Sunday – May 25, 2025

12:00 18:00	**CONFERENCE REGISTRATION**
16:30 18:00	**Pre-Congress Panel (Online / Onsite in Turkish) (HALL B)** **Innovative Hydrogen Policies in Combating Climate Change** **Moderator**: **Adnan Midilli**, *ITU Energy Institute, Türkiye* **Panelists**: **Arif Hepbaşlı**, *Yaşar University, Türkiye*; **Hatice Eser Okten**, *IZTECH, Türkiye*; **Osman Arda Göçmen**, *Ford Otosan, Türkiye*; **Elis Şaşmaz**, *Topkapı Industry, Türkiye*; **Yusuf Can Uz**, *Filament Technology, Türkiye*

Monday – May 26, 2025

07:30 09:00	**CONFERENCE REGISTRATION**	
09:00 09:30	**OPENING CEREMONY (HALL A)** **Can Ozgur Colpan**, *Congress Co-Chair* **Azize Ayol**, *Congress Co-Chair & Dean of Faculty of Engineering, Dokuz Eylul University* **Bayram Yılmaz**, *Honorary Chair & Rector of Dokuz Eylul University*	
09:30 09:50	**OVERVIEW TALK (HALL A)** **Ibrahim Dincer**, *National Hydrogen Association President* **National Hydrogen Association and Critical Advantages of Hydrogen**	
09.50 10:20	**SPECIAL TALK (HALL A)** **Abdullah Bugrahan Karaveli**, *TENMAK President* **Türkiye's Long-Term Energy Strategy and the Role of Hydrogen**	
10:20 10:30	**Sponsor Recognition Ceremony (HALL A)**	
10:30 10:50	**Coffee Break**	
	KEYNOTE SESSION 1 (HALL A) **Session Chair: Adolfo Iulianelli**	**EXHIBITION**
10:50 11:30	**Luigi Crema**, *President, Hydrogen Europe Research / Fondazione Bruno Kessler* **Overview on the European Research and Innovation in the Hydrogen Sector: Best Practices and Priorities**	
11:30 12:10	**Adélio Mendes**, *University of Porto, Faculty of Engineering* **Given a North to the Energy Decarbonization**	
12:10 12:20	**Family Photo (In front of Rectorate Building)**	
12:20 14:00	**LUNCH** *(Lokal Çatı Restaurant, Dokuz Eylul University Rectorate)*	

