Maastricht University

SPIL

Onsite Schedule

Version 4

The 9th Sustainable Process Innovation and ModeLling (SPIL) Scientific Conference

with

Pre-conference event JTF workshop

Medegefinancierd door de Europese Unie

JTF Fonds voor rechtvaardige transitie

Maastricht University,
Faculty of Science and Engineering (FSE),
Department of Circular Chemical Engineering,
Maastricht, The Netherlands.

9 - 11 July 2025

DAY 1 (by JTF StrongerCircle)

9 July 2025, Wednesday – Pre-conference event (GMT+2)		
0830-0900	Meet-up point for bus *Note: Please be on time. The bus will leave at 9.00am sharp.* Location: https://g.co/kgs/Z8MiAkf	In front of Bonnefanten Museum (For directions, see attachment at the end of document)
0900-0930	Travelling and entry to Brightlands Chemelot Campus. Location: https://g.co/kgs/3Dy7GBq	
0930-1000	Registration for event and reception	Room Arthur (3rd floor)
1000-1005	Event welcome address	Room Arthur (3rd floor)
1005-1055	**Session 1: Themed lecture circularity and system transition** *Session Chair: Sin Yong Teng* **Themed Lecture 1**— Cris Garcia Saravia Ortiz De Montellano, Maastricht University Theme: Circular value chains **Themed Lecture 2**— Niels Konig and Geert Cremers, Brightsite Theme: Modelling system transition	Room Arthur (3rd floor)
1055-1110	Coffee break	3rd floor, Centre Court
1110-1200	**Session 2: Themed lecture energy and new technologies** *Session Chair: Gavin Phillips* **Themed Lecture 3**— Arnab Chaudhuri, Maastricht University Theme: Energy transition **Themed Lecture 4**— Harro van Lente, Mart van Uden, Maastricht University Theme: Introduction of new technologies for social and regulatory acceptance	Room Arthur (3rd floor)
1200-1300	Lunch	3rd floor, Centre Court
1300-1400	Maastricht University Chemelot Campus lab-tour.	AMIBIM and CCE labs
1400-1430	**Session 3: Group discussion** *Session Chair: Carla Koopman* ***Discussion 1***—Challenges from your industry	Room Arthur (3rd floor)
1430-1500	Coffee break	3rd floor, Centre Court
1500-1530	**Session 4: Group discussion** *Session Chair: Mart van Uden* ***Discussion 2***—Brainstorming session on how to tackle challenges from your industry	Room Arthur (3rd floor)
1530-1630	**Session 5: Panel discussion** *Session Chair: Rene Slaghek* Ronald Korstanje, Koos van Haasteren, Petar Varbanov, Yee Van Fan ***Topics:*** Industrial linkage to sustainable innovation & modelling, does Europe need to be fully circular in 2050?	Room Arthur (3rd floor)
1630-1700	Networking for local industrialist and international researchers	3rd floor, Centre Court
1700-1800	Return to Maastricht by bus. *Note: Please meet us at Mills Coffee area (Ground floor) by 4.50pm. The bus will leave at 5.00pm sharp.*	
1800—	**End of Day 1**	

