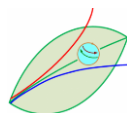


Conference Programme



The 10th Sustainable Process Innovation and ModeLling (SPIL) Scientific Conference



3rd International Conference on Cleaner Energy and Chemical Engineering for Sustainable Circular Economy (CLEES-CE)

10-12 May 2026

Sofia, Bulgaria

On-Site Schedule

DAY 1

10 May 2026, Sunday (GMT+2)	
16:30-17:30	Registration
17:30-17:45	Event welcome address Petar Sabev Varbanov – PRISE, Sin Yong Teng – Maastricht University, Elisaveta Kirilova – IChE, Bulgarian Academy of Sciences
18:00-19:30	Welcome party
19:30	End of Day 1

DAY 2

11 May 2026, Monday (GMT+2)	
08:30-09:00	Registration
09:00-10:00	<p style="text-align: center; color: red; margin: 0;">Session 1: Key Technologies (Teams)</p> <p style="text-align: center; color: blue; margin: 0;">Chair: Apostol Apostolov, IChE, BAS, BG</p> <p>Bohong Wang, Zhejiang Ocean University, China SPIL26.0003 Energy Grading and Cascade Utilisation in Energy-Integrated System based on Energy Quality Pinch Analysis</p> <p>Abdulqader Bin Sahl, Maastricht University, the Netherlands SPIL26.0012 BORAG: Can AI Make Smarter Formulations? Bridging Domain Knowledge and Bayesian Optimization via Retrieval-Augmented Generation</p> <p>Jan Kalina, Brno University of Technology, Czechia SPIL26.0009 Development of a Multistage Absorption System Unit for Efficient Heat and Cold Accumulation</p>
10:00-10:30	Coffee break & Poster Session
10:30-11:30	Plenary Session PL-01 (Teams)

11 May 2026, Monday (GMT+2)	
	<p style="text-align: center;">Chair: Petar Sabev Varbanov, PRISE, HU</p> <p>Zdravko Kravanja, University of Maribor, Slovenia SPIL26.0036 A Systematic Framework for the Circular Synthesis of Sustainable Systems</p>
11:30-12:30	<p style="text-align: center;"> Session 2: Cleaner Technologies and Production (Teams) Chair: Bohong Wang, Zhejiang Ocean University, CN </p> <p>Maliheh Razavi, Maastricht University, the Netherlands SPIL26.0015 From Waste to Value: Incorporation of EPDM Foam Waste as Fillers in Reprocessed Low-Density Polyethylene</p> <p>Venko Beschkov, Institute of Chemical Engineering- Bulgarian Academy of Sciences, Bulgaria SPIL26.0018 An Integrated Sulfide Removal from Substrate for Biogas Production with Simultaneous Production of Electricity</p> <p>Peter Csiba, Budapest University of Economics and Business, Hungary SPIL26.0014 The Role of CCGTs in the Future Sustainable Circular Economy Power Supply</p>
12:30-12:45	Photo session
12:45-14:00	Lunch
14:00-15:00	<p style="text-align: center;"> Session 3: Process Modelling and Optimisation (Teams) Chair: Sin Yong Teng, Maastricht University, NL </p> <p>Jinhai Xu, Xi'an Jiaotong University, China SPIL26.0007 Study on Transient Temperature Response of Solid-liquid Phase Change Based on High-power Microwave Electron Beam</p> <p>Dechao Liu, Xi'an Jiaotong University, China SPIL26.0008 Characterization of hydraulic diameter and explicit modeling of relative roughness in additively manufactured mini-channels</p> <p>Apostol Apostolov, Institute of Chemical Engineering, Bulgarian Academy of Sciences, Bulgaria SPIL26.0030 Alternative extraction solvents - new deep eutectic solvents for carboxylic acid extraction</p>
15:00-15:30	Coffee break & Poster Session
15:30-17:30	Session 4: Society, Policies, and Sustainability (Teams)