Monday – May 26, 2025

PARALLEL SESSIONS – 1

	HALL A	HALL B	HALL C	HALL D	HALL E	
	Session 1. Strategic Stakeholder Presentations **Session Chairs: Adnan Midilli & Arif Hepbaşlı**	**Session 2. Fuel Cells and Applications – I** **Session Chair: Bora Timurkutluk**	**Session 3. Sustainable Hydrogen Technologies – I** **Session Chair: Bestami Özkaya**	**Session 4. Hydrogen Carriers – I** **Session Chair: Pedro J. Megía**	**Session 5. Modeling, Simulation, and Optimization – I** **Session Chair: Thomas Fend**	
14:00 16:00	**Emre Yıldırım** *TENMAK, Türkiye* Strategic R&D Initiatives in Hydrogen Technologies at TENMAK **Hilal Gümüşlü** *TENMAK, Türkiye* Policy Framework on Hydrogen Technology and Calls **Ali Rıza Arslan** *Hydrogenix* Evaluations about Hydrogen and BESS Vehicles **Ornov Maulik** *Anton Paar* Characterizing Metal Hydrides and their Hydrogen Storage Capacity **Nurettin Tekin** *Kawasaki* Hydrogen Road of Kawasaki Heavy Industries **#238** "Innovative Blue Hydrogen Production from Gas Hydrate – Methane" *S. S. Çelebi, G. Çifçi, S. Obut, E Ercek* **#309** "Studies Conducted on On-Board/On-Site Catalytic Hydrogen Production and Carbon Capture and Utilization (CCU) in the SNG & Hyd Tec Lab at Boğaziçi University" *A. E. Aksoylu, B. S. Çağlayan*	**#146** "Development of Hydrogen Powered Ejection System for Air Platform" *T. Kalay, H. Özcan, S. Çelik* **#230** "Optimized Event-Triggered Control for Enhancing Solid Oxide Fuel Cell Performance and Stability" *H. Kılıç, İ. Poyraz, M.E. Asker* **#262** "Parametric Estimation and Performance Analysis of Direct Ethanol Fuel Cells and Lithium Batteries for Hybrid Energy Systems" *M. Y. Çelikdemir* **#263** "An Innovative Approach to Determine Effective Variables on Fault Detection of PEMFCs" *M. Y. Çelikdemir, S. Çelikdemir* **#282** "Synergistic Effects of Temperature, Gas Flow, and Clamping Force on Fuel Cell Performance" *B. Yılgın, F. G. B. San, C. Celik* **#355** "Hybrid Plus Electrodes for Improved Fuel Cell Performance and Durability" *A. C. Ince, W. Liyanage, S. Babu, U. Pasaogullari, J. Spendelow* **#110** "Experimental Study on Regenerative Fuel Cell Performance: Electrolyzer and Fuel Cell Mode Analysis" *M.A. Kesercioğlu, F.G. Boyacı San, N. Sözbir, Y. Çay* **#111** "Performance Optimization and Design Advancements of Proton Exchange Membrane Fuel Cells for Portable Energy Applications" *A. Algherbawi, S. Ekici*	**#224** "Enhancement of Ionic Conductivity in Anion Exchange Membranes: Effect of Modified MOF Structures in PBI Membranes" *H. Altınışık, Y. Devrim* **#287** "Applications of MWCNTs in HHO Dry Cell Technology" *M. K. Baltacıoğlu, O. Bulut, Ç. Conker* **#288** "Enhancing HHO Dry Cell Efficiency with Graphene-Supported Electrolytes" *M. K. Baltacıoğlu, O. Bulut* **#289** "Metaheuristic Optimization of PID Controllers for Temperature Regulation in HHO Dry Cells" *C. Conker, M. K. Baltacıoğlu* **#290** "Development of Dopamine Modified Graphene Oxide Doped Composite Anion Exchange Membranes" *N. G. Önel, Y. Devrim* **#275** "Preparation of Pyridine Polybenzimidazole / Amine Functionalized Boron Nitride Composite Membrane" *R. Akay, A. H. Ali, H. N. Arkalı, G. Aktaş, Z. Pekdemir, E. Erünal* **#268** "Theoretical Insights into ZIF-71: Adsorption Potential for H_2 and H_2S as well as Its Response to External Electric Field" *O. S. Sarisoy, Y. Gürdal* **#272** "H_2 Sorption Potential of ZIFs Revealed Through Grand Canonical Monte Carlo Simulations" *G. Tunç, Y. Gürdal*	**#134** "NH_3 Synthesis with Ca_2NH Supported Ru Catalyst Under Mild Conditions" *T. A. Boynueğri, J.T.S. Irvine, G. Irvine, S. Jowitt, O. Magdysyuk, H. Ünsal, A. Long* **#165** "A Study on Fe-Zr/Al_2O_3 Catalyst for Hydrogen Production via Sodium Borohydride Methanolysis" *E. Ertun, Ö. Şahin* **#196** "Various Metal Oxide Catalysts Supported on Al_2O_3 for Hydrogen Generation from Alkaline $NaBH_4$ Solution" *S. Salt, H. Erdoğan, H. E. Figen, M. K. Elibol* **#216** "Investigation of the Activity of Composite Nanofiber Catalysts Synthesized by Electrospinning Technique for Hydrogen Production from Boron Fuels" *B. E. Ülgen, B. C. Filiz, A. K. Figen* **#223** "Borohydrides as a Hydrogen Source for Highly Selective Catalytic Methanol Production: Inside into Perovskite-Type Catalyst" *G. Özdemir, B. C. Filiz, F. N. Tekeli, A. K. Figen* **#329** "Modification of MOF-235 with Graphene Oxide for Enhanced Hydrogen Production from Sodium Borohydride Hydrolysis" *R. Ozdemir, D. Unlu* **#247** "Hydrogen Production via Methanolysis of Sodium Borohydride Using La_2O_3 and $La_2O_2CO_3$ Nanowire Catalysts" *E. Engintepe, S. Duman, A. N. Akın* **#252** "Synthesis and Characterization of Nanostructured La_2O_3-Based Catalysts for Hydrogen Production via $NABH_4$ Methanolysis" *E. Engintepe, S. Duman, A. N. Akın*	**#241** "Machine Learning-Based Modeling and Performance Analysis of Solid Oxide Electrolysis Cells (SOECs)" *M. T. Durmaz, M. S. Akkuş* **#267** "Design and Performance Analysis of Hybrid Renewable Energy System with Hydrogen Storage: A Case Study In İzmir" *Y. A. Yıldız, Ş. E. Hayber* **#270** "Fuzzy Logic-Controlled Load Management in a Hybrid Microgrid with Fuel Cell, Wave, Solar, and Wind Power Integration" *Ş. Ataç, M. Güçyetmez* **#278** "Feature and LSTM-Based Capacity Prediction for Lithium-Ion Batteries: Application of Linear Regression and LSTM Models, with Future Expansion to Fuel Cell Datasets and Optimization" *S. Akkaya, M. Uyar* **#284** "A Data-Driven DA-LSTM Approach for Predicting PEMFC Degradation Trends in Dynamic Load Conditions" *N. K. Ekmekçi, M. Uyar* **#184** "Simulation and Analysis of Methane Thermal Decomposition in an Aerosol Flow Reactor" *İ. Ekmekci, İ. Karabay* **#218** "Development and Assessment of a Solar Energy-Based Multigeneration Plant Integrated with a Hydrogen Generation Unit for Clean Products" *F. Yılmaz, Y. E. Yuksel, M. Ozturk* **#217** "Design and Analysis of a Biomass-Based Integrated Plant for Green Hydrogen Generation and Beneficial Commodities" *F. Yılmaz, M. Ozturk, R. Selbas*	EXHIBITION
16:00 16:30	**Coffee Break (with Poster Session-1)**					

Monday – May 26, 2025

PARALLEL SESSIONS – 2

HALL A

Session 6. Catalysts for Hydrogen Applications – I

Session Chair: Ramazan Solmaz

Invited Speaker
Saim Özkar
Middle East Technical University, Türkiye

Recent Advances in Catalyzing the Hydrolytic Dehydrogenation of Ammonia Borane

16:30 18:45

#190 "The Synthesis of Ni-Co-B Catalyst for Ammonia Borane Dehydrogenation" *I. Nas, R. Kiziltas, A. Koç, E. Yildirim*

#191 "Development of Rhodium-Based Catalyst for Ammonia Borane Dehydrogenation" *A. Koç, R. Kiziltas, I. Nas, E. Yildirim*

#81 "The Effect of Different Types of Metal Phthalocyanine on the Electrodecomposition of H_2S to H_2 and Polysulfides" *F. Nazari, A. Sarioglan, M.S. Yazici*