DAY 2

10 July 2025, Thursday – SPIL Conference Day 1 (GMT+2)		
0830-0900	Registration in Bonnefanten Museum. https://g.co/kgs/Z8MiAkf	Auditorium (For directions, see attachment at the end of document)
0900-0915	Welcome address by SPIL conference chair. **Assist Prof Sin Yong Teng, Prof Petar Varbanov**	Auditorium
0915-0930	Introduction of the 9th Sustainable Process Innovation and ModeLling (SPIL) Scientific Conference. **Prof Petar Varbanov, Széchenyi István University of Győr, Hungary**	Auditorium
0930-1030	*Session Chair: Sin Yong Teng, Petar Varbanov* **Plenary 1 —** Prof Fengqi You, Cornell University, USA Nexus for Net Zero: Fueling and Refining Energy Decarbonization with Generative AI, Quantum Computing, and Blockchain	Auditorium
1030-1100	Coffee break/Poster	Auditorium
1100-1200	**Session 1: Macroscopic Circularity** *Session Chair: Prof Kim Ragaert* **Keynote —** Prof Kim Ragaert, Maastricht University, The Netherlands SPIL25.0034 From mechanical to chemical recycling of plastics - how does a complimentary system work? ***P1—*** Dr. Monika Dokl, University of Maribor, Slovenia SPIL2025.0039 Assessment of Solar-Driven Polyethylene Production from CO_2 Under Various Climatic Conditions ***Invited Talk—***Prof. Dominic Coppens, Maastricht University, the Netherlands SPIL25.0013 Unpacking the global plastic treaty negotiations: how to bring about an inclusive circular economy in plastics?	Auditorium
1200-1215	Photo session	Auditorium
1215-1300	Lunch	Torenzaal
1300-1530	**Session 2: Sustainable Systems** *Session Chair: Haoshui Yu* **Keynote** - Prof. Haoshui Yu, Aalborg University, Denmark SPIL25.0007 Process Simulation and Integration of Biomass-to-Olefin with Renewable Energy ***P2—*** Veronika Kalauz-Simon, University of Pannonia, Hungary SPIL25.0025 Valorization of Kitchen Waste via Anaerobic and Acidogenic Fermentation: A Comparative and Scale-Up Study ***P3—*** Prof. Olga Arsenyeva, University of Paderborn, Germany SPIL25.0040 Pillow-Plate Heat Exchanger as a Condenser for Flexible Distillation Columns ***P4—*** Ákos Orosz, University of Pannonia, Hungary SPIL25.0031 Flexible Heat Exchanger Networks with Minimum Utility Consumption ***P5—*** Marek Kollmann, Brno University of Technology, Czech Republic SPIL25.0032 Introducing GENEKOM: Streamlining Energy Communities Planning, Empowering Every Member ***P6—*** Dr. Hebert Gerardo Lugo Granados, Autonomous University of Zacatecas, Mexico (Online) SPIL2025.0022 Comparative Study of Evacuated and Conventional Flat-Plate Solar Collectors under Scaling Fouling Conditions **P7—** Károly Kalauz, Széchenyi István University, Hungary	Auditorium

	SPIL2025.0020 Algorithm for Multi-Objective Process Network Synthesis with Complete Pareto Front Generation: Application to Residential Heat and Electricity Supply	
1530-1550	Coffee break	Auditorium
1550-1820	**Session 3**: **Digital Circularity** *Session Chair: Yee Van Fan* ***Invited Talk—***Dr. Leyla Ozkan, Eindhoven University of Technology, Netherlands SPIL25.0038 Turning Down Of The Industrial Heat Through Digitalization: Insights from "The Heat is On" Project ***P2—*** Dr. Bing Shen How, Swinburne University of Technology, Malaysia (Online) SPIL2025.0021 Pathway Optimisation for Greenhouse Gas Valorisation via Data-Driven Strategy ***P3—*** Dr. Abdulrahman H. Ba-Alawi, Sungkyunkwan University, Korea SPIL25.0004 Rule-based optimization of hydrogen production under variable biogas feed composition using a smart multi-objective supervisory strategy ***P4—*** Dr. Marzhan Sadenova, D. Serikbayev East Kazakhstan Technical University, Kazakhstan (Online) SPIL25.0010 Development of Remote Methods for Assessing Soil Pollution Levels by Heavy Metals Through Intelligent Data Analysis ***P5—*** Bente Van Son, Radboud University, the Netherlands SPIL25.0023 Sorting the Unsortable: A Data-Driven Approach Toward NIR-Based Black Plastic Classification ***P6—*** Abdulqader Bin Sahl, Politecnico di Milano, Italy SPIL25.0030 Plastic-to-X Modelling Considering Energy Integration Using a Machine-Learning-Embedded Multi-Objective Graph-Theoretic Optimization Approach: An EU-27 Case Study **P7—** Dr. Ivan Henderson Gue, De La Salle University, Philippines SPIL25.0009 Measuring Network Flow of Energy Use in an Input-Output Model	Auditorium
1820-2030	Gala dinner	Auditorium
2100—	End of Day 2	

