



SEEP 2026 — 18th International Conference on Sustainable Energy & Environmental Protection

20–23 July 2026 | University of Rome Tor Vergata, Italy | Draft Program v18

DAY 1 | Monday, 20 July 2026

08:30-09:00 | Registration & Welcome Coffee

09:00-10:45 | Opening Ceremony & Welcome Addresses — Prof. Stefano Cordiner & Prof. Abdul Ghani Olabi ·
Keynote Lectures: H.E. Dr. Nawal Al Hosany · Prof. Fawaz K Bitar FREng · Prof. Cristina Cornaro

10:45-11:15 | Coffee Break

Time	Room A	Room B	Room C
11:15-13:00	Master Planning of Energy Systems I	Circular Economy & Sustainable Materials I	Sustainable Mobility & Powertrains I
11:15	[SEEP-1026] Framework for Advanced Energy Efficiency Implementation in a Complex Environment <i>Boris Sučić / Jozef Stefan Institute, Slovenia</i>	[SEEP-1023] Development of a Circular Bioeconomy Framework for Yellow Passion Fruit Rind: Bioactive Recovery, Edible Oil fortification, and Bioethanol Generation <i>Kakali Borah / Indian Institute of Technology Guwahati, India</i>	[SEEP-1058] A Hardware-in-the-Loop Experimental Validation Framework for DRL-Based EV Regulation Control <i>Haotian Wang / North China Electric Power University (NCEPU), China</i>
11:30	[SEEP-1041] Environmental and economic assessment of integrated urban energy systems with decarbonising technologies <i>Ruiqi Wang / Durham University, UK</i>	[SEEP-1118] Forecasting and Spatial Analysis of Biomethane Potential and CO2 Mitigation up to year 2053 by Using Machine Learning Models: A Case Study for Kırklareli-Türkiye <i>Betul Ozer / Kırklareli University, Turkey</i>	[SEEP-1064] Kinetic-Based Ignition Metrics Development for High Alcohol–Diesel Blends in Single-Injection and Pilot-Assisted Dual-Fuel Low Temperature Combustion <i>Fatimoh Balogun / University of Vaasa, Finland</i>
11:45	[SEEP-1047] Life cycle assessment of onshore and offshore CO2 transportation scenarios <i>Alexandru-Constantin Bozoc / Babes-Bolyai University, Romania</i>	[SEEP-1080] Mechanical Recycling Of Pet For Textile Fibers: Can We Do Better? <i>Suzan Özdemir / Istanbul Technical University, Turkey</i>	[SEEP-1157] OBD-Driven Grey-Box Modeling of a Toyota Yaris Cross: A low-cost Reverse Engineering Framework for EMS Analysis <i>Edoardo Cennamo / Tor Vergata University of Rome, Italy</i>
12:00	[SEEP-1068] Development of an AI-driven inverse design and costing frameworks for integrated fusion fuel cycles via active learning <i>Hyeonjeong Lee / Gyeongsang National University, South Korea</i>	[SEEP-1081] From Waste To Resource: A Mini Review On Chemical Recycling Of Pet-Based Waste <i>Janset Öztumur Sezgin / Istanbul Technical University, Turkey</i>	[SEEP-1024] Flame kernel formation modeling for improved performance prediction of spark-ignition engines operated in lean-burn mode <i>Luigi Teodosio / University of Naples Federico II, Italy</i>





12:15	[SEEP-1074] Risk-Aware Day-Ahead Scheduling of Renewable Energy Communities with EV and Battery Flexibility under Joint Uncertainty <i>Mehran Moradi / Karlstad University, Sweden</i>		[SEEP-1116] Experimental Investigation of Passive and Active Pre-Chamber Technologies on a Natural Gas Marine Engine <i>Luca Marchitto / CNR-STEMS, Italy</i>
12:30	[SEEP-1092] A Comparative Study Of Model Predictive Control And Reinforcement Learning For Hybrid Domestic Hot Water Systems <i>Francesco Baldi / ENEA, Italy</i>		[SEEP-1173] Development of a fuel cell/battery hybrid propulsion system for a zero-emissions waterbus <i>Giovanni Di Ilio / University of Naples Parthenope, Italy</i>
12:45	[SEEP-1093] Assessing The Role Of Micro-Scale Biogas In Residential Systems For Isolated Areas: An Optimization-Based Analysis <i>Francesco Baldi / ENEA, Italy</i>		[SEEP-1205] Hybrid PEMFC-Battery Powertrain Modelling with LOHC Hydrogen Supply for Maritime Decarbonisation <i>Davide Sgambato / DG Twin S.r.l., Italy</i>
13:00-14:00 Lunch Break			
14:00-14:45 Keynote Lecture: Prof. Adam Z. Weber			
14:45-16:15	Master Planning of Energy Systems II	Circular Economy & Sustainable Materials II	SYMPOSIUM: Hydrogen Production & Fuel Cell
14:45	[SEEP-1083] Physics-Aware Digital Twins for Climate-Resilient Water-Energy Infrastructure, Part I: Probabilistic Forecasting and Surrogate State Representation <i>Amir Saman Tayerani Charmchi / Onpoom R&D Center, South Korea</i>	[SEEP-1132] Real-World Weathering of polyethylene terephthalate: How Direct Sunlight Alters the Crystallisation Thermal Kinetics and the Shelf Life <i>Mohamad Khaled Aljoumaa / Brunel University of London, UK</i>	[SEEP-1032] Linking Spatial and Electrochemical Degradation in HT-PEMFC under Dynamic Reformate and Start-Stop Operation <i>Emilija Todorovski / University of Ljubljana, Slovenia</i>
15:00	[SEEP-1084] Physics-Aware Digital Twins for Climate-Resilient Water-Energy Infrastructure, Part II: Surrogate-driven Self-Scheduling and Adaptive Optimization <i>Amir Saman Tayerani Charmchi / Onpoom R&D Center, South Korea</i>	[SEEP-1143] Sustainable Lead Remediation in Water and Soil Using Iron-Engineered Biochar: Mechanistic Insights and Environmental Applications <i>Basit Ahmed Khan / Quaid-i-Azam University, Pakistan</i>	[SEEP-1152] Multi-physics analysis of cooling channel depth in hightemperature PEM fuel cells: Trade-off between thermal management and electrochemical performance <i>Mahdi Kheirrouz / Tor Vergata University of Rome, Italy</i>
15:15	[SEEP-1085] From BIM-Based Energy Modelling to Open-Source Urban Energy Simulation: A Comparative Analysis for Integrated Energy Workflows <i>Lorenzo Villani / Sapienza University of Rome, Italy</i>	[SEEP-1158] CFD simulation for investigation of flow dynamics in a Double-Chamber Electromethanogenesis Reactor <i>Stefanie Feilner / Technische Universität Berlin, Germany</i>	[SEEP-1059] Off-Grid Offshore Wind-to-Hydrogen Production with Hybrid Battery-Supercapacitor Storage: A Case Study of a 7.5 MW System in Kõrsnäs, Finland <i>Adebayo Agbejule / VAMK University of Applied Sciences, Finland</i>
15:30	[SEEP-1086] Reconstruction and policy optimization of hourly non-residential prosumer loads in renewable energy communities <i>Lorenzo Villani / Sapienza University of Rome, Italy</i>	[SEEP-1172] In-situ CaCO ₃ -Templated Structuring of Graphene Oxide-Kaolin Ceramic Membranes for Predictable Fouling Control in Oil-Water Filtration <i>Amos Kwaku Avornyo / Khalifa University of Science and Technology, UAE</i>	[SEEP-1060] Control and Design-Oriented 1D Anion Exchange Membrane Water Electrolyzer Numerical Model for Degradation-Aware Operation Assessment under Renewable Energy Coupling <i>Dušan Janković / Tor Vergata University of Rome, Italy</i>





