



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

20–23 July 2026 | University of Rome Tor Vergata, Italy | Draft Program v23

Keynotes details

H.E. Dr. Nawal Al Hosany <i>Permanent Representative of the UAE to the International Renewable Energy Agency (IRENA)</i>	Renewable Energy in the UAE and GCC Region: Current Status and Future Prospects
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>	When the wave hits: Reflections on a life in energy
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>	Solar Synergies: Agrivoltaics, Buildings, and the Circular Energy Transition
Prof. Adam Z. Weber <i>Senior Scientist and Leader of the Energy-Conversion at Lawrence Berkeley National Laboratory (LBNL, USA)</i>	Hydrogen Generation and Use: Importance of Transport Phenomena
Prof. Christos N. Markides <i>Professor of Clean Energy Technologies, Head of the Clean Energy Processes Laboratory, Imperial College London (UK)</i>	Recent developments in advanced solar PV-X multigeneration technologies
Prof. Ibrahim Dincer <i>Full professor of Mechanical Engineering at Ontario Tech University, Oshawa, Ontario</i>	New Developments and Direction in Hydrogen Production Technologies
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>	Biofuels e biomaterial in EU and international policies
Prof. Ana Inés Fernández <i>Director of the Diopma Reseach group, University of Barcelona, Barcelona</i>	Advances in Phase Change Materials for Thermal Energy Storage: Materials Perspectives and Engineering Challenges





Prof. Antonio García Martínez <i>Full Professor and Senior Researcher at the Universitat Politècnica de Valencia, Valencia</i>	Future sustainable mobility and its implications for CO₂ emissions and energy efficiency
Prof. Abdul Ghani Olabi <i>Director of the Sustainable Energy and Power Systems Research Centre at the University of Sharjah, UAE</i>	Solar PV Based Cooling Systems
Prof. Hussam Jouhara FREng <i>Full Professor at Brunel University of London and a Fellow the Royal Academy of Engineering</i>	Decarbonising the Oil and Gas Sector through Advanced Waste Heat Recovery: Real-World Case Studies





DAY 1 | Monday, 20 July 2026

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

09:00-11:00 | Opening Ceremony & Welcome Addresses — Prof. Nathan Levialdi Ghiron Rector of Tor Vergata University, Prof. Massimiliano Caramia, Prof. Stefano Cordiner & Prof. Abdul Ghani Olabi · Keynote Lectures: H.E. Dr. Nawal Al Hosany · Prof. Fawaz K Bitar FREng · Prof. Cristina Cornaro

11:00-11:30 | Coffee Break

Time	Room B1	Room B2	Room B3
11:30-13:00	Master Planning of Energy Systems I	Circular Economy & Sustainable Materials I	Sustainable Mobility & Powertrains I
11:30	[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-1123] Delivery emissions estimates: measurements and optimization <i>Blaž Luin / University of Ljubljana, Slovenia</i>
11:45	[SEEP-1041] Environmental and economic assessment of integrated urban energy systems with decarbonising technologies <i>Ruiqi Wang / Durham University, UK</i>	[SEEP-1090] Sustainability aspects of using biomethane in agriculture in Slovenia <i>Fouad Al-Mansour / Jožef Stefan Institute, Slovenia</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>Fatimah Balogun / University of Vaasa, Finland</i>
12:00	[SEEP-1047] Life cycle assessment of onshore and offshore CO2 transportation scenarios <i>Alexandru-Constantin Bozonc / 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>
12:15	[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-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>
12:30	[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-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-1116] Experimental Investigation of Passive and Active Pre-Chamber Technologies on a Natural Gas Marine Engine <i>Vincenzo Pennino / CNR-STEMS, 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>		
13:00-14:00 Lunch Break			
14:00-14:45 Keynote Lecture: Prof. Adam Z. Weber			
14:45-16:00	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-1158] CFD simulation for investigation of flow dynamics in a Double-Chamber Electromethanogenesis Reactor <i>Stefanie Feilner / Technische Universität Berlin, Germany</i>	[SEEP-1152] Multi-physics analysis of cooling channel depth in high temperature PEM fuel cells: Trade-off between thermal management and electrochemical performance <i>Mahdi Kheirrouz / Tor Vergata University of Rome, Italy</i>
15:15	[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-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-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-1029] The Political Economy of Energy Efficiency: Thermodynamic Limits, Policy Misalignment and Sustainability <i>Zafer Utlu / Istanbul Atlas University, Turkey</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-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 (ENEA)	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-1106] Laboratory spray drying of spent pharmaceutical fermentation broth <i>Klemen Rola / University of Maribor, Slovenia</i>	<u>PANEL DISCUSSION</u> <u>Panelists:</u> Alessandro Corsini, OWEMES – Sapienza Davide Astiaso Garcia, Secretary General ANEV – Sapienza Francesco Lanni, RSE Giulio Lo Bianco, BaywaRe Enrico Carloni, Energy Expert, Royal Embassy of Denmark Alessandro Severini, Project Manager at iLStudio Engineering & Consulting srl
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 LCA 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-1134] Coordinated Control of PV Inverters for Curtailment Reduction in Radial Low-Voltage Networks <i>Tomasz Sikorski / Wrocław University of Science and Technology, Poland</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>Leonardo Federici / 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 (online)</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 B1	Room B2	Room B3
11:00-13:00	Hydrogen & Energy Storage I	Next-Gen Thermochemical Conversion I	Solar Energy & Grid Integration
11:00	[SEEP-1089] Multi-Objective Techno-Economic Optimization of Green Hydrogen Production from Treated Wastewater <i>Cristina Renzi / ENEA, 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-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>
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-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-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>
11:30	[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-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>
11:45	[SEEP-1042] Bridging Reactor and Regenerator: An Integrated Dynamic Mathematical Model for Advanced SER-Hydrogen Production Process <i>Alessandra-Diana Selejan-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-1131] Photovoltaic module degradation: experimental evaluation of soil and soot contaminants <i>Michele Pinelli / University of Ferrara, Italy</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-1133] Resource-Efficient Short-Term Solar PV Forecasting with Sky Imagery and Weather-Stratified Dataset Splitting <i>Tomasz Sikorski / Wroclaw University of Science and Technology, Poland</i>