Day 3

11 July 2025, Thursday – SPIL Conference Day 2 (GMT+2)		
0830-0900	Registration in Bonnefanten Museum.	Auditorium
0900-9020	*Session Chair: Petar Varbanov* **(Short) Plenary 2 —** Prof Paweł Ocłoń, Cracow University of Technology, Poland SPIL25.0043 RESHeat - Renewable Energy System for Building heating and Cooling	
0920-1020	**Session 4: Analytics and Innovation for Circularity** *Session Chair: Dr. Jeroen Jansen* ***Keynote***—Dr. Jeroen Jansen, Radboud University, the Netherlands SPIL25.0011 Industry 4.0 to close the value chain in the Circular Economy: Procurement, Production, Waste Management ***P2***— Lyudmila Slobodkina, Silesian University of Technology, Poland (Online) SPIL25.0006 Solvolysis of Textile Waste: Identification of Chemical Changes with FTIR Spectroscopy ***P3***—Dr. Noel De Kler, Radboud University, the Netherlands SPIL25.0028 (De)coupling Operando NMR and EPR to Study Copper/Iron Redox Flow Batteries	Auditorium
1020-1040	Coffee break/ Poster	Auditorium
1040-1200	**Session 4 (continued): Analytics and Innovation for Circularity** *Session Chair: Dr. Jeroen Jansen* ***P4***— Sanwouly Marlene Yao, Radboud University, the Netherlands SPIL25.0019 Using Handheld Spectroscopy for Resilient Resource Material Procurement in the Circular Economy ***P5***— Dr. Marzhan Sadenova, D. Serikbayev East Kazakhstan Technical University, Kazakhstan (Online) SPIL25.0008 Mathematical modeling and optimization of properties of non-autoclaved aerated concrete with varying modifying additives ***P6***— Dr. Kapil Kumar, National Institute of Technology Delhi, India SPIL25.0014 A Comparative Study of the Performance of Constructed Wetlands for Metalloid Contaminant Removal in Wastewater Treatment **P7**— Prof. Peng Jiang, Sichuan University, China (Online) SPIL25.0005 Machine Learning Reveals Supply-Demand Dynamics of Rare Earth Resources Under Carbon Neutrality	Auditorium
1200-1300	Lunch	Torenzaal
1300-1530	**Session 5 Value Chain and Global Issues** *Session Chair: Lidija Čuček* ***Keynote***— Lidija Čuček, University of Maribor, Slovenia SPIL25.0036 Integrated Strategies for Supporting the Transition towards Environmentally Responsible Circular Plastic Value Chains ***P2***— Dr. Alex Suta, Széchenyi István University, Hungary (Online) SPIL2025.0042 Effect of Life Cycle Assessment Disclosures on Emissions Reporting Reliability ***P3***— Sheng Zhang, Cracow University of Technology, Poland SPIL25.0033 Advanced Integration of Renewable Energy and Underground Thermal Energy Storage: Coupled Thermo-Hydraulic Soil Dynamics and System Exergy Analysis ***P4***— Péter Molnár, Széchenyi István University, Hungary (Online) (Online) SPIL25.0026 Epistemology of ESG disclosures: Enhancing Objective, Interoperable and Verifiable Cross Standard Reporting ***P5***— Peter Csiba, Budapest Business School, Hungary	Auditorium