#84 "Nickel-Lanthanum Catalysts Supported on Silicon Carbide to Produce CO_x-free Hydrogen and Valuable Carbons Under Microwave Energy" *H.P. Köse, D. Varışlı*

#85 "Development of Silicon Carbide Supported Nickel-iron Bimetallic Catalysts for Microwave-assisted Catalytic Methane Decomposition" *C. Acar, D. Varışlı*

#86 "Cu-Btc Synthesis via Solvothermal and Microwave-assisted Methods: Characterization and Adsorbent Applications" *D. Dumlu, N. Ayas*

#124 "Enhanced Alcohol Oxidation in Acidic and Alkaline MEADIA Using Pt-Modified Nickel Layered Double Hydroxide Supported on Multiwall Carbon Nanotubes and Carbon Black Surfaces" *S. Saipanya, J. Jakmunee, L. Fang*

HALL B

Session 7. Hydrogen Vehicles and Mobility – I
(Sponsored by HABAŞ)
Session Chair: Canan Acar

#10 "Assessment of Metaheuristic Algorithms of Fuel Cell Vehicles: A Short Review" *O. Yasar, M.U. Karaoglan, C.O. Colpan*

#34 "Environmental Assessment of a Hybrid Ship Electrification System Integrating Molten Carbonate Fuel Cells, Battery, and Waste Heat Recovery" *O. Yuksel, E.Blanco-Davis, V. Shagar, A. Spiteri, D.Hitchmough, M.C. Di Piazza, M. Pucci, N.Tsoulakos, J. Wang*

#68 "Simulation of Wheeled and Tracked Fuel Cell Vehicles: A Comparative Study Using Proposed a New Tool Called PADSIP" *B. Açık, M.U. Karaoğlan, Z.S. İşleyen*

#72 "A Dual-Layered Control Strategy for Ultracapacitor/PEMFC Hybrid Systems in Micro-FCEVs" *A. Yılmaz, N. Aksoy, G. Bayrak*

#315 "Assessment of Hydrogen and Methanol as Alternative Fuels in the Shipping Industry" *S. A. Korkmaz, E. T. Livanos, S. Afshan*

#260 "Determining the Hydrogen Pipeline Route in Türkiye for Sustainable Energy Transition Between Asia and Europe Using Hybrid Optimization" *M. T. Özdemir, S. Çelikdemir*

#36 "Effect of Hydrogen Addition on the Energy and Environmental Performance of a Compression Ignition Dual Biofuel Engine" *A. Rimkus*

#105 "An Optimization Model for Heavy-Duty Fleet Transition using Hydrogen Fuel-cell Vehicles" *F. Eser, Ş.I. Satoğlu*

HALL C

Session 8. Combustion of Hydrogen and Fuel Mixtures – I

Session Chair: Alberto Figoli

#113 "Numerical Simulations of Reacting Flows in Hydrogen Enriched Methane Blends and Pure Hydrogen Combustion" *H. Monteiro, L. Marcon, F. Oliveira, L. Vaz*

#136 "Effects of Hydrogen Enrichment and Gravity on Soot Formation in n-dodecane Laminar Diffusion Flames: A CFD Study" *A. Korucu*

#176 "Non-Premixed Hydrogen Combustion for an Industrial Ceramic Furnace: A Numerical Analysis" *S. Yılmaz, T. Bayramoğlu, K. Bayramoğlu, A. Özarslan, B. Kılıç, A. Akbay*

#319 "Predictive Modelling for Enhanced Petrol Engine Reliability with Petroleum and Hydrogen Fuels Mixture" *J. Matijošius, T. Žvirblis, A. Rimkus, U. Kale, A. Kilikevičius*

#344 "Bayesian Optimization Framework for Hosting Capacity Evaluation in Hydrogen-Electricity Integrated Networks" *S. Shahzad, H. Kilic*

#59 "Numerical Investigation of Exhaust Emissions of Hydrogen-Diesel Dual Fueled Medium-Speed Marine Diesel Engine under Different Fumigated Hydrogen Mass Fractions" *E.F. Pehlivan*

#31 "The Synergistic Effect of HHO Gas and Gasoline-Bioethanol Blends on Spark Ignition Engine Efficiency and Emissions" *A. Rimkus, E. Kozłowski, J. Matijošius, M. Zimakowska-Laskowska*

#54 "Effects of Hydrogen Addition on Methane Fuel Reactivity in High-temperature $CO_2/O_2/N_2$ Coflow in a Non-premixed Lab-scale Tube Burner" *M.K. Büyükakın*

#55 "Experimental and Numerical Study of a Low NO_x Emissions Gas Turbine Combustor for NH_3/H_2 Mixture with Mild Combustion at High Pressure" *M.K. Ansari, S. Kumar*

HALL D

Session 9. Photocatalysis and Water Splitting

Session Chair: Giuseppe Barbieri

#17 "Solid Solution Oxide Catalysts for Enhanced Visible-light-driven Hydrogen Evolution by Water Splitting" *T.P. Perng*

#205 "$LaNiO_3$-Perovskite Type Photoelectrode Synthesis and Photoelectrochemical (PEC) Performance for Hydrogen Production" *B. Yıldırım, M. İ. Aydın, A. K. Figen*

#209 "Ga-Doped ZnO Coated Stainless Steel Electrodes for Photoelectrochemical Hydrogen Production" *S. Ayca, I. Dincer*

#303 "Design of a New Photonically Enhanced Electrolyser with ZnS Photocatalyst" *M. Gursoy, I. Dincer*

#350 "Development of Stability and Efficiency of $CsPbBr_3$ Perovskite Solar Cells" *Ş. Tüzüner, O. Mahmood, Ş. Ela, A. Vomiero*