12:15	[SEEP-1205] Hybrid PEMFC-Battery Powertrain Modelling with LOHC Hydrogen Supply for Maritime Decarbonisation <i>Davide Sgambato / DG Twin S.r.L, Italy</i>	[SEEP-1168] Universal differential equations for mixed plastic pyrolysis modelling <i>Davide Sorino / Tor Vergata University of Rome, Italy</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-1210] Energy and Carbon Performance of Renewable Methanol Production Using Waste-Derived CO ₂ from Waste-to-Energy and Anaerobic Digestion Systems <i>Elham Ebrahimzadehsarvestani / Università degli Studi di Perugia, 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-1213] Valorization of Shell and Biomass Wastes into Biochar for Sustainable Water Treatment <i>Cheng-Di Dong / NKUST, Taiwan</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>	Regulatory Compliance as a Strategic Capability <i>Prathna Benimadho / BP</i>

PARALLEL TRACK · dedicated room — ATIA-ISWA SYMPOSIUM: «Waste as a Resource» (full day, 10:30–17:30, in parallel with the main program)

10:30–11:00	WELCOME SPEECHES Renato Baciocchi — Univ. Roma Tor Vergata, Vice-Rector for Technology Transfer Paolo Massarini — ATIA ISWA Italia, President Stefano Cordiner — SEEP 2026 Chairman		
11:00–11:45	EU POLICY ON CIRCULAR ECONOMY & SUSTAINABILITY (Chair: G. Costa) 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)		
11:45–12:45	AI SYSTEMS APPLIED TO WASTE TREATMENT (Chair: S. Gallo) 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 Malvezzi, A2A S.p.A. Company experiences: TOMRA (X) · SECIT (A. Eleuteri) · Stadler Italia (P. Navarotto)		
13:00–14:00	Lunch Break		
14:00–15:00	Keynote Lectures: Prof. Ibrahim Dincer · Prof. David Chiaramonti		





15:00–16:00	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)		
16:00-16:30	Coffee Break		
16:30–17:30	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)		
17:30	CLOSING OF THE SYMPOSIUM — Stefano Cordiner, SEEP 2026 Chairman		
13:00-14:00 Lunch Break			
14:00-15:00 Keynote Lectures: Prof. Ibrahim Dincer · Prof. David Chiaramonti			
15:00-16:15	Hydrogen & Energy Storage II	PANEL: Decarbonizing Industries	SYMPOSIUM: StreamSTEP
15:00	[SEEP-1091] Preliminary Techno-Economic Assessment of Offshore Wind-Based Green Hydrogen Production in the Korsnäs Area, Finland Seyedehsan Mousavizadeh / University of Vaasa, Finland	[SEEP-1192] Carbon Border Adjustment Mechanisms and International Tax Law: Legal Challenges and Opportunities in the Global Climate Transition Bakhtiyar Aslanbayli / BP, Azerbaijan	Waste heat recovery and upgrade from energy-intensive industrial processes Hussam Jouhara / Brunel University London
15:15	[SEEP-1159] Dynamic Modeling and Control of a Transcritical CO2 Carnot Battery Luigi Fusco / Tor Vergata University of Rome, Italy	Renewable Energy Via Aqueous Phase Reforming – Engineering Challenges and opportunities Dr. Claudio Amorese / ICMEA Srl	The use of heat pipe heat exchangers in solidification of silicon E. J. Øvrelid, P. Tetlie, S. Bao / SINTEF
15:30	[SEEP-1079] Assessment of the AGATUR AE-T100 Quasi-Steady Simulator under High-Hydrogen Regulated Operation Gianluca Cevolani / University of Roma Tre, Italy	Energy efficiency best practices in aluminium die casting: the Metalpres Donati Spa case study Mr. Riccardo Bonotti / METALPRES Spa	Streamlining the optimisation of sustainable thermal energy systems & prototype technologies S. Bao, E. J. Øvrelid, M. I. Onsøien / SINTEF
		[SEEP-1193] Challenges and Lessons from Solar Project Development in a Post-Conflict Environment Anar Mansurov / BP, Azerbaijan	Copper sector – Advanced Heat Exchangers & HTHPs (HALCOR) E Ziata / Halcor