15:45	[SEEP-1155] Beyond self-sufficiency: regulation-aware predictive control of hydrogen-integrated renewable energy communities <i>Alessandro Polimeni / Tor Vergata University of Rome, Italy</i>		[SEEP-1066] Enhancing the economic viability of high-temperature PEM fuel cell systems through waste heat utilization with an absorption chiller <i>Yoonjae Lee / Korea Institute of Energy Research, South Korea</i>
16:00-16:30 Coffee Break			
16:30-18:00	Master Planning of Energy Systems III	Sustainable Energy for Buildings & Industrial Processes I	SYMPOSIUM: Wind Energy in Transition: Development Scenarios, Strategic Research, and System Readiness
16:30	[SEEP-1097] Hybrid soft sensor and tandem neural network for latent state identification and physical-constrained inverse design of industrial emissions <i>Chanho Kim / Gyeongsang National University, South Korea</i>	[SEEP-1056] Implementing advanced automation systems to improve the energy performance of residential buildings: assessment of monitored case studies <i>Riccardo Cardelli / Politecnico di Milano, Italy</i>	<p>PANEL DISCUSSION</p> <p>Panelists:</p> <p>Alessandro Corsini, OWEMES – Sapienza</p> <p>Davide Astiaso Garcia, Secretary General ANEV – Sapienza</p> <p>Francesco Lanni, RSE</p> <p>Giulio Lo Bianco, BaywaRe</p> <p>Enrico Carloni, Energy Expert, Royal Embassy of Denmark</p> <p>Alessandro Severini, Project Manager at iLStudio Engineering & Consulting srl</p>
16:45	[SEEP-1099] A System-Level Feasibility Framework for Early-Stage Evaluation of Power-to-X-to-Power Plants <i>Aapo Hölsä / University of Oulu, Finland</i>	[SEEP-1057] Measurement of photovoltaic soiling losses at three sites in the central Mediterranean: large seasonal effects degrading for increasing latitude <i>Alcide di Sarra / ENEA, Italy</i>	
17:00	[SEEP-1100] Development of a Brightway-based regionalized life cycle inventory platform integrating spatial and process characteristics <i>Weejin Lee / Gyeongsang National University, South Korea</i>	[SEEP-1078] Thermal performance of a dual-temperature PCM multilayer wall under targeted heat exchanger activation <i>Domenico A. Matera / ENEA, Italy</i>	
17:15	[SEEP-1113] An integrated approach to Price Forecasting and Optimal Control for Revenue Maximisation through Battery Energy Storage Systems (BESSs) <i>Filippo Onori / Università Politecnica delle Marche, Italy</i>	[SEEP-1094] Integration Of Thermal Energy Storage To Facilitate Renewable Energy Adoption In Breweries <i>Francesco Baldi / ENEA, Italy</i>	
17:30	[SEEP-1115] Modelling Flexibility for Distributed Renewable Integration: A Review of Energy System Planning, Market, Network and Stability Models <i>Tommaso Gallozzi / Sapienza University of Rome, Italy</i>	[SEEP-1160] Physics-Constrained Spatio-Temporal Graph Neural Networks for Thermal Dynamics Modelling of a Real Office <i>Marco Donnini / Tor Vergata University of Rome, Italy</i>	
17:45	[SEEP-1151] Hydrogen Vehicle-to-Grid for Peak Shaving in Renewable Residential Microgrids: An Annual Sensitivity Analysis <i>Antonino Pistrutto / Università degli Studi Niccolò Cusano, Rome, Italy</i>	[SEEP-1200] Numerical Analysis of a Solar Driven GPU-3 Stirling Engine for Supplying Electrical Power to a VRF HVAC System <i>Zabihullah Bakhshi / Kabul University, Afghanistan</i>	
18:00 End of Technical Sessions — Day 1			





DAY 2 | Tuesday, 21 July 2026

09:00-09:30 | Keynote Lecture: Prof. Christos Markides

09:30-11:00 | AI use and ethics in academic publications - Ms. Telli Faez – Senior Publisher at Elsevier / Coffee Break Available
Meet the editors — Jouhara · Markides · García Martínez