#39 "Machine Learning Analysis of Photocatalytic Hydrogen Production over Halide Perovskites" *B. Yılmaz, R. Yıldırım*

#276 "Understanding the Kinetic Mechanism of WO_3 Photoanodes for PEC Applications" *E. I. Haznedar, F. Uçar, E. Ardalı, E. Altuntaş, S. Kaya*

#193 "Performance Assessment of Low-Cost Transition Metal-Based Electrode and Catalyst for Photoelectrochemical and Photocatalytic Hydrogen Generation" *M. Ayoub, I. Dincer*

HALL E

Session 10. Green Hydrogen Technologies

Session Chair: Bilge Çoşkuner Filiz

#67 "Sustainable Energy Solutions: 3D Printed PLA-NiMo@Ag for Green Hydrogen Production" *B. Doğru Mert, H. Nazlıgül, G. Aksaray, M.E. Mert, M. Seyedzavvar, G. Kardaş*

#70 "Application of Response Surface Methodology in Hybrid Green Hydrogen System Design and Optimization" *M. Gül, E. Akyüz*

#71 "Spatial Multicriteria Decision-making for Green Hydrogen Production: A Case Study of Southern Marmara, Türkiye" *M. Gül, E. Akyüz*

#145 "Determination of Green Hydrogen Production Capacity by Wave Energy Prediction: Model Development with an Adaptive Hybrid Method" *M. Tan*

#149 "Solar Driven Green Hydrogen Production: TiO_2@MOS_2 Nanocomposite Synthesis and Performance" *M. Yurdakul, B. Yıldırım, A.K. Figen*

#266 "MLP Hyperparameter Optimization and Price Prediction Models on Fuel-cell Stock Data: Stability and Performance Analysis" *S. Akkaya, Ş. E. Hayber*

#273 "Evaluation of Green Hydrogen Production Using Weibull and Gamma Distributions: Technical, Economic, and Environmental Perspectives" *Y. A. Yıldız, M. Güçyetmez*

#340 "Boosting the Performance of Layered Titanate in Photocatalytic Water Splitting" *E. Doustkhah*

#135 "Green Hydrogen Production in Energy Islands" *N. Yabar, C. Haydaroğlu, A.N. Akpolat, H. Kılıç*

EXHIBITION

19:00 20:30

Welcoming Reception *(Foyer)*

Tuesday – May 27, 2025

PARALLEL SESSIONS – 3

08:30 – 09:00 Conference Registration

HALL A

SPECIAL SESSION
Membrane Technologies in H_2 Production, Separation, and Utilization - I
Session Chairs: A. Iulianelli & C.O. Colpan

Adele Brunetti
National Research Council – Institute on Membrane Technology, Italy

Lecture 1: Sustainable E-fuel Production: Catalytic and Photocatalytic Membrane Innovations

Ivana Perović
Vinca Institute of Nuclear Sciences, Serbian National Institute, Serbia

Lecture 2: Advances in Electrochemical Catalysts for Enhanced Hydrogen Production in Membrane Reactors

Antonio Vita
National Research Council – Institute of Advanced Technologies for Energy, Italy

Lecture 3: 3D-printed Ni-alloy based Structured Catalysts with Locally Tuned Porosity and Shape for Process Intensification of Ammonia Synthesis and Decomposition

David Alique
Rey Juan Carlos University of Madrid, Spain

Lecture 4: Towards the Industrialization of Pd-based Membranes Synthesis for Hydrogen Applications: Continuous Flowing Electroless Pore-Plating

HALL B

Session 11. Catalysts for Hydrogen Applications – II

Session Chair: Alessandra Beretta

#231 "Electrodeposition of Highly-Efficient Iron-Ruthenium Alloy Cathodes for Hydrogen Evolution Reaction in Alkaline Solutions" *D. Kutyła*

#237 "Electrodeposition of Nanocone-Shaped Ni–Pt Alloys for Enhanced Electrocatalytic Activity in Alkaline Solutions" *D. Kutyła*

#244 "Cobalt Doped Platinum-Cellulose-Carbon Aerogel Prepared by Supercritical Deposition as Electrocatalyst for Hydrogen Evolution Reaction" *A. Alsuhile, P. S. Pein, B. Schroeter, I. Smirnova, C. Erkey*

#254 "Investigation of the Effect of Tween Surfactant on Catalytic Performance and Structural Properties in the Electrochemical Deposition of Platinum" *J. H. Özdemir, A. K. Figen, O. K. Özdemir*

#277 "H_2 Evolution Reaction Pathways of Cobalt Based Molecular Catalysts Investigated by AB-initio Simulations" *Y. Gurdal*

#98 "Next-Gen Energy Catalysis: MXENE-Based Composites for High-Impact Hydrogen Evolution Reaction" *D. Onaylı, D.Ö. Özgür*

HALL C

Session 12. Combustion of Hydrogen and Fuel Mixtures – I

Session Chair: Selda Ozkan

#177 "Numerical Investigation of the Effect of the Co-Combustion of Hydrogen and Natural Gas on Temperature and Carbon Emissions in Ceramic Furnace" *B. Kılıç, K. Bayramoğlu, S. Yılmaz, T. Bayramoğlu, A. Özarslan, A. Akbay*

#185 "Investigation of NO_x Reduction by NH_3-SCR In Aftertreatment System for H_2 Internal Combustion Engine" *T. B. Sarı, S. E. Bozbağ, D. Ş. Yıldız, C. Erkey*

#207 "Probative Assessment of Hydrogen Enriched Methane Induction in Gasoline Direct Injection Engine for Homogeneous Stoichiometric Lean Mixture Formation" *E. G. Varuvel, J. Stanley, L. J. Martin*

