTEL SEPETNÁ
OSTRAVICE



P R O G R A M M E

Welcome to the 29th **International Energy and Environment Conference**, held in Sepetná Resort, Ostravice, Czech Republic

“Our mission is to bring together researchers and industrial enthusiasts under a single roof and provide them with a pleasant environment, designed to inspire innovation, foster impactful solutions, and facilitate collaboration in the crucially important field of the energy and environment nexus.”



Monday 7th September

9:00	Bus transportation from VSB-TUO (EKF) to Sepetná resort
10:00 - 15:00	Organised trip (Lysá hora)
15:00 - 17:30	Registration / Accommodation
17:30	Transport from Sepetná resort to the local brewery – Excursion included
18:30	Transport from Sepetná resort to the local brewery – Welcome party
18:45 - 22:00	Welcome party in the local brewery with entertaining show
21:30 and 22:00	Transport back to Sepetná Resort

Tuesday 8th September

7:30 – 8:30	Registration
8:30	Opening ceremony (Room 1)

	Industrial session (Room 1)	Research session (Room 2)
	Plenary lectures <i>Chair: Z. Szeliga, Co-chair: K. Borovec</i>	Plenary lectures <i>Chair: J. Čespiva, Co-chair: J. Ryšavý</i>
9:00 - 9:30	Marek Krempaský <i>ČEZ a.s.</i> Hydrogen in the Energy Transition of the ČEZ Group: From Technological Readiness to Practical Application	Wei-Hsin Chen <i>National Cheng Kung University</i> Advances in Low-Temperature Biochar Production for Circularity and Sustainability
9:30 - 10:00	Łukasz Lelek <i>MEITILL Solutions Sp. z o.o.</i> Status of Projects and Hydrogen Economy in Poland	Katarzyna Chojnacka <i>Wrocław University of Science and Technology</i> Digital Fertiliser Product Passport: From Regional Waste Streams to EU-Compliant Fertilisers in the V4
10:00 - 10:30	Radomír Štěřba <i>Czech Environmental Inspectorate</i> From Beginning to the End. The Fate of a Power Plant	Adolfo Iulianeli <i>National Research Council of Italy</i> Membrane Technologies in Hydrogen Energy
10:30 - 11:00	Coffee and tea	

	Industrial session (Room 1)	Research session (Room 2)	Research session (Room 3)
	Novel approaches in industry and business	Storage materials	Thermochemical conversion
	<i>Chair: K. Borovec, Co-chair: T. Výtisk</i>	<i>Chair: J. Ryšavý, Co-chair: T. Wejrzanowski</i>	<i>Chair: L. Niedźwiecki, Co-chair: J. Čespiva</i>
11:00 - 11:15	Ján Vereš VSB-TUO, CEET, Energy Research Centre Integrated Hydrogen Technologies and Research Infrastructure for Decarbonisation of Energy Systems	Tomasz Wejrzanowski Warsaw University of Technology New materials for electrochemical and chemical energy conversion and storage	Allen Nkemakolam VSB-TUO, CEET, Energy Research Centre Valorization of Heterogeneous Waste into Carbon-Rich Solid Residue
11:15 - 11:30	Grzegorz Kocot SUMITOMO SHI FW ENERGIA POLSKA Sp. z o.o. LAES (Liquid Air Energy Storage) - A pilot project in Hiroshima	Jin-Yoo Suh Korea Institute of Science and Technology LaNi5 Metal Hydride as a Catalyst for Toluene Hydrogenation	Phi Truong Dinh University of Miskolc Prospects for Reclaiming Valuable Metals from Biomass-Derived Ashes
11:30 - 11:45	Mariola Kobyłańska-Pawlisz "Energopomiar" Sp. z o.o. From Coal to Low-Carbon and Alternative Fuels: Practical Energy Unit Conversion Paths	Julia Kosińska Warsaw University of Technology Characterization of Ti-containing HEA as Emerging Materials for Solid-State Hydrogen Storage	Szymon Szufa Lodz University of Technology Biomass torrefaction – a new direction of using torrefied materials and it's properties
11:45 - 12:00	Stanislav Cingroš APPSEN s.r.o. Beyond Energy Storage: How Grid-Forming BESS Can Support Europe's Power System Stability	Jinwoo Kim Korea Institute of Science and Technology Optimizing Reversible Hydrogen Storage Capacity and Activation Characteristics in TiFe-based Alloys By Oxygen Addition	Hilal Unyay Lodz University of Technology Torrefied Biomass and Anaerobic Digestion Synergy