11 May 2026, Monday (GMT+2)	
	<p style="text-align: center; color: blue;">Chair: Petar Sabev Varbanov, PRISE, HU</p> <p>Victoria Stoyanova, Razvii se, Bulgaria SPIL26.0034 From Circular Economy to Human-Centered Circularity: An Integrated Model for Sustainable Development</p> <p>Adeline Shu Ting Tan, Swinburne University of Technology, Malaysia SPIL26.0017 Pinch Analysis for Quality-Constrained Carbon Trading</p> <p>Marek Kollmann, Brno University of Technology, Czech Republic SPIL26.0029 What Breaks First — the Physics or the Policy? Geospatial Sensitivity Analysis of Energy Community Regulation at Scale</p> <p>Sin Yong Teng, Maastricht University, the Netherlands SPIL26.0039 Unlocking Circularity via Modelling: Do Analytics and Digitalisation Help?</p> <p>Kostadin Kolarov, University of National and World Economy, Sofia, Bulgaria SPIL26.0040 The Role of Local Authorities in Support of Social Entrepreneurship aimed at Sustainable Development - International Research Findings projected into Bulgarian Context</p>
17:30-19:00	Free time
19:00-23:00	Gala Dinner

DAY 3

12 May 2026, Tuesday (GMT+2)	
09:00-10:00	<p style="text-align: center; color: red;">Session 5: Cleaner Technologies and Production (Teams)</p> <p style="text-align: center; color: blue;">Chair: Maliheh Razavi, University of Maastricht, NL</p> <p>Qian Yee Ong, Maastricht University, the Netherlands SPIL26.0023 Exploration of branched sorting and post-treatment sequences in the recycling of End-of-life vehicle (ELV) plastics</p> <p>Elisaveta Kirilova, Bulgarian Academy of Sciences, Bulgaria SPIL26.0027 An Integrated Optimization Approach for Hydrogen Supply Chain: Sustainable Refueling Infrastructure in Bulgaria</p> <p>Petro Kapustenko, Brno University of Technology, Czechia SPIL26.0001 Evaluating thermal-hydraulic performance of mini- and</p>

12 May 2026, Tuesday (GMT+2)	
	micro-channels to improve heat recuperation in specific conditions of industrial processes
10:00-10:30	Coffee break
10:30-11:30	<p style="text-align: center; color: red;">Plenary Session PL-02 (Teams)</p> <p style="text-align: center; color: blue;">Chair: Elisaveta Kirilova – IChE, BAS, BG</p> <p>Jordan Hristov, University of Chemical Technology and Metallurgy, Sofia, Bulgaria SPIL26.0031 Non-Linear and Non-Local Diffusion Models</p>
11:30-12:30	<p style="color: red;">Workshop Session: Process Network Synthesis and Optimisation: P-graph (Teams)</p> <p>Hon Loong Lam, University of Nottingham Malaysia Campus, Selangor, Malaysia Lecture 1: P-graph for Sustainable Process Networks</p>
12:30-13:30	Lunch
13:30-15:00	<p style="color: red;">Workshop session: Process Network Synthesis and Optimisation: P-graph (Teams)</p> <p>Hon Loong Lam, University of Nottingham Malaysia Campus, Selangor, Malaysia Lecture 1 (continued): P-graph for Sustainable Process Networks</p> <p>Jean Pimentel, Széchenyi István University, Győr, Hungary Sin Yong Teng, Maastricht University, the Netherlands Lecture 2 Advanced Methods and Applications</p>
15:00-15:10	Award and closing ceremony
15:10-17:00	<p>Social Event</p> <p>15:10 Departure from Rosslyn Park Hotel</p> <p>15:30 Arrival at the National History Museum</p> <p>15:30-16:30 Museum tour</p> <p>16:30-17:00 Return to Rosslyn Park Hotel</p>

Online Presentations

Petro Kapustenko, Brno University of Technology, Czechia

SPIL26.0001 Evaluating thermal-hydraulic performance of mini- and micro-channels to improve heat recuperation in specific conditions of industrial processes

Mr. Chalmer Belaro, De La Salle University, Philippines

SPIL26.0002 Evaluating Corporate ESG Performance of ASEAN-5 Companies Using Data Envelopment Analysis (DEA) and Dynamic Entropy-TOPSIS Technique: A Case of the Extractives Industry

Nurullah Bektaş, Szechenyi Istvan University, Győr, Hungary

SPIL26.0011 Real-Time Risk Governance: Enhancing Multi-Agency Interoperability and Community Preparedness for a Resilient Net-Zero Future

Hebert Gerardo Lugo Granados, Autonomous University of Zacatecas, Mexico

SPIL26.0013 Prediction of Fouling Thermal Resistance in Solar Collectors Using a Neural Network-Assisted Mathematical Model