#302 "An Alternative Fuel for Afterburner: Energy and Economic Comparison for NH_3/H_2 and JP-8" *E. Oğur, A. Koç, H. Yağlı, Ö. Köse, Y. Koç*

#311 "CFD-Based Thermal and Emission Analysis of a 2D Hydrogen-Fueled Combustor Using Real Engine Data at Cruise Altitude" *Y. F. Görgülü, S. Ekici, T. H. Karakoc*

#312 "Combustion and Emission Behavior of a Hybrid Ammonia–Jet-A Blend Under Real Jet Engine Operating Conditions" *Y. F. Görgülü, S. Ekici, T. H. Karakoc*

HALL D

Session 13. Hydrogen in Smart Grids and Microgrids

Session Chair: Damla Eroğlu Pala

#40 "Use of Conventional and Renewable Energy in Türkiye's Hydrogen Supply Chain: A Grid-based Risk Assessment" *H. Kırış, M.G. Güler, Ö.N. Bilişik*

#213 "Type-2 Fuzzy MPPT Control of Fuel Cells Using a Hybrid Genetic-Grey Wolf Optimizer" *Ö. F. Özcan*

#214 "Hybrid Optimized Takagi Sugeno Type 2 Fuzzy-Based Voltage–Frequency Controller for Fuel Cell Integrated Isolated Microgrid" *Ö. F. Özcan, H. Kılıç, Ö. F. Özgüven*

#228 "Enhancing Longevity of Hydrogen-Powered Electric Vehicles, an Adaptive Neuro Fuzzy Control-Based High-Gain, Low-Stress Power Converter" *M. Özden, D. Ertekin, K. Baltacı*

#229 "Design and Implementation of Pseudo Levenberg-Marquardt Learning Artificial Neural Network Controller for Power Conversion in Fuel Cell to Battery Charging Systems, Improving Power Efficiency and Reliability" *M. Özden, D. Ertekin, K. Baltacı*

#261 "Sustainable Energy Based on Optimizing Load Frequency Control in Military Microgrid" *M. T. Özdemir, S. Çelikdemir, B. Yıldırım*

HALL E

Session 14. Hydrogen Safety

Session Chair: Nader Javani

#44 "Hydrogen Detection and Electrical Properties of Perovskite $BaTiO_3$ Schottky Diode" *L.B. Tasyurek, H. Karakurt, N. Kilinc*

#51 "Spin Polarized Dichalcogenide Alloy for Selective Adsorption of Gases" *A.I. Ayesh*

#52 "Evaluation of Deformation via in situ SEM and EBSD on Hydrogen Embrittlement" *S.H. Nahm, H.S. Yun*

#127 "HAZOP and Fault Tree Analysis of Ammonia Leakage in a Ship's Ammonia Fuel System" *B. Zincir, B.A. Zincir*

#291 "Systematic Risk Analysis for Hydrogen Fuel Cell Vehicles and Safety Management in Fuel Cells" *N. Özaslan, B. Tanç*

#271 "SIC Schottky Diodes: Electrical Characterization and Gas Sensor Applications" *L. U. Kendirli, L. B. Taşyürek, N. Kılınç*

09:00 – 10:30 EXHIBITION

10:30 – 10:50 Coffee Break (with Poster Session-2)

KEYNOTE SESSION 2 (HALL A)
Session Chair: Azzam Abu Rayash

10:50 – 11:30 **John T. S. Irvine**, *University of St. Andrews*

Interfacial Engineering in Solid Oxide Cells

11:30 – 12:10 **Eileen Yu**, *University of Southampton*

An Electrolysis and Microbial Electrochemical Hybrid System for Hydrogen Production and Wastewater Treatment

12:10 – 14:00 **LUNCH** *(Lokal Çatı Restaurant, Dokuz Eylul University Rectorate)*