15:45	[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>	Real-Time Mixed Reality Visualization of 1D/3D Multiphysics Numerical Simulations <i>Dr. Roberto Saponelli PROTESA Spa</i> Efficiency for industrial processes: economic, energy and environmental aspects <i>Mr. Federico Ferrari ALEA Srl</i>	Designing Heat Pumps for High Delivery Temperatures and Large Temperature Lifts <i>P. Rodríguez-deArriba, F. Crespi, L. Quirós-Gotarredona, D. Sánchez / Univ. Seville</i>
16:00			
16:15-16:45 Coffee Break			
16:45-18:30	Sustainable Energy for Buildings & Industrial Processes II (ENEA)	SYMPOSIUM: Maritime Sector Decarbonization	SYMPOSIUM: StreamSTEP (cont.)
16:45	[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>	PANEL DISCUSSION <u>Moderators:</u> Giovanni Di Ilio, Università di Napoli Parthenope Lorenzo Bartolucci, Università degli Studi di Roma Tor Vergata <u>Speakers:</u> Massimo Rivarolo – Università degli Studi di Genova Arianna Irace, Innovation Analyst – FINCANTIERI S.p.A. Katerina Cufar, Innovation Analyst – FINCATIERI S.p.A. Alessandro Maccari, Asset Vessel Director – RINA Services S.p.A. Stefano Cantarut, Business Development Manager – Wärtsilä Italia	Market Areas and New EU Calls for the Sustainable Energy Transition <i>M. L. Potenza/ SINTEF</i> Process and Energy System Automation Research <i>Y. Majanne, M. Vilkkö, and H. Badihi/ Tampare University</i> Building capability at scale: from static training to intelligent adaptive systems <i>L. Bagna, F. Gervasio / INREBUS</i> [SEEP-1107] Time-explicit dynamic life cycle assessment framework for waste heat recovery systems <i>K. Halat, E. Mousania / Imperial College London, UK (online)</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>		
17:15	[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>		
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>		
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>Francesca Poggi / Sotacarbo S.p.A. (Sustainable Energy Research Centre), Italy (online)</i>		