09:30-11:00 | Official opening of the Poster Session

Time	Room A	Room B	Room C
11:00-13:00	Hydrogen & Energy Storage I	Next-Gen Thermochemical Conversion I	Solar Energy & Grid Integration
11:00	[SEEP-1061] Parametric design and experimental analysis of PCM-enhanced passive thermal control units with graphene-based coating <i>Vesselin Krassimirov Krastev / Tor Vergata University of Rome, Italy</i>	[SEEP-1109] High-quality syngas for bio-synthetic natural gas (bio-SNG) production from integrated pyrolysis– gasification of residual biomass: experimental investigation and system modeling <i>Pietro Mele / Tor Vergata University of Rome, Italy</i>	[SEEP-1114] Optimal Sizing and Techno-Economic Assessment of Photovoltaic Systems for SMEs Considering the Italian Day-Ahead Market and Energy Release Incentive <i>Luca Pierantonelli / Università Politecnica delle Marche, Italy</i>
11:15	[SEEP-1036] Linking Activation-Induced Spatial Heterogeneity to Degradation: The Role of Contact Pressure in HT-PEM Fuel Cells <i>Filip Todorovski / University of Ljubljana, Slovenia</i>	[SEEP-1110] Catalytic fast hydrolysis in a dual-stage fluidized bed reactor: evaluation of hydrogen consumption and partial pressure impact on biomass vapors deoxygenation <i>Claudio Del Vecchio / Tor Vergata University of Rome, Italy</i>	[SEEP-1125] Energy and Exergy Performance of a GaSb-Based Thermophotovoltaic System for High-Temperature Waste Heat Recovery: An Experimental Study <i>Zafer Utlu / Istanbul Atlas University, Turkey</i>
11:30	[SEEP-1179] Performance Improvement of a CuO Battery Module through Biochar Carbon Doping within a Circular Economy Framework <i>Michela Costa / CNR-STEMS, Italy</i>	[SEEP-1045] Air Pollutant Emissions Characteristics of Agricultural Biomass Burning <i>Hung-Lung Chiang / National Yunlin University of Science and Technology, Taiwan</i>	[SEEP-1131] Photovoltaic module degradation: experimental evaluation of soil and soot contaminants <i>Michele Pinelli / University of Ferrara, Italy</i>
11:45	[SEEP-1042] Bridging Reactor and Regenerator: An Integrated Dynamic Mathematical Model for Advanced SER-Hydrogen Production Process <i>Alessandra-Diana Selezan-Ciubancan / Babes-Bolyai University, Romania</i>	[SEEP-1046] Exhaust Emission Profiles of Agricultural Biomass Pyrolysis <i>Hung-Lung Chiang / National Yunlin University of Science and Technology, Taiwan</i>	[SEEP-1133] Resource-Efficient Short-Term Solar PV Forecasting with Sky Imagery and Weather-Stratified Dataset Splitting <i>Tomasz Sikorski / Wrocław University of Science and Technology, Poland</i>
12:00	[SEEP-1180] Flexible Data-Driven Framework for Battery Modeling: a Cross-Chemistry Analysis <i>Lorenzo Bartolucci / Tor Vergata University of Rome, Italy</i>	[SEEP-1144] Coherent response structures in fluidized-bed reactors: a similarity framework for scale-up analysis <i>Matteo Baldelli / Tor Vergata University of Rome, Italy</i>	[SEEP-1134] Coordinated Control of PV Inverters for Curtailment Reduction in Radial Low-Voltage Networks <i>Vishnu Suresh / Wrocław University of Science and Technology, Poland</i>





12:15	[SEEP-1159] Dynamic Modeling and Control of a Transcritical CO ₂ Carnot Battery <i>Luigi Fusco / Tor Vergata University of Rome, Italy</i>	[SEEP-1070] In Situ Investigation of Intermediate Species Formation during Coke CO ₂ Gasification by Planar Laser-Induced Fluorescence <i>Hui Luo / Tsinghua University, China</i>	[SEEP-1184] Life Cycle Assessment of a prototype Agri-Photovoltaic greenhouse: a case study from the REGACE Project <i>Beatrice Bartolucci / Tor Vergata University of Rome, Italy</i>
12:30	[SEEP-1105] Multi-curve calibration of reduced-order SOFC models with simultaneous H ₂ and CO electro-oxidation <i>Klemen Rola / University of Maribor, Slovenia</i>	[SEEP-1168] Universal differential equations for mixed plastic pyrolysis modelling <i>Davide Sorino / Tor Vergata University of Rome, Italy</i>	[SEEP-1185] Real-Time Solar Irradiance Forecasting Using Sky-Camera Imagery, SVR and Kalman Filtering: Deployment on an Italian ASI Station <i>Khadija Barhmi / Utrecht University, The Netherlands</i>
12:45		[SEEP-1210] Energy and Carbon Performance of Renewable Methanol Production Using WasteDerived CO ₂ from Waste-to-Energy and Anaerobic Digestion Systems <i>Elham Ebrahimzadehsarvestani / Università degli Studi di Perugia, Italy</i>	

PARALLEL TRACK · dedicated room — ATIA-ISWA SYMPOSIUM: «Waste as a Resource» (full day, 10:30–16:30, in parallel with the main programme)

10:30–11:00	<p style="text-align: center;">WELCOME SPEECHES</p> <p style="text-align: center;">Renato Baciocchi — Univ. Roma Tor Vergata, Vice-Rector for Technology Transfer Paolo Massarini — ATIA ISWA Italia, President Stefano Cordiner — SEEP 2026 Chairman</p>
11:00–11:45	<p style="text-align: center;">EU POLICY ON CIRCULAR ECONOMY & SUSTAINABILITY (Chair: G. Costa)</p> <p style="text-align: center;">EU Policy — Annalisa Corrado, Europarlamentare The circular economy act — Filippo Brandolini, Gruppo Hera S.p.A. Implementation of Community policy in Italy — M. Centemero (CIC)</p>
11:45–12:45	<p style="text-align: center;">AI SYSTEMS APPLIED TO WASTE TREATMENT (Chair: S. Gallo)</p> <p style="text-align: center;">Principles and criteria of AI systems applied to waste and energy management — A2A S.p.A. AI applied to Combustion Technologies for Waste Treatment: Latest Developments — Simone Malvelvezi, A2A S.p.A. Company experiences: TOMRA (X) · SECIT (A. Eleuteri) · Stadler Italia (P. Navarotto)</p>
13:00–14:00	Lunch Break