Tuesday – May 27, 2025

PARALLEL SESSIONS – 4

	HALL A	HALL B	HALL C	HALL D	HALL E	
	SPECIAL SESSION **Membrane Technologies in H_2 Production, Separation, and Utilization - II** **Session Chairs: A. Iulianelli & C.O. Colpan**	**Session 15. Fuel Cells and Applications – II** **Session Chair: İnci Eroğlu**	**Session 16. Catalysts for Hydrogen Applications – III** **Session Chair: Tsong-pyng Perng**	**Session 17. Hydrogen Economy, Infrastructure, and Policy – I** **Session Chair: Emrah Erginer**	**Session 18. Gasification and Reforming Technologies** **Session Chair: Eileen Yu**	
14.00 16:00	**Giuseppe Barbieri** *National Research Council – Institute on Membrane Technology, Italy* **Lecture 5: Revolutionizing Syngas and Biogas Valorization: Advanced Membrane Gas Separation for CO_2 and H_2 Recovery** **Simona Liguori** *Clarkson University, United States* **Lecture 6: Engineering a Paradigm Shift in How We Think About Reactors: Metallic Membranes for Highly Intensified Hydrogen Production** **Kamran Ghasemzadeh** *University of Edinburgh, United Kingdom* **Lecture 7: In situ Hydrogen Production, Utilisation and CO_2 Valorisation for Fuel Production by Membrane Reactor Technology** **Gabriel Bernardo** *University of Porto, Portugal* **Lecture 8: Carbon Molecular Sieve Membranes for the Purification of Hydrogen** **#63** "Synthesis, Characterization of MOFs, and Evaluation as Adsorbents in Hydrogen Purification" *Z. Bilgin, D. Dumlu, N. Ayas* **#4** "Optimization of Green Hydrogen Electrolyser Plant Efficiency and Required Power Quality Solution" *T. Aydın, H. Bezerra* **#11** "The Potential of Offshore Wind Farms as Hydrogen Fuel Station: A Case Study of Marmara Sea" *V. Dixit, C. Acar*	**Sarp Kaya** *Koç University* **Koç University Hydrogen Technologies Center (KUHyTech): Pioneering Sustainable Innovation for the Future** **#12** "Development of Operation Strategies for Improving Polymer Electrolyte Membrane Fuel Cell System Water Management and Hydrogen Circulation" *J. Bae, H. Park, I.J. Son, S. M. Park* **#24** "A-site Deficient $La_{0.4}Ca_{0.4}Ti_{0.995}Pt_{0.005}O_3$ with Low Pt Substitution as an Oxygen Reduction Electrocatalyst for Fuel Cell Applications" *S. Ozkan, S.Kim, J.T.S. Irvine* **#32** "Analysis of $MgCr_{2-x}Mn_xO_4$ (X=0.1/0.5/1) Spinel and LSM Composite Coatings as a Protective Layer for SOFC Interconnect" *H. Unsal, C.D. Savaniu, J.T.S. Irvine* **#102** "Experimental Analysis of Reversible Solid Oxide Cells Performance Degradation from Varying Power Ratios and Switching Frequencies in Operation" *N. Ali, G. Loreti, D. Pumiglia, Y.De Pra, L.D. Seta, V. Cigolotti, G. Monteleone, D. Borello* **#109** "Investigation of LSC-Based Composite SOFC Cathode Layers by ESD Coating Method" *E. Erğen, S. Akkurt* **#233** "Investigation of Carbon Felt Fabric as a Gas Diffusion Layer in PEM Fuel Cells: Stability and Coating Capability" *A. Şirin, J. H. Özdemir, O. K. Özdemir, N. Alp, M. Alp, E. Akarsu* **#234** "Investigation of Fuel Cell Performances by Recycling Used Membranes" *B. Aktaş, O. K. Özdemir, J. H. Özdemir*	**#163** "NASICON ($Na_3NiCo_2(PO_4)(SO_4)_2$) Doped Polyaniline as a New Candidate Electrocatalyst in Hydrogen Evaluation Reaction" *S. M. Yılmaz, A. K. Figen* **#181** "Development of Ce-Promoted Ni-Based Methanation Catalysts for Enhanced CH_4 Production" *B. Acar, B. S. Çağlayan, A. E. Aksoylu* **#182** "A Mechanistic Drifts-MS Investigation and Active Intermediate Determination of DRM at Low Temperature over Ru-La/ZrO_2 Catalyst" *O. Ordulu, A. Uzun, C. Öztepe, B. M. Eropak, B. S. Çağlayan, A. E. Aksoylu* **#183** "Operando Drifts