12:00 - 12:15	Alexandra Šagátová <i>Specion s.r.o</i> Characterization of the Thermal Conductivity of Materials in Energy and Thermal Management Applications	Jae-Hyeok Shim <i>Korea Institute of Science and Technology</i> Enhanced initial hydrogenation of TiFe-based hydrogen storage alloys	Veronika Sýkorová <i>VSB-TUO, CEET, ENET Centre</i> Biomass processing technology with the addition of binders for energy use
12:15 - 12:30	Jiří Horák <i>ALMEVA EAST EUROPE a.s.</i> Utilization of waste heat (HRS) = increased efficiency, reduced fuel consumption and entitlement to free CO2 emission allowances	Karol SaksI <i>Technical University of Košice</i> Tailoring Medium-Entropy Alloys for Advanced Hydrogen Storage	Łukasz Niedźwiecki <i>Ghent University</i> Potential of plasma-based processes as a demand side response for flexible electrified industry
12:30 - 13:30	Lunch with group photo		

Industrial session (Room 1)	Research session (Room 2)	Research session (Room 3)
AI, machine learning, LCA <i>Chair: P. Pavlík, Co-chair: K. Szramowiat-Sala</i>	Hydrogen production/utilisation <i>Chair: J.-Y.Suh, Co-chair: M. Jadlovec</i>	Sustainable carbon management <i>Chair: K. Chojnacka, Co-chair: D. Kupka</i>

13:30 - 13:45	Katarzyna Szramowiat-Sala <i>AGH University of Krakow</i> Beyond Measurements: Interpreting Hidden Environmental Patterns with Machine Learning	Wei-Cheng Wang <i>National Cheng Kung University</i> Plasma-assisted Gasification for Turning the Solid Residue into Hydrogen Energy	Luís Mesquita <i>Polytechnic Institute of Bragança</i> Multi-criteria development of lightweight hemp-shive composite panels incorporating gasified wood pellets for sustainable construction products
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13:45 - 14:00	Pawel Regucki <i>Wrocław University of Science and Technology</i> Advanced mathematical model for heat exchange in CFB boiler ash cooler	Jenn-Kun Kuo <i>National Sun Yat-sen University</i> Analysis of a novel three-stage cold-start strategy and heat transfer mechanism of Metal-Supported Solid Oxide Electrolysis Cell system	Agata Mlonka-Mędrala <i>AGH University of Krakow</i> Heavy Metal Adsorption by CO ₂ - and CO ₂ -Steam-Activated Food Industry Waste Biochars
14:00 - 14:15	Chung-Neng Huang <i>National University of Tainan</i> Real-Time Optimization of Dual-Fuel ICE Performance Using Fuzzy Logic and Grey Wolf Optimization	Yean-Der Kuan <i>National Chin-Yi University of Technology</i> Design, Fabrication, and Performance Evaluation of a Portable Planar Proton Exchange Membrane Fuel Cell Employing Titanium Fiber Felt Current Collectors	Łukasz Niedźwiecki <i>Ghent University</i> Upcycling of bioplastic waste from eyewear industry for high value solid products
14:15 - 14:30	Cheng-Chi Wang <i>National Sun Yat-sen University</i> Smart Green Machining Technology and Stability Analysis for Carbon Fiber Reinforced Polymer	Ewelina Mackiewicz <i>Warsaw University of Technology</i> Manufacturing Strategies for Functional Layers in Carbonate-Oxide Fuel Cells	Magdalena Caklová <i>Institute of Chemical Process Fundamentals of the CAS</i> Use of algae-derived biochar for soil amendment
14:30 - 14:45	David Kupka <i>VSB-TUO, CEET, Energy Research Centre</i> LCA of solid recovered fuels production: environmental trade-offs of pelletisation and biomass addition	Fatemeh Razmjooei <i>German Aerospace Center (DLR)</i> Advances in Alkaline Water Electrolyzer Technology: Enhancing Efficiency and Dynamic Performance	Dawid Skrzypczak <i>Wrocław University of Science and Technology</i> Bio-based fertilisers: from compositional characterisation to plant response
14:45 - 15:00	Jacek Roman <i>Poznan University of Technology</i> Modelling a biomass gasification installation for use in hybrid renewable energy sources	Zsolt Dobo <i>University of Miskolc</i> Transition from natural gas to hydrogen in the fired clay brick industry	Rafał Taf <i>Wrocław University of Science and Technology</i> Powering circularity in the V4 region: waste streams for energy and fertilizers
15:00 - 15:30	Coffee and tea		

Industrial session (Room 1)	Poster session (Room 4)
BIOWASTELINK V4 grant open workshop <i>Chair: K. Chojnacka, Co-chair: J. Čespiva</i>	Poster presentation with authors

15:30 - 16:30	BIOWASTELINK open workshop	Poster presentation with authors
16:30 - 18:00	Free time	
18:00 - 18:20	Closing ceremony The best poster award	
18:20 - 22:00	Surprise social programme	