Juhyeon Kwak, University of Seoul, Korea

SPIL26.0016 Optimizing Transit-Oriented Development for Sustainable Urban Transport Using Artificial Intelligence

Adeline Shu Ting Tan, Swinburne University of Technology, Malaysia

SPIL26.0017 Pinch Analysis for Quality-Constrained Carbon Trading

Jean Pimentel, Széchenyi István University, Hungary

SPIL26.0020 P graph Basics: A Structured Approach to Process Network Design

Sheng Zhang, Cracow University of Technology, Poland

SPIL26.0021 Energy Performance Assessment of a Solar-Assisted Ground Source Heat Pump System with Underground Thermal Energy Storage

Lei Zhang, Sichuan University, China

SPIL26.0022 Blockchain applications in distributed renewable energy management: A comprehensive review

Luthfan Adhy Lesmana, Tohoku University, Sendai, Japan

SPIL26.0025 Toward Sustainable Additive Manufacturing: Acoustic Emission-Based Damage Detection in Carbon Fiber Reinforced PLA

Kathleen Aviso, De La Salle University, Phillipines

SPIL26.0026 Optimal Defense of a Net Zero Industrial Complex

Limei Gai, Zhejiang Ocean University, China

SPIL26.0035 A Cooling-Power-Chemical Polygeneration System for Efficient Utilization of LNG Cold Energy

Petar Sabev Varbanov, Széchenyi István University, Győr, Hungary

SPIL26.0037 Energy Quality Cascading Analysis for Seamless Energy Integration and

Energy Savings

Péter Molnár, Széchenyi István University, Győr, Hungary

SPIL26.0038 Automated Evaluation of GHG Emission Methodologies An NLP-Based Analysis of Scope 1-2 Reporting Methodologies Among Stock Exchange Listed European Entities

Posters

Desislava Nikolova, Burgas State University "Prof. Dr. Assen Zlatarov", Bulgaria

SPIL26.0004 Low-Carbon Hydrogen Production and Distribution: A Supply Chain Optimization Approach With a Focus on Refueling Stations

Fila Yovkova, Burgas State University "Prof. Dr. Assen Zlatarov", Bulgaria

SPIL26.0010 Synthesis and characterization of mullite and mullite-ceramic pigments prepared from industrial waste

Venko Beschkov, Institute of Chemical Engineering- Bulgarian Academy of Sciences, Bulgaria

SPIL26.0019 Clostridium Beijerinckii 6a1 And Bacillus Licheniformis As Producers Of Biohydrogen From Glucose

Nicolas Godfroid, Maastricht University, the Netherlands

SPIL26.0024 Prediction of Polyolefin (PO) Blends via Extrusion Energy Analytics

Blagovest Napoleonov, National Centre of Excellence Mechatronics and Clean Technologies, Institute of Optical Materials and Technologies "Acad. Jordan Malinowski", Bulgarian Academy of Sciences, Sofia, Bulgaria

SPIL26.0028 Two-Dimensional Mo-Based Compounds For Applications In Low-Emission Technologies

Zhanar Onalbayeva, D. Serikbayev East Kazakhstan Technical University, Ust-Kamenogorsk, Kazakhstan

SPIL26.0032 An Example Of A Circular Economy Approach In The Processing Of Iron Ores With Elevated Phosphorus Content

Natalya Kulenova, East Kazakhstan Technical University, Ust-Kamenogorsk, Kazakhstan

SPIL26.0033 Low-Carbon Concrete with Plastic Waste: A Step towards Green Construction

Abdulqader Bin Sahl, Maastricht University, the Netherlands

SPIL26.0012 BORAG: Can AI Make Smarter Formulations? Bridging Domain Knowledge and Bayesian Optimization via Retrieval-Augmented Generation

Maliheh Razavi, Maastricht University, the Netherlands

SPIL26.0015 From Waste to Value: Incorporation of EPDM Foam Waste as Fillers in Reprocessed Low-Density Polyethylene

Marzhan Sadenova, D. Serikbayev East Kazakhstan Technical University, Kazakhstan

SPIL26.0006 A Study of the Impact of Industrial Enterprises on the Distribution of Heavy Metals in Soils: A Case Study of the Republic of Kazakhstan