Investigation of Active Intermediates in CO_2 Methanation over Ni-La/γ-Al_2O_3 Catalysts Under Low H_2/CO_2 Feed Ratios" *C. Öztepe, O. Ordulu, A. Uzun, B. M. Eropak, B. S. Çağlayan, A. E. Aksoylu* **#74** "Shaped Ni/Mesoporous CeO_2 as Active Catalysts in Hydrogen Production from Acetic Acid Oxidative Steam Reforming" *Á.M. de la Calle, A.J. Vizcaíno, A. Carrero, J.A. Calles, P.J. Megía* **#170** "Influence of pH on Nickel Oxide Nanoparticles Synthesized via an Accessible Sol-Gel Method for Efficient Hydrogen Evolution Catalysis" *E. Vázquez-Vázquez, M. Hernández-Rodríguez, O. S. Feria, O. E. Cigarroa-Mayorga* **#154** "Preparation of Zinc and Cobalt with Boron Doped Nickel Electrodes for Alkaline Electro-catalytic Hydrogen Production Activities" *A.D. Tümer, C. Demir, B. C. Filiz* **#226** "High-Entropy NiCoCuFeMoMnOx Oxide Thin Films Deposited via Open-Air Pulsed Laser for Efficient Electrocatalytic Oxygen Evolution Reaction" *H. Mahdavi, A. A. Alamdari, U. Ünal, H. Jahangari*	**#83** "Hydrogen Fuel Viability in EU Maritime Transport with Emissions and Policy Implications" *B.A. Zincir, B. Zincir* **#97** "Planning And Managing Renewable Gas Integration in the Portuguese Natural Gas Network" *F. Machado, L. Fernandes, L. Marcon* **#155** "Design of a Future Hydrogen Supply Chain Under Carbon Emission Constraints: The Case Study of Central Anatolia" *T. Ulusoy, A. Döyen, M.G. Güler* **#173** "Impact of Transportation Constraints on Hydrogen Supply Chain Performance of Türkiye" *B. Türkali-Özbek, A. Erdoğan, M. G. Güler* **#187** "Green Energy Transition in Data Centers: The Economic Perspective of Hydrogen Use at Dicle University" *C. Haydaroğlu, M. Taban, F. Barlaz, H. Kılıç* **#227** "The Role of Hydrogen Energy in Net Zero City Strategies" *M. T. Balta, M. Ö. Balta* **#256** "A Comparison of Systemic Performance: The Framework Models of Hydrogen Strategies in (Inter)National Energy Policies for Clean Energy Transition" *E. Gürler, A. Gürler Akdeniz, Y. Ateş, A. R. Boynueğri* **#356** "A Novel Framework of Synergistic Hydrogen City Design for Urban Decarbonization and Net-Zero Energy Autonomy" *A. Abu-Rayash*	**#73** "Hydrogen from Bio-oil: Thermodynamic Insights on Steam Reforming Technologies" *P.J. Megía, C. Rocha, A.J. Vizcaíno, A. Carrero, J.A. Calles, L.M. Madeira, M.A. Soria* **#87** "Steam Reforming of Sugar Beet Pulp with Dolomite-Based Ni-La Catalyst" *S. Karadeniz, T.K. Kanatlı, N. Pourmoghadam, N. Ayas* **#195** "In Situ Characterization of Pt-Re-Na/CeO_2 System and Operando Analysis of WGS Mechanism on its Sites by FTIR-DRIFTS-MS" *B. M. Eropak, A. Uzun, B. S. Çağlayan, A. E. Aksoylu* **#215** "Transfer Learning from Steam and Dry Reforming of Methane to Tri-Reforming of Biogas for Syngas Production" *R. Yıldırım, A. Coşgun, M. E. Günay* **#248** "A Simulation Study for Hydrogen Production from Low Rank Turkish Lignite Through Gasification in Trijen Pilot Plant in Soma" *Ö. O. Er, G. Kavas, M. Ünsal, A. S. Kartay, N. Ünlü, E. Muşdu, Ö. Ataç* **#259** "Thermal Modelling of Autothermal, Steam, and Partial Oxidation Solid Oxide Fuel Cell Reformers" *M. T. Çoban, H. Genceli, M. Asker, O. E. Turgut, M. S. Turgut* **#294** "Experimental and Theoretical Study of an Active Ni Nanocatalyst for the Hydrolysis of Sodium Borhydride and Dimethylamine Borane" *E. Karabulut, M. S. İzgi, E. Onat, S. Faal, F. A. Çelik, Ö. Şahin* **#347** "Sewage Sludge and MSW Gasification for Hydrogen Production: Integrating Renewable Energy with Desalination and Agriculture" *O. Tezer, A. Ayol*	**EXHIBITION**
16:00 16:30	**Coffee Break (with Poster Session-3)**					