14:00-15:00	<p>VALORIZATION & ENERGY RECOVERY FROM BIO-WASTE (Chair: A. Eleuteri) Connecting Urban to Rural Area: the Recovery of Organic Waste Producing Biofertilizers and Promoting a Sustainable Circular Economy in Agriculture — F. Adani, Univ. Milano (DiSAA) Integrated treatment plants for OFMSW and the recovery of biomethane and — A. Confalonieri, CIC Company experiences: Acqua e Sole (V. Palomba) · AMA S.p.A. (S. Proietti)</p>
15:00-16:00	<p>THERMAL CHEMICAL RECYCLING FOR THE CONVERSION OF PLASTIC AND/OR MIXED WASTE AND INTEGRATED HYBRID PLANTS (Chair: L. Bartolucci) Gasification of plastic waste, a potential route to chemical recycling: producing low-carbon fuel - Andrea Di Carlo – Università dell'Aquila Thermochemical conversion of plastic wastes and possible strategies for complex feedstock streams — D. Sorino, Tor Vergata Company experiences: Herambiente S.p.A. (M. Giani) · INVECO S.r.l.(X)</p>
16:00	CLOSING OF THE SYMPOSIUM — Stefano Cordiner, SEEP 2026 Chairman
16:30	Coffee Break

13:00-14:00 | Lunch Break

14:00-15:00 | Keynote Lectures: Prof. Ibrahim Dincer · Prof. David Chiaramonti

15:00-16:30	Hydrogen & Energy Storage II	PANEL on Decarbonization	SYMPOSIUM: StreamSTEP
15:00	[SEEP-1091] Preliminary Techno-Economic Assessment of Offshore Wind-Based Green Hydrogen Production in the Korsnäs Area, Finland <i>Seyedehsan Mousavizadeh / University of Vaasa, Finland</i>	[SEEP-1192] Carbon Border Adjustment Mechanisms and International Tax Law: Legal Challenges and Opportunities in the Global Climate Transition <i>Bakhtiyar Aslanbayli / BP, Azerbaijan</i>	Waste heat recovery and upgrade from energy-intensive industrial processes <i>Hussam Jouhara — Brunel University London</i>
15:15	[SEEP-1072] Exergy and Economic Analysis of an All-Liquid Compressed Carbon Dioxide Energy Storage System <i>Shuqi Zhang / Harbin Institute of Technology, China</i>	[SEEP-1193] Challenges and Lessons from Solar Project Development in a Post-Conflict Environment <i>Anar Mansurov / BP, Azerbaijan</i>	The use of heat pipe heat exchangers in solidification of silicon <i>E. J. Øvreliid, P. Tetlie, S. Bao — SINTEF</i>
15:30	[SEEP-1079] Assessment of the AGATUR AE-T100 Quasi-Steady Simulator under High-Hydrogen Regulated Operation <i>Gianluca Cevolani / University of Roma Tre, Italy</i>	Regulatory Compliance as a Strategic Capability <i>Prathna Benimadho / BP</i>	Streamlining the optimisation of sustainable thermal energy systems & prototype technologies <i>S. Bao, E. J. Øvreliid, M. I. Onsjøen — SINTEF</i>
		OPEN DISCUSSION	





15:45	[SEEP-1089] Multi-Objective Techno-Economic Optimization of Green Hydrogen Production from Treated Wastewater <i>Cristina Renzi / ENEA, Italy</i>		Dynamic life-cycle assessment framework for waste heat recovery systems <i>K. Halat, E. Mousania — Imperial College London</i>
16:00			Challenges & options for high delivery-temperature / high-lift heat pumps <i>F. Crespi, P. Rodríguez-deArriba, L. Quirós-Gotarredona, D. Sánchez — Univ. Seville</i>
16:15-16:45 Coffee Break			
16:45-18:15	Sustainable Energy for Buildings & Industrial Processes II	SYMPOSIUM: Maritime Sector Decarbonization	SYMPOSIUM: StreamSTEP (cont.)
16:45	[SEEP-1106] Laboratory spray drying of spent pharmaceutical fermentation broth <i>Klemen Rola / University of Maribor, Slovenia</i>		[SEEP-1039] Challenges in Centrifugal Compressor's Design for Industrial High Temperature Heat Pumps <i>Ahmed M. Amer / Brunel University of London, UK</i>
17:00	[SEEP-1165] Future Challenges and Opportunities of Energy Management Systems in Italy Under the New Energy Efficiency Directive <i>Enrico Biele / ENEA, Italy</i>	PANEL DISCUSSION <u>Moderators:</u> Giovanni Di Ilio, Università di Napoli Parthenope Lorenzo Bartolucci, Università degli Studi di Roma Tor Vergata	Building capability at scale: from static training to intelligent adaptive systems <i>F. Gervasio / INREBUS</i>
17:15	[SEEP-1175] On the feasibility of centrifugal compressors for high-temperature heat pumps <i>Pablo Rodriguez-de Arriba / University of Seville, Spain</i>	<u>Speakers:</u> Massimo Rivarolo – Università degli Studi di Genova Arianna Irace, Innovation Analyst – FINCANTIERI S.p.A. Alessandro Maccari, Asset Vessel Director – RINA Services S.p.A. Stefano Cantarut, Business Development Manager – Wärtsilä Italia	Challenges and options for high delivery temperature and high temperature lift heat pump <i>F. Crespi / University of Seville</i>
17:30	[SEEP-1177] The role of CO2 Heat Pumps in electrifying high temperature end users in the Italian National Energy System <i>Benedetto Nastasi / Tor Vergata University of Rome, Italy</i>		Contribution (title TBC) <i>L. Bagna / INREBUS</i>
17:45	[SEEP-1189] Indoor Environmental Quality in educational buildings: Field Monitoring and Assessment of Thermal Comfort and Air Quality in a Public School in Southern Sardinia <i>Eusebio Loria / Sotacarbo S.p.A. (Sustainable Energy Research Centre), Italy (online)</i>		Contribution (title TBC) <i>H. Badihi / Tampere University</i>