	SPIL25.0024 Out of comfort zone: the uncertainty energy flow and how it is managed by insurers ***P6—*** Chunyan Si, University of Maribor, Slovenia SPIL25.0036 Comparative Social and Holistic Sustainability Assessment of Plastic and Alternative Packaging Materials ***P7—*** Bence Lukács, Széchenyi István University, Hungary (Online)SPIL25.0016 The Emission Premium: Market Rewards for Carbon-Intensive Firms Amidst the Climate Transition	
1530-1600	Coffee break	Auditorium
1600-1700	**Session 6** Design for sustainability *Session Chair: Sin Yong Teng* ***P1—*** Yang Cheng, Xi'an Jiaotong University, China SPIL2025.0018 Study on thermoelectric performance of the thermoelectric generator under different flow arrangements ***P2—*** Dr. Árpád Tóth, Széchenyi István University, Hungary (Online) SPIL25.0029 Globally Shifting ESG Regulation with an Increasing Environmental Focus **P3—** Ting Pan, Brno University of Technology, Czech Republic SPIL2025.0043 Multiple accounting approaches for tracing the carbon emissions embedded in construction through global value chains	Auditorium
1700-1710	Award and closing ceremony	Auditorium
1710—	End of Day 3	

Posters

10-11 July 2025 – SPIL Conference Day 2,3
Dr. Minje Choi, University of Seoul, Korea SPIL25.0017 Accelerating Electric Vehicle Transition: A Global Comparative Study with Emphasis on the South Korea Dr. Sanjay Pal, Maastricht University, the Netherlands AutoPlastic Project: Advancing Plastic Circularity in End-of-Life Vehicles Patricija Hršak, University of Zagreb, Croatia Optimising Zeolite RHO for Efficient CO2 Adsorption: Impact of Cation Exchange on Structural Properties Fatemeh Golpelichi, Radboud University, the Netherlands Integrating Exploratory and Compositional Data Analysis with Mass Flow Modeling to Improve Plastic Recycling

Online Presentation (COMET system)

9-11 July 2025 – SPIL Conference Day 1,2,3

Dr. Bing Shen How, Swinburne University of Technology, Malaysia
SPIL2025.0021 Pathway Optimisation for Greenhouse Gas Valorisation via Data-Driven Strategy

Prof. Peng Jiang, Sichuan University, China
SPIL25.0005 Machine Learning Reveals Supply-Demand Dynamics of Rare Earth Resources Under Carbon Neutrality

Péter Molnár, Széchenyi István University, Hungary
SPIL25.0026 Epistemology of ESG disclosures: Enhancing Objective, Interoperable and Verifiable Cross-Standard Reporting

Lyudmila Slobodkina, Silesian University of Technology, Poland
SPIL25.0006 Solvolysis of Textile Waste: Identification of Chemical Changes with FTIR Spectroscopy

Dr. Hebert Gerardo Lugo Granados, Autonomous University of Zacatecas, Mexico
SPIL2025.0022 Comparative Study of Evacuated and Conventional Flat-Plate Solar Collectors under Scaling Fouling Conditions

Dr. Alex Suta, Széchenyi István University, Hungary
SPIL2025.0042 Effect of Life Cycle Assessment Disclosures on Emissions Reporting Reliability

Dr. Árpád Tóth, Széchenyi István University, Hungary
SPIL25.0029 Globally Shifting ESG Regulation with an Increasing Environmental Focus

Bence Lukács, Széchenyi István University, Hungary
SPIL25.0016 The Emission Premium: Market Rewards for Carbon-Intensive Firms Amidst the Climate Transition

VENUES

Date	Activity	Location	How to get there
Day 1 9 July (Wed)	Pick-up point. Assemble here to get onto a conference-inclusive bus to our Brightlands Chemelot campus	**Front of Bonnefanten Museum** *Avenue Ceramique 250, 6221 KX Maastricht, the Netherlands*	Google maps: Get there by foot/ bus on your own
	Day 1 activity location	**Brightlands Chemelot campus** *Urmonderbaan 22, 6167 RD Geleen*	We will bring you there
	City tour meet-up point	**Maastricht city centre** *Maaspromenade 58, 6211 HS Maastricht (Stiphout Tours),*	We will bring you there
Day 2 & 3 10—11 July (Thu, Fri)	Conference location Gala dinner location Museum tour location	**Bonnafanten museum** Avenue Ceramique 250, 6221 KX Maastricht, the Netherlands	Google maps: Get there by foot/ bus on your own