18:00	[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>		
18:15			
18:30 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 B1	Room B2	Room B3
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-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-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 CO ₂ Splitting <i>Hana Kim / Korea Institute of Energy Research, South Korea</i>	[SEEP-1140] Solar-boosted supercritical CO ₂ 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-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>
10:45	GeoFlexHeat – Geothermal Extraction and Upgrade with Flexible Usage for Industrial Heat Applications <i>Hussam Jouhara / Brunel University London</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	Harvesting more power from a geothermal resource: the impact of acid treated brine recovery projects on silica scale management <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	AI-Driven Geothermal Brine Fingerprinting Using Printed Electrochemical Sensor Arrays and Physics-Informed Learning <i>Oliver Buchan & Tateos Tvapanyan / Oliveris Tech Incubator Ltd</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-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	SimuPort: An Open Platform for AI-Assisted Multi-Physics Simulations and Optimizations in Geothermal Energy Development <i>Per Kjellgren / Flowphys AS</i>	[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-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	Flowphys AS: SimuLingua: An AI Foundation Model for Materials Science with applications in geothermal energy <i>Per Kjellgren / Flowphys AS</i>	[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-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	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>		[SEEP-1212] Bifunctional ORR/OER Electrocatalysts for Unitized Regenerative Fuel Cell Systems <i>Jorge Montero / Sapienza University of Rome, Italy</i>
12:45			
13:00-14:00 Lunch Break			
From 14:00 Social & Cultural Program — 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 B1	Room B2	Room B3
10:00-11:00	PANEL on Industrial Heat Pump	Sustainable Mobility & Powertrains II	Sustainable Energy for Buildings & Industrial Processes III (ENEA)
10:00	<u>Organizers:</u> Francesca Tamburrini – European Heat Pump Association Leopoldo Micò – European Heat Pump Association <u>Topics:</u> - 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-1069] Integrated assessment of SAF pathways under realistic resource constraints in the Republic of Korea <i>Nahyeon Kim / Gyeongsang National University, South Korea</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-1067] Development of an altitude-resolved LCA framework for launch vehicles: A case study of NURI (KSLV-II) <i>Jiwon Lee / Gyeongsang National University, South Korea</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-1055] Retrofitting an Existing Air Turbocharger for a Closed-Loop Hydrogen-Argon Power Cycle Engine <i>Jérémy Archier / University of Oulu, Finland</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>Gaia Faggiani / University of Udine, Italy</i>
10:45		[SEEP-1176] A Hybrid PV-Battery-Hydrogen System for Seasonal Power-to-X in Agri-Industrial Applications <i>Simone Lombardi / University of Rome Niccolò Cusano, Italy</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	Battery Thermal Management for EV	Master Planning of Energy Systems IV
11:30	[SEEP-1153] Sustainable winemaking: energy efficiency of thermal and non-thermal extraction processes <i>Giovanni Landi / ENEA, Italy (online)</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>	[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-1087] Electrochemical–Thermal–Degradation Parameter Identification Framework Incorporating Low-Temperature Ageing Dynamics <i>Sadegh Mehranfar / University of Oulu, Finland</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>Luca Del Zotto / Università telematica eCampus, Italy</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>	[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-1098] Systems Engineering for Battery Pack Cross-Domain Simulation Preparation <i>Isa Banagar / University of Oulu, Finland</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	Does Alignment with EU Sustainability Regulation Promote or Stifle Innovation in Thermal Energy–Intensive Industries? Evidence from the StreamSTEP Technology in the Ceramic Sector <i>Prof. Julija Kiršienė, Vytautas Magnus University (online)</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>	[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>
12:45		[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>	[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>
13:00-14:00 Lunch Break			
14:00-15:15	Next-Gen Thermochemical Conversion III	Sustainable Mobility & Powertrains III	Wind and Solar Energy
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-1102] Decoding Wind Turbine Noise: A Rotation-Aware Modal Decomposition Approach for Efficient Aeroacoustic Predictions <i>Giacomo Luca Mongelli / Politecnico di Bari, Italy</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-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>





14:30	[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-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-1188] Design, Modelling and Characterization of a Miniature Darrieus-Type Vertical Axis Wind Turbine for Academic Application <i>Khadidja Rahmani / University of Blida 1, Algeria</i>
14:45	[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-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>	[SEEP-1201] A Blade-Element/Momentum approach for ducted wind turbines <i>Rodolfo Bontempo / University of Naples Federico II, Italy</i>
15:00	[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-1202] Supply-Chain Resilience and Sustainable Aviation Fuel Deployment in the Middle East: Challenges and Strategic Pathways <i>Haifa Rauf Mahsood / University of Doha for Science and Technology, Qatar (online)</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>
15:15-15:45 Coffee Break			
15:45-17:30	Hydrogen & Energy Storage IV	Thermochemical Conversion & Circular Materials	Wind Energy & Forecasting
15:45	[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-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>	[SEEP-1018] Evaluation of the Energy Harvesting Potential by means of CFD Simulations <i>Luca Patruno / University of Bologna, Italy</i>
16:00	[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-1194] Pyrolysis of organic residues with CO2 sorption to produce methane rich gas <i>Cesare Freda / ENEA, Italy</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>
16:15	[SEEP-1167] Flexible rGO-Reinforced Solid-State Hydrogel Electrolytes for High-Performance Supercapacitors <i>Imran Zada / CIAIE - Centro Iberico Internacional de Investigacion en Almacenamiento Energetico, Spain</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>	[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>
16:30	[SEEP-1171] Polymer-Based Materials as Electrodes and Electrolytes for Advanced Supercapacitor Applications <i>Manab Kundu / CIAIE - Centro Iberico Internacional de Investigacion en Almacenamiento Energetico, Spain</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>	[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>





16:45		[SEEP-1121] Pyrolysis in a Fluidized Bed of Torrefied Solid Fraction of Digestate <i>Andrea Di Giuliano / University of L'Aquila, Italy (online)</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>
17:00		[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>	[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>
17:15			
17:30 Closing Ceremony & Conference Farewell · End of SEEP 2026			





Poster session

ALL DAYS | 20-23 July 2026

[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-1070]	<i>Hui Luo</i> Tsinghua University, China	In Situ Investigation of Intermediate Species Formation during Coke CO ₂ Gasification by Planar Laser-Induced Fluorescence
[SEEP-1111]	<i>Xuerong Cui</i> Tsinghua University, China	Stable Combustion for Ultra-Low-Load Coal-Fired Boilers Assisted by Coal Gasification