18:00	[SEEP-1204] Physics-Based and Data-Driven Modeling of a Ceramic Dryer: From numerical simulations to Neural Network Prediction <i>Matteo Venturelli / University of Modena and Reggio Emilia, Italy</i>		[SEEP-1107] Time-explicit dynamic life cycle assessment framework for waste heat recovery systems <i>Kourosh Halat / Imperial College London, UK (online)</i>
18:15 End of Technical Sessions — Day 2			
20:00 Gala Dinner — Villa Grazioli, Frascati			





DAY 3 | Wednesday, 22 July 2026

09:00-10:00 | Keynote Lectures: Prof. Ana Inés Fernández · Prof. Antonio García Martínez

Time	Room A	Room B	Room C
10:00-11:00	SYMPOSIUM: Geothermal Energy	Next-Gen Thermochemical Conversion II	Geothermal Energy & Heat Recovery
10:00	[SEEP-1190] Geothermal Energy in Lithuania: Resources, Applications and Future Prospects <i>Rytis Skominas / Vytautas Magnus University, Lithuania</i>	[SEEP-1095] Low-Temperature Catalytic Tar Reforming for Hot Gas Cleaning under Sorption-Enhanced Gasification Conditions <i>Armando Vitale / University of L'Aquila, Dept. of Industrial and Information Engineering and Economics (DIIE), L'Aquila, Italy</i>	[SEEP-1104] Absorption and Adsorption Cooling Driven by Geothermal Gravity Heat Pipes: A Long-Term Feasibility Assessment <i>Sven Gruber / University of Maribor, Slovenia</i>
10:15	[SEEP-1191] Accelerated Silica Scaling Control and Heat Recovery from Geothermal Brine: Design and Field Validation of the GEOFLEXheat System <i>Paolo Taddei Pardelli / Spike Renewables S.r.l., Italy</i>	[SEEP-1037] Sustainable Carbon Monoxide Production via Chemical Looping-Based Coke Oven Gas Reforming and CO2 Splitting <i>Joungho Park / Korea Institute of Energy Research, South Korea</i>	[SEEP-1140] Solar-boosted supercritical CO2 closed-loop geothermal system for multigeneration and green hydrogen production <i>Mohammad Ali Sabbaghi / Dokuz Eylul University, Turkey</i>
10:30	[SEEP-1182] Consolidating supply chains and economic development through geothermal energy innovation <i>Loredana Torsello / Co.Svi.G. - Consorzio per lo Sviluppo delle Aree Geotermiche, Italy</i>	[SEEP-1040] Techno-economic analysis of acetic acid production via an integrated waste gasification - gas fermentation process <i>Miruna Prodan / Babes-Bolyai University, Romania</i>	[SEEP-1141] From awareness to adoption: evidence-based tools and methodologies to support geothermal H&C deployment in industry <i>Dario Bonciani / Co.Svi.G. - Consorzio per lo Sviluppo delle Aree Geotermiche, Italy</i>
10:45	Heat recovery from geothermal sources (title TBC) <i>Hussam Jouhara — Brunel University London</i>	[SEEP-1111] Stable Combustion for Ultra-Low-Load Coal-Fired Boilers Assisted by Coal Gasification <i>Xuerong Cui / Tsinghua University, China</i>	[SEEP-1071] Performance Trade-off of Permeability and Capillary Rise for Optimized Multi-mesh Composite Wick Structures <i>Lin Qiu / University of Science and Technology Beijing (USTB), China</i>
11:00-11:30 Coffee Break			
11:30-13:00	SYMPOSIUM: Geothermal Energy	Hydrogen & Energy Storage III	Reversible Fuel Cells: PEM and Solid Oxide Systems for Energy Storage — A CREA-SUD Project Special Session
11:30	Industrial geothermal solutions (title TBC) <i>Matteo Quaia — Steam Srl</i>	[SEEP-1207] Effect of Ni Incorporation Strategy on the Electrocatalytic Performance of Fe-Based MOFs for Methanol Oxidation <i>Halima Ali Alnaqbi / University of Sharjah, UAE</i>	[SEEP-1051] Fabrication and characterization of RF sputtered Mixed Ionic and Electronic Conductor thin films <i>Maurizio Paone / University of Salerno, Italy</i>





11:45	Geothermal innovation (title TBC) <i>Pufini Obene — Oliveris Tech Incubator Ltd</i>	[SEEP-1176] A Hybrid PV–Battery–Hydrogen System for Seasonal Power-to-X in Agri-Industrial Applications <i>Barbara Mendecka / University of Rome Niccolò Cusano, Italy</i>	[SEEP-1054] Dynamic Modelling and Experimental Validation of Reversible Solid Oxide Cell Systems for Hydrogen-Based Energy Storage within the CREA-SUD Project <i>Michele Martorelli / University of Calabria, Italy</i>
12:00	Geothermal flow technologies (title TBC) <i>Per Kjellgren — Flowphys AS</i>	[SEEP-1124] Production of Alternative Fuels From Renewable Sources: Techno-Economic Implications of Green Hydrogen And Synthetic Methane <i>Stefano Mazzoni / Tor Vergata University of Rome, Italy</i>	[SEEP-1181] Experimental characterization and short stack scale-up of Reversible Proton Exchange Membrane Fuel Cells integrating novel materials <i>Carlotta Cosentini / Sapienza University of Rome, Italy</i>
12:15		[SEEP-1053] Hydrogen Production via Sorption-Enhanced Water-Gas Shift: Experimental Investigation and Process Insight <i>Barbara Malsegna / University of L'Aquila, Italy (online)</i>	[SEEP-1183] Numerical Modeling of Reversible Proton Exchange Membrane Cells in Fuel Cell and Electrolyzer Modes: Development, Validation and Parametric Analysis <i>Emanuele D'Alessio / Sapienza University of Rome, Italy</i>
12:30		[SEEP-1119] Thermal Management Strategies in Metal Hydride Hydrogen Storage Reactors: Comparative Analysis of Brush-Type Fins, Helical Coils, and Entangled Spiral Wires with Emphasis on Manufacturability and Scalability <i>Anderson Guerrero Acosta / Universiad de Medellin, Colombia</i>	
12:45			

13:00-14:00 | Lunch Break

From 14:00 | Social & Cultural Programme — Forma Urbis Museum & Circo Massimo Experience · Sunset Aperitivo, Casina dei Salvi