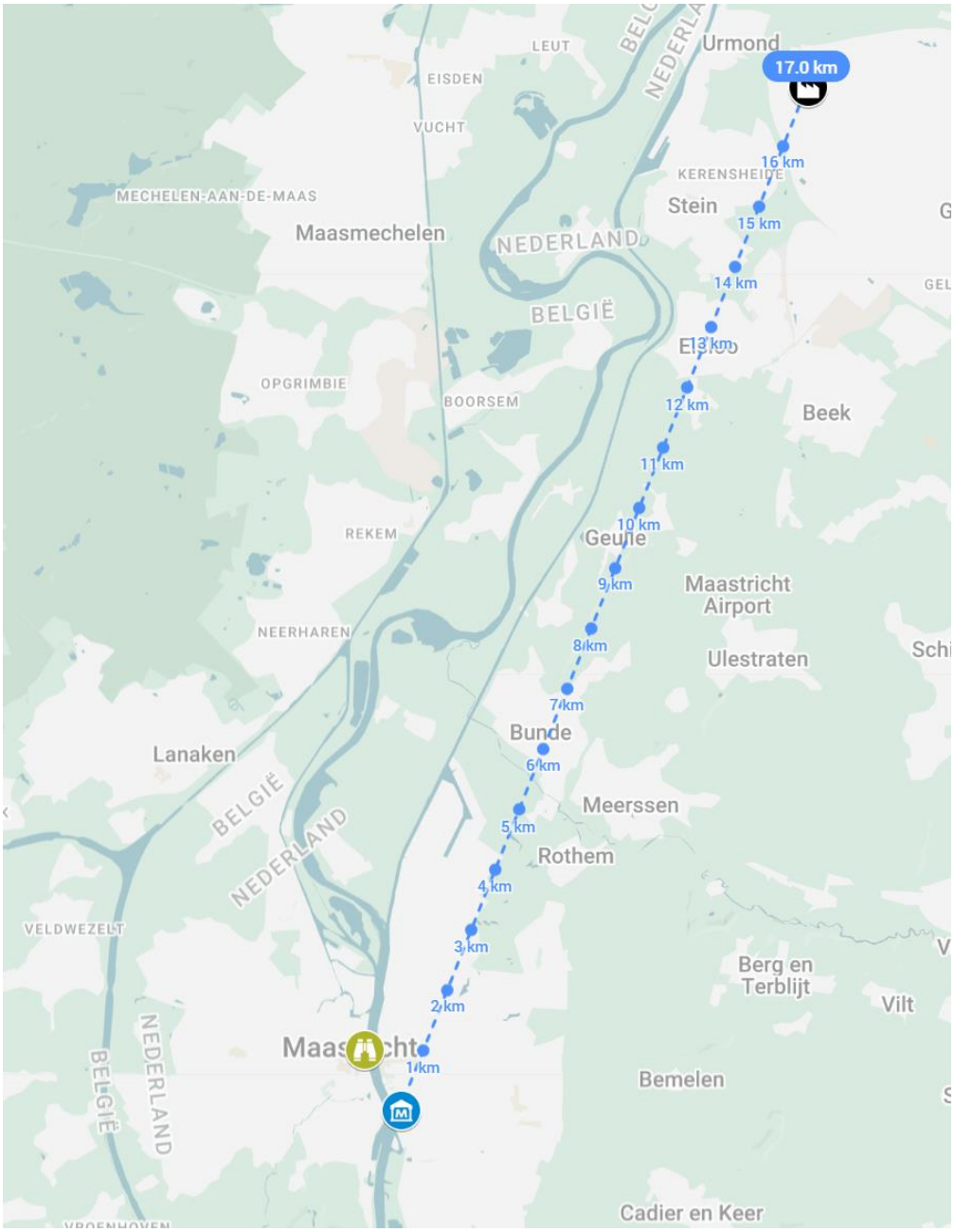

Figure 1. Map of Maastricht and relevant activity spots.