Posters		
Csaba Póliska	<i>University of Miskolc</i>	Effect of flame retardants on combustion, emission characteristics, and stability of flexible polyurethane foams
Wiktor Kuklewski	<i>Warsaw University of Technology</i>	Hydrogen technologies



Estela Vicente

University of Aveiro

Indoor particulate composition and toxicity associated with bioethanol fireplace operation

Marie Molinková

VSB-TUO, CEET, Energy Research Centre

The path to green MeOH: sustainable production using a novel catalyst via direct CO₂ hydrogenation

Katarzyna Szramowiat-Sala

AGH University of Krakow

Predictive Analysis of Volatile Organic Compound Emissions in Process Gases Using Machine Learning Methods

Zdeněk Šmída

VSB-TUO, Department of Power Engineering

A Computational Model for the Design and Optimization of Convergent and Laval Nozzles

Libor Kovařík

U.S. Department of Energy

Towards Atomic Level Understanding of Transition Aluminas

Sebe Emese

University of Miskolc

Activated Carbon Preparation from Paper, Cardboard, Polystyrene and Refuse-Derived Fuel for Phenol Removal from Aqueous Solutions

Julia Osmańska

Lodz University of Technology

Comparative Analysis of Pyrolysis and Gasification of Olive Stones: Biochar, Syngas and Bio-oil Characterization

Václav Pospíšilík	<i>VSB-TUO, Department of Power Engineering</i>	Laser Diagnostics of Combustion and Flow Processes at the Department of Power Engineering
Jui-Ching Hsieh	<i>National Chin-Yi University of Technologh</i>	Experimental Comparison of Single-Acting and Double-Acting Rotary Vane Expanders in Organic Rankine Cycle Systems
Magdalena Caklová	<i>Institute of Chemical Process Fundamentals of the CAS</i>	Biochar-templated modification of photocatalyst structural properties
Karel SaksI	<i>Technical University of Košice</i>	Room-Temperature Superplasticity in a Biodegradable Zn-based Alloy
Pavel Kantor	<i>VSB-TUO, CEET, ENET Centre</i>	INDUSTRIAL PAPER CORES: ENERGY POTENTIAL OR TECHNOLOGICAL RISK? A comprehensive evaluation for thermochemical conversion
Baran Taşğın	<i>VSB-TUO, CEET, Energy Research Centre</i>	Hydrogen Sorption Characteristics of Cu-doped High-entropy Alloys
Hans Julian Wiggengauser	<i>German Aerospace Center (DLR)</i>	Transient simulation of alkaline electrolysis - from atmospheric to high pressure
Sandra Schulnig	<i>Carinthia University of Applied Sciences</i>	Stakeholder-Informed Valorisation of Residual Municipal Waste by Pyrolysis and Biochar-Based Additive Manufacturing

Wednesday 9th September

10:00 Bus transportation to the VSB-Technical University of Ostrava campus

11:00 – 15:00 **Excursion tour to the Centre for Energy and Environmental Technologies** ([CEET](#))

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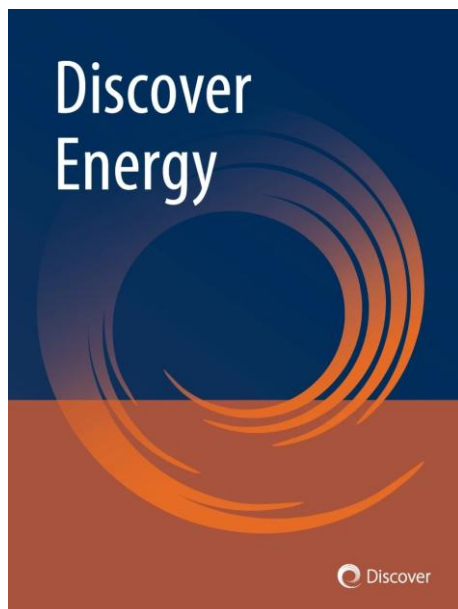
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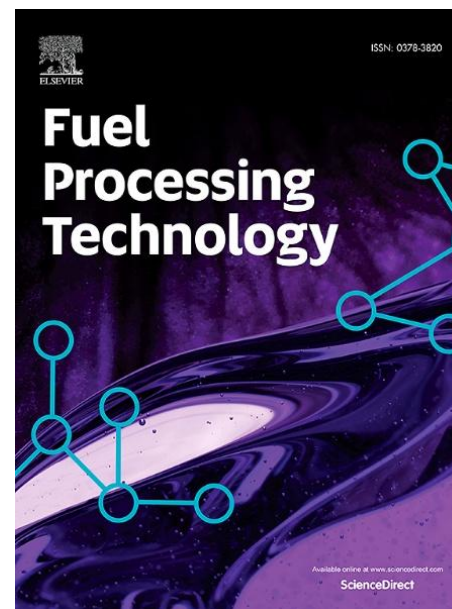
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