DAY 4 | Thursday, 23 July 2026

09:00-10:00 | Keynote Lectures: Prof. Abdul Ghani Olabi · Prof. Hussam Jouhara

Time	Room A	Room B	Room C
10:00-11:00	PANEL on Industrial Heat Pipe	Circular Economy & Sustainable Materials III	Sustainable Energy for Buildings & Industrial Processes III
10:00	<p>Organizers:</p> <p>Francesca Tamburrini – European Heat Pump Association Leopoldo Micò – European Heat Pump Association</p> <p>Topics:</p> <ul style="list-style-type: none"> - Policy, with a focus on Industrial Accelerator Act and on the most relevant recently published dossiers -Market overview, with a focus on statistics related to Industrial Heat Pumps -Research and Innovation, with a paramount on the main Active European Projects and the processes standardization activities 	[SEEP-1186] Nature driven solutions for hyper local supply chains <i>Lorna Anguilano / Brunel University of London, UK</i>	[SEEP-1120] Simulation of a Swirling Flow Machine for Micro-Scale Reversible Heat Pump – Organic Rankine Cycle System Recovering Low-Temperature Waste Heat <i>Greta Lombardi / Università telematica eCampus, Italy</i>
10:15		[SEEP-1199] Phytomining and Phytoremediation versus Conventional Remediation: Sustainable Pathways for Restoring Complex Industrial and Mine-Impacted Sites in Europe <i>Uche Onwukwe / Brunel University of London, UK</i>	[SEEP-1163] A Gis-Based Multi-Criteria Framework For Planning Renewable Energy Communities: Integrating Energy, Lifecycle And Landscape Assessment <i>Damiana Chinese / University of Udine, Italy</i>
10:30		[SEEP-1090] Sustainability aspects of using biomethane in agriculture in Slovenia <i>Fouad Al-Mansour / Jožef Stefan Institute, Slovenia</i>	[SEEP-1164] Applying A Gis-Based Multi-Criteria Framework To Industrial-Residential Renewable Energy Community Planning: A Case Study In North-Eastern Italy <i>Damiana Chinese / University of Udine, Italy</i>
10:45		[SEEP-1162] Data-driven prediction of pharmaceutical and COD removal from hospital wastewater in integrated biological-electrochemical treatment systems <i>Muhammad Usman Saleem / NUST / University of Engineering and Technology, Pakistan (online)</i>	[SEEP-1126] Modelling of the roasting process for iron ore in an indirect fired rotary kiln <i>Alina Żabnieńska-Góra / Brunel University of London, UK (online)</i>
11:00-11:30 Coffee Break			
11:30-13:00	Sustainable Energy for Buildings & Industrial Processes IV	Wind and Solar Energy	Master Planning of Energy Systems IV
1130	[SEEP-1153] Sustainable winemaking: energy efficiency of thermal and non-thermal extraction processes <i>Giovanni Landi / ENEA, Italy</i>	[SEEP-1102] Decoding Wind Turbine Noise: A Rotation-Aware Modal Decomposition Approach for Efficient Aeroacoustic Predictions <i>Giacomo Luca Mongelli / Politecnico di Bari, Italy</i>	[SEEP-1075] From Methodology to Monitoring: Evolution of Primary Energy Factors, Efficiency and CO ₂ Indicators of Slovenian District Heating Systems between 2020 and 2024 <i>Marko Đorić / Jožef Stefan Institute, Slovenia</i>





11:45	[SEEP-1154] Numerical modeling of magnetite nanoparticle aggregation and sedimentation in paraffin-based phase change materials <i>Francesco Rovense / ENEA, Italy</i>	[SEEP-1103] The Effect of Wind Shear and Turbulent Fluctuations on an Ultra-Large 22-MW Wind Turbine <i>Carmine Petrarota / Politecnico di Bari, Italy</i>	[SEEP-1050] A novel green solvent to enhance BECCS sustainability: the ENHANCEMENT project <i>Matteo Gilardi / SINTEF Industry, Norway</i>
12:00	[SEEP-1128] Dynamic modelling of a power-to-heat concept for decarbonising the petrochemical sector <i>Greta Lombardi / Università telematica eCampus, Italy</i>	[SEEP-1188] Design, Modelling and Characterization of a Miniature Darrieus-Type Vertical Axis Wind Turbine for Academic Application <i>Khadija Rahmani / University of Blida 1, Algeria</i>	[SEEP-1208] The External Reality: Mapping Renewable Hydrogen Cooperation between the Maghreb and Europe: Price-Responsive Export Potentials <i>Yasmine Ayed / University Lisbon, Portugal (online)</i>
12:15	[SEEP-1130] Different approaches for modeling heat removal from large containers <i>Robertas Poškas / Lithuanian Energy Institute, Lithuania</i>	[SEEP-1201] A Blade-Element/Momentum approach for ducted wind turbines <i>Rodolfo Bontempo / University of Naples Federico II, Italy</i>	[SEEP-1211] SEA-MEC — a Tool for the Calculation of Emissions and Energy Consumption of Ships in Port Areas following a Well-to-Wake Approach <i>Giorgio Zamboni / Università degli Studi di Genova, Italy</i>
12:30	[SEEP-1139] Energy-Aware Production Scheduling as a Low-Capex Decarbonisation Lever for Steel Heat Treatment <i>Joaquín Ordieres-Meré / Universidad Politécnica de Madrid, Spain</i>		
12:45			
13:00-14:00 Lunch Break			
14:00-16:00	Next-Gen Thermochemical Conversion III	Sustainable Mobility & Powertrains II	Battery Thermal Management for EV
14:00	[SEEP-1112] The Pyrolysis of Municipal Sewage Sludge: Process Parameters Optimization to Enhance Biochar Industrial Applications <i>Giulia Nardella / University of Naples Federico II, Italy</i>	[SEEP-1101] Techno economic and environmental assessment of sustainable aviation fuel production via green ammonia decomposition and captured CO2 based on process simulation <i>Eonjun Choi / Gyeongsang National University, South Korea</i>	[SEEP-1027] Study on the Inhibition efficiency and Fire-extinguishing Mechanism of Aerogel Extinguishing Agents on Thermal Runaway of Lithium-ion Batteries <i>Lei Yuan / Sichuan Vocational and Technical College, China</i>
14:15	[SEEP-1122] Performance evaluation of an innovative 100 kWth dual bubbling fluidized bed biomass gasifier coupled with hot gas cleaning and conditioning <i>Alessandro Antonio Papa / University of L'Aquila, Italy</i>	[SEEP-1127] Alcohol blending effect on renewable diesel ignition delay time and reaction kinetic analysis <i>Huaying Wang-Alho / University of Vaasa, Finland</i>	[SEEP-1087] Electrochemical-Thermal-Degradation Parameter Identification Framework Incorporating Low-Temperature Ageing Dynamics <i>Sadegh Mehranfar / University of Oulu, Finland</i>