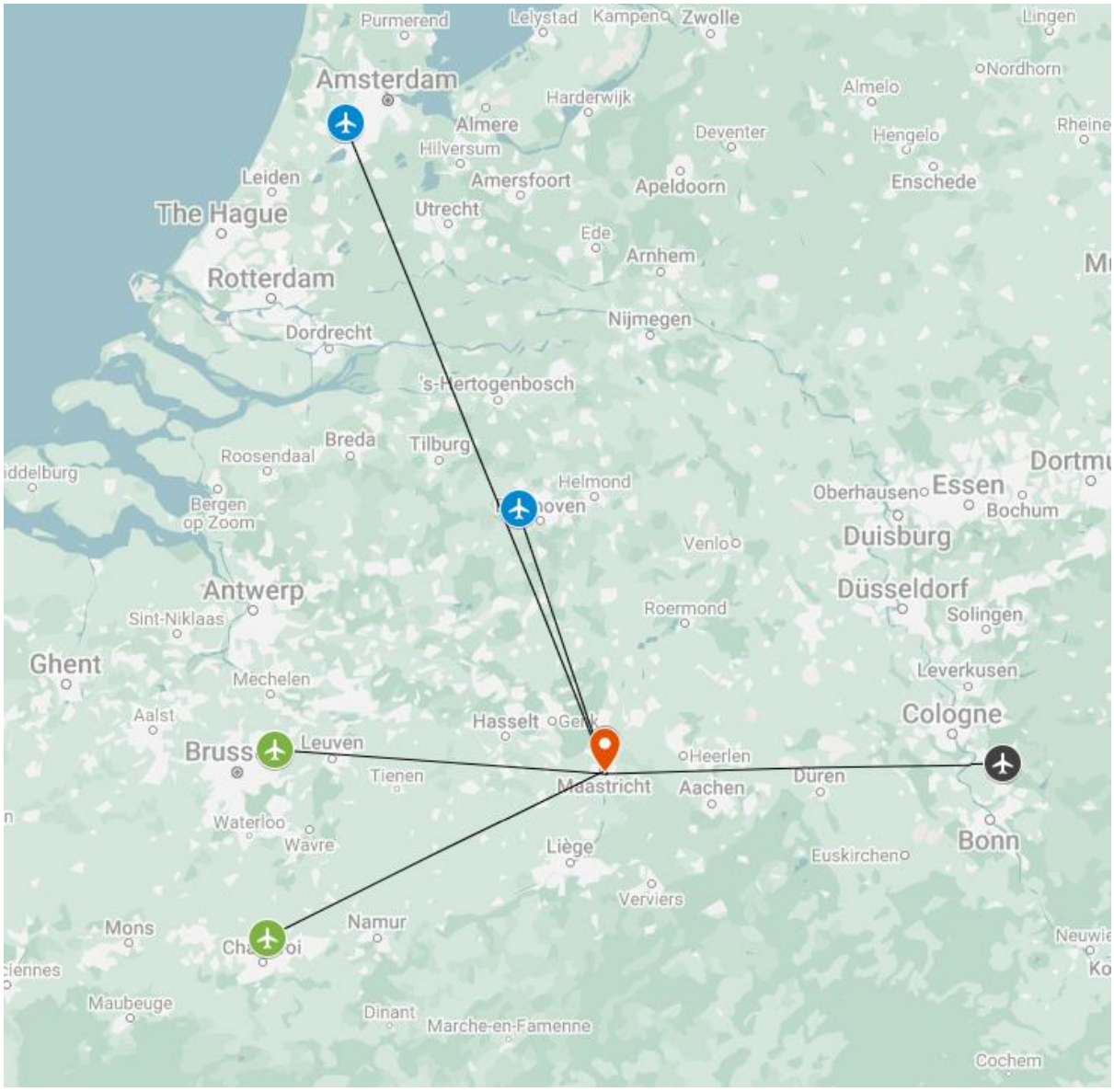

Figure 2. Map of the Netherlands and their nearest airports.

Acknowledgements

Day 1 of the pre-conference workshop is funded by JTF StrongerCircle project.

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