Tuesday – May 27, 2025

PARALLEL SESSIONS – 5

	HALL A	HALL B	HALL C	HALL D	HALL E	
	WORKSHOP **Innovations on Hydrogen-based Processes & Technologies** **Session Chair: Adolfo Iulianelli & Canan Acar**	**Session 19. Electrolysis and Electrolyzer Technologies – I (Sponsored by ARMELSAN Energy)** **Session Chair: Hamdi Şükür Kılıç**	**Session 20. Hydrogen Storage Systems – I** **Session Chair: Tugba Akkas Boynuegri**	**Session 21. Renewable Hydrogen Technologies and Integration** **Session Chair: Anıl Erdoğan**	**Session 22. Hydrogen Use in Industrial Applications** **Session Chair: Ismail Ekmekci**	
16:30 18:30	**Alberto Figoli** *National Research Council – Institute on Membrane Technology, Italy* **Operational Plan for Hydrogen Research, POR H_2 – EU/NextGeneration EU – Program Agreement MASE/ENEA PNRR** **Selmiye Alkan Gürsel** *University of Sabanci, Türkiye* **The Hydrogen Valley Project of Türkiye: HYSouthMarmara Hydrogen Shore** **Jan Veres** *Technical University of Ostrava, Czech Republic* **Research Excellence for Region Sustainability and High-Tech Industries, REFRESH – International Project** **Antonio Agresta** *National Agency for New Technologies, Energy and Sustainable Economic Development, Italy* **Driving Innovation Towards Future Aviation with Cutting-Edge Refuelling Technologies and Processes ALRIGH2T – EU Project** **Krzysztof Kapusta** *Clean Coal Technology Centre – Centre for Climate and Renewable Energy Research, Poland* **Development of H_2 Oriented Municipal Waste Refinery Based on a Novel Borehole Gasification Process Combined with Advanced Gas Separation Techniques, HYDROMINE – EU Project** **Alessandra Beretta** *Politecnico di Milano, Italy* **EMERALD – A Novel Electrified Reactor with Radial Current and Flow for the Intensification of Endothermic Catalytic Processes Research Project Funded by Air Liquide**	**#78** "Dynamic Modeling of an Anion Exchange Membrane Electrolyser" *S. Obut* **#305** "Electrolysis-Based Hydrogen Production Using Coaxial Cylindrical Electrodes with a Scrubber-Wire Cathode" *D. Erdemir, A. Y. G. Kara, I. Dincer* **#144** "Enhanced PEM Water Electrolysis with Low Equivalent Weight Aquivion® Membranes" *F. Giacobello, S. Siracusano, M.A. Mancuso, V. Cicciò, A. Muscolino, A.S. Aricò* **#90** "Green Hydrogen Production through AEM Electrolysis Technology" *V. Cicciò, S. Siracusano, S.C. Zignani, M. Pascale, A.S. Aricò* **#91** "MOS_2-Based Catalyst for Hydrogen Production in PEM Electrolysis" *M.A. Mancuso, S. Siracusano, F. Giacobello, V. Cicciò, A. Muscolino, A.S. Aricò* **#100** "Rapid and Scalable Synthesis of 3D Gas Diffusion Electrodes for AEM Water Electrolysers" *F. Lisi, R. Viscardi, I. Gualandi, E. Scavetta, F. Mariani, A. Fasolini, F. Basile* **#120** "Text-mining and Bibliometric Analyses for Proton Exchange Membrane Electrolyzers" *A. Fırtın, A. Yılmaz, İ. Eroğlu, R. Yıldırım, D. Eroğlu* **#130** "Synthesis of New Polystyrene Based Anion Exchange Membrane for Alkaline Electrolyzer" *L. Başat, M. Farsa, G. Kardaş*	**#6** "Numerical Study of Novel Thermal Management Methods for Hydrogen Storage in a Metal Hydride Reactor" *F. Selimefendigil, G.Şenol, H.F. Öztop* **#16** "FEM Based Numerical Study of Hybrid Nanofluid Enhanced Hydrogen Absorption in a Metal Hydride Reactor" *F. Selimefendigil, G. Şenol, H.F. Öztop* **#35** "Statistical Analysis of Hydrogen Storage on Boron Materials via Machine Learning" *A. Stif, E.C.Özcan* **#116** "Influence of the Technology for Obtaining IMC of The Mg-7%Ni-3%Ce System on the Evolution of Phase Transformations" *N. Ukhamedova, A. Miniyazov, Z. Ospanova, A. Sabyrtaeva, K. Shaikieva* **#118** "Integrating Metal Hydride-based Hydrogen Storage Tank with a PEM Fuel Cell Stack for Enhanced Energy Efficiency in Underwater Applications" *B. Sezgin, T.Öztürk, İ. Eroğlu* **#122** "Role of Hydrogen Adsorption and Desorption in Underground Storage Within Coal Seams" *Ö. İmir, Ş. Merey, A. Fişne* **#158** "Optimization of Assembly Torque and Lubrication Amount for Hydrogen Tank Valves" *O. Özkan* **#322** "Production and Characterization Sulfonated Polyphenyl Sulfone PEM Membrane for Vanadium Redox Battery" *E. Çolak, S. Kahraman, B. Çetin, D. Ünlü, F. Nigiz*	**#8** "Solar Thermochemical Hydrogen Generation with a 250-kW Structured Reactor: Experiences from Tests at the Jülich Solar Tower" *T. Fend, V.K.Thanda, J. Lampe, S.Menz, S.Schmitz, G.Piesche, S.Berger* **#50** "Securing Geothermal Energy Projects: Hydrogen Production and Underground Storage as a Solution for Electricity Market Fluctuations" *H. Aydın, S. Merey* **#77** "AI-Based Optimization of a PV-Battery-Electrolyzer System for Green Hydrogen Production" *A. Yılmaz, N. Aksoy, G. Bayrak* **#236** "The Evaluation of Renewable Energy Alternatives in Hydrogen Supply Chain in Türkiye Using Hybrid Fermatean Fuzzy AHP-WPM Approach" *H. Kırış, Ö. N. Bilişik* **#202** "Thermodynamic Evaluation of Hybrid Thermochemical Process for Lignin to Hydrogen and Methane Conversion" *S. Yadav, F. Khalid* **#201** "Thermodynamics Assessment of a New Three-Step Cycle for Methane to Methanol and Hydrogen Production" *V. Yadav, I. Khan, F. Khalid* **#306** "An Experimental Investigation for Improved Hydrogen Production from Magnesium-Seawater Reaction" *Y. Hafez, I. Dincer* **#307** "Application of Synthesized Ammonium Formate as an Electrolyte in Stainless Steel-Stainless Steel Electrode H-Cell Configuration" *C. G. Turk, I. Dincer*	**#133** "Optimizing Energy Investments for Growing Demand of Türkiye: Hydrogen-Based Batteries and Renewable Integration" *A.O. Kabil, M.G. Güler* **#232** "Designing a Multiple Production System Based on CO_2 Capture and Utilization in Glass Industry" *I. Akgun, I. Dincer* **#281** "Theoretical Investigation of Using of Hydrogen and Natural Gas Blending in Slab Tundish Heating Systems for Green Steel Revolution" *H. T. Arat, M. K. Baltacıoğlu, S. M. Has* **#358** "Solar-based Green Hydrogen Production for Decarbonizing Natural Gas: An Emissions Perspective" *H. Sahin* **#115** "Hydrogen Integration and Energy Management in the Textile Industry" *V. Jayakumar, R. Deepan Hendry, S. Dhakshanamoorthy, M. Jagan* **#206** "Utilization of a Boron Co-Doped Activated Carbon/Starch Based Metal-Free Biocathode for Hydrogen Production" *A. T. Goren, I. Dincer* **#199** "Activated Charcoal for Sustainable Solid State Hydrogen Storage by Physical Adsorption" *A. Capoglu, I. Dincer*	**EXHIBITION**
19:00 21:00	**Banquet** *(Lokal Çatı Restaurant, Dokuz Eylul University Rectorate)*					

Wednesday – May 28, 2025

PARALLEL SESSIONS – 6

08:30 – 08:45 Conference Registration

08:45 – 10:45

HALL A

Session 23. Hydrogen Economy, Infrastructure and Policy – II (Sponsored by ARMELSAN Energy)
Session Chair: Jan Veres

Invited Speaker
Tareq Al-Ansari
Qatar Environment and Energy Research Institute

Role of Hydrogen in the Energy, Water and Food Nexus

#359 "A Policy on H_2/SAF Valley in Türkiye" *A. Midilli*

#255 "Hydrogen Value Chains in Positive Energy Districts: A Multi-Level Analysis on the Dynamics between Energy Transition Plans and Integrated Spatial Planning" *A. Gürler Akdeniz, E. Gürler, Y. Ateş, A. R. Boynueğri*

#253 "Critical Path Analysis for a Future Hydrogen Supply Chain: A Case Study for Central Anatolia" *M.G. Gürler, T. Ulusoy, A. Döyen, F. Kosanoğlu*

#265 "Optimizing Hydrogen Refueling Infrastructure in Qatar: A Maximum Coverage Location