14:30	[SEEP-1137] Experimental characterization of waste fast pyrolysis for data-driven and physics-informed sub-modeling of fluidized bed gasification <i>Edoardo Nicolucci / Sapienza University of Rome, Italy</i>	[SEEP-1082] Sustainable aviation fuel production from industrial off-gases: Techno-economic analysis and life cycle assessment <i>Jaerak Ko / Gyeongsang National University, South Korea</i>	[SEEP-1088] Comparative assessment and continuum evaluation of Li-ion battery parametrization performance in Purely Mathematical and Mixed (Physico-Chemical Assisted) Parameter obtention Strategies <i>Sadegh Mehranfar / University of Oulu, Finland</i>
14:45	[SEEP-1142] Development of an OpenFOAM CFD Solver for the Simulation of Reactive Flows in Fluidized Bed Reactors <i>Francesco Duronio / University of L'Aquila, Italy</i>	[SEEP-1069] Integrated assessment of SAF and e-SAF pathways under realistic resources constraints in the Republic of Korea <i>Nahyeon Kim / Gyeongsang National University, South Korea</i>	[SEEP-1098] Systems Engineering for Battery Pack Cross-Domain Simulation Preparation <i>Isa Banagar / University of Oulu, Finland</i>
15:00	[SEEP-1052] Life Cycle Assessment of Bio syngas Production: Comparative Analysis of Non-Optimized and Optimized Chemical Process Routes <i>Fahad Javaid / University of L'Aquila, Italy</i>	[SEEP-1067] Development of a high-altitude emission-based LCA framework for Korean launch vehicles <i>Jiwon Lee / Gyeongsang National University, South Korea</i>	[SEEP-1169] Electro-Thermal and Performance Modelling of a Dual Swappable Battery EV for Sustainable Urban Mobility <i>Meisam Babaie / University of Leeds, UK</i>
15:15	[SEEP-1149] Influence of particle size on the torrefaction and fuel properties of dried orange residues <i>Sven Gruber / University of Maribor, Slovenia</i>	[SEEP-1055] Retrofitting an Existing Air Turbocharger for a Closed-Loop Hydrogen-Argon Power Cycle Engine <i>Jérémy Archier / University of Oulu, Finland</i>	[SEEP-1166] Experimental Electro-Thermal Modeling and CFD Analysis of Immersion Cooling for Fast-Charging Lithium-Ion Batteries <i>Jalal Jahanpanah / University of Oulu, Finland</i>
15:30		[SEEP-1123] Delivery emissions estimates: measurements and optimization <i>Blaž Luin / University of Ljubljana, Slovenia</i>	
15:45		[SEEP-1202] Supply-Chain Resilience and Sustainable Aviation Fuel Deployment in the Middle East: Challenges and Strategic Pathways <i>Shoukat Alim Khan / Texas A&M University at Qatar, Qatar (online)</i>	
16:00-16:30 Coffee Break			
16:30-19:00	Hydrogen & Energy Storage IV	Wind Energy & Forecasting	Thermochemical Conversion & Circular Materials
16:30	[SEEP-1043] Bismuth Ferrite/Ti3C2Tx MXene Supercapacitor with Solar Thermal-enhanced and Piezoelectric-driven Self-charging Performances <i>Dong-Hwang Chen / National Cheng Kung University, Taiwan</i>	[SEEP-1018] Evaluation of the Energy Harvesting Potential by means of CFD Simulations <i>Luca Patrino / University of Bologna, Italy</i>	[SEEP-1174] Biomass-to-Hydrogen Conversion via Sorption-Enhanced Gasification: Experimental Results from the GICO, PTR22-24, and PORH2 Projects <i>Umberto Pasqual Laverdura / ENEA, Italy</i>





16:45	[SEEP-1063] Budget-Constrained Sizing Optimization for Battery-Hydrogen Hybrid Systems in Multi-Sector Applications <i>Tram Tran / VAMK University of Applied Sciences, Finland</i>	[SEEP-1033] Dynamic Weighting of Analog Ensembles in Model Prediction Space for Wind Power Forecasting <i>Eunchae Song / Ewha Womans University, South Korea</i>	[SEEP-1194] Pyrolysis of organic residues with CO2 sorption to produce methane rich gas <i>Cesare Freda / ENEA, Italy</i>
17:00	[SEEP-1167] Flexible rGO-Reinforced Solid-State Hydrogel Electrolytes for High-Performance Supercapacitors <i>Imran Zada / CIAE - Centro Iberico Internacional de Investigacion en Almacenamiento Energetico, Spain</i>	[SEEP-1034] Probabilistic Wind Power Forecasting with Kriging-Based Spatial Correction for Enhancing Transmission Congestion Management <i>Mijung Lee / Ewha Womans University, South Korea</i>	[SEEP-1195] Upgrading of a prototype biomass gasifier to produce H2 rich syngas, heat and power via SOFC <i>Cesare Freda / ENEA, Italy</i>
17:15	[SEEP-1171] Polymer-Based Materials as Electrodes and Electrolytes for Advanced Supercapacitor Applications <i>Manab Kundu / CIAE - Centro Iberico Internacional de Investigacion en Almacenamiento Energetico, Spain</i>	[SEEP-1035] Joint Fine-Tuning of Spatially Aware Wind Speed Correction for Improving Wind Power Forecasting <i>Jiyun Choi / Ewha Womans University, South Korea</i>	[SEEP-1187] Techno-economic and environmental assessment of biogas production from olive mill waste and cattle manure in Montenegro <i>Rafat Al Afif / BOKU University, Austria</i>
17:30	[SEEP-1129] Sustainable Energy Solutions: The State of Low Power Harvesting Technologies <i>Aschale Getnet Alemu / Bahir Dar University, Ethiopia</i>	[SEEP-1062] Toward integrable wind data: evaluating statistical methods to correct WRF outputs for future multicriteria wind-farm siting in the Colombian Caribbean <i>César Nieto-Londoño / Universidad Pontificia Bolivariana, Colombia</i>	[SEEP-1121] Pyrolysis in a Fluidized Bed of Torrefied Solid Fraction of Digestate <i>Andrea Di Giuliano / University of L'Aquila, Italy (online)</i>
17:45	[SEEP-1138] Advancing Volumetric Sorption Measurement: Design and Validation of a High-Throughput, Fully Automated Twin-Arm Sieverts Apparatus for Characterization of Hydrogen Storage Materials <i>Julián Arias-Velandia / Universidad de Antioquia, Colombia</i>	[SEEP-1076] GIS-Based Wind Turbine Layout Optimization with Wake Loss Assessment for Wind Energy Potential Estimation in Colombia <i>César Nieto-Londoño / Universidad Pontificia Bolivariana, Colombia</i>	[SEEP-1136] Leucaena seeds' contribution to sustainable development: a model of bacterial and fungal media <i>Maher Abboudi / Atomic Energy Commission of Syria, Syria (online)</i>
18:00	[SEEP-1203] Aluminum as an energy carrier for green hydrogen production: Design and Optimization of Lab-Scale Prototypes <i>Matteo Venturelli / University of Modena and Reggio Emilia, Italy</i>	[SEEP-1096] Exploiting LES computations and machine learning to improve wind turbine wake reproduction in URANS <i>Andrea Carloni / Sapienza University of Rome, Italy</i>	[SEEP-1196] Benchmarking Gradient-Boosted Trees, Tabular Foundation Models, and Deep Ensembles for CO2 Solubility Prediction in Ionic Liquids <i>Muhammad Tawalbeh / University of Sharjah, UAE (online)</i>
18:15 Closing Ceremony & Conference Farewell · End of SEEP 2026			





Keynote speeches details

<p>H.E. Dr. Nawal Al Hosany <i>Permanent Representative of the UAE to the International Renewable Energy Agency (IRENA)</i></p>	<p>Renewable Energy in the UAE and GCC Region: Current Status and Future Prospects</p>
<p>Prof. Fawaz K Bitar FREng (Fuzzy) <i>Senior Vice President Health, Safety, Environment & Carbon, bp, Honorary professor at the University of Aberdeen and Brunel University, London</i></p>	<p>When the wave hits: Reflections on a life in energy</p>
<p>Prof. Cristina Cornaro <i>Full professor of Environmental Applied Physics at the Department of Enterprise Engineering of the University of Rome Tor Vergata, Italy</i></p>	<p>Solar Synergies: Agrivoltaics, Buildings, and the Circular Energy Transition</p>
<p>Prof. Adam Z. Weber <i>Senior Scientist and Leader of the Energy-Conversion at Lawrence Berkeley National Laboratory (LBNL, USA)</i></p>	<p>Hydrogen Generation and Use: Importance of Transport Phenomena</p>
<p>Prof. Christos N. Markides <i>Professor of Clean Energy Technologies, Head of the Clean Energy Processes Laboratory, Imperial College London (UK)</i></p>	<p>Recent developments in advanced solar PV-X multigeneration technologies</p>
<p>Prof. Ibrahim Dincer <i>Full professor of Mechanical Engineering at Ontario Tech University, Oshawa, Ontario</i></p>	<p>New Developments and Direction in Hydrogen Production Technologies</p>
<p>Prof. David Chiamonti <i>Full professor of Energy Economics and Bioeconomy at the Polytechnic of Turin and chairs the Renewable Energy Consortium for R&D (RE-CORD)</i></p>	<p>Biofuels e biomaterial in EU and international policies</p>
<p>Prof. Ana Inés Fernández <i>Director of the Diopma Reseach group, University of Barcelona, Barcelona</i></p>	<p>Advances in Phase Change Materials for Thermal Energy Storage: Materials Perspectives and Engineering Challenges</p>
<p>Prof. Antonio García Martínez <i>Full Professor and Senior Researcher at the Universitat Politècnica de Valencia, Valencia</i></p>	<p>Future sustainable mobility and its implications for CO₂ emissions and energy efficiency</p>





Prof. Abdul Ghani Olabi

Director of the Sustainable Energy and Power Systems Research Centre at the University of Sharjah, UAE

Solar PV Based Cooling Systems

Prof. Hussam Jouhara

Full Professor at Brunel University of London and a Fellow the Royal Academy of Engineering

Decarbonising the Oil and Gas Sector through Advanced Waste Heat Recovery: Real-World Case Studies





Poster session

ALL DAYS | 20-23 July 2026

Corridor between Room A and Room B

[SEEP-1019]	<i>Hyo-Soo Lee</i> Korea Institute of Industrial Technology, South Korea	Low Energy Magnetic Signage Enabled by Solenoid Pixel Circuits and Intelligent Power Applications
[SEEP-1044]	<i>Xiuxiu Han</i> University of Birmingham, UK	Electrocatalytic Strategies for Coupling Biomass Conversion with Clean Hydrogen Generation
[SEEP-1197]	<i>Muhammad Tawalbeh</i> University of Sharjah, UAE	Evaluation of Kolmogorov–Arnold Networks and Tabular Prior-Fitted Networks for Hydrogen Production Rate Prediction in Proton Exchange Membrane Water Electrolysis
[SEEP-1198]	<i>Muhammad Tawalbeh</i> University of Sharjah, UAE	Machine Learning for Holistic End-of-Life Battery Recycling and Second-Life Applications: Optimizing Processes and Sustainability
[SEEP-1206]	<i>Latifa Boukarma</i> Ibn Zohr University, Morocco	Activated Carbon Algae Hybrid Composite as an Eco-Friendly Adsorbent for Crystal Violet Removal from Aqueous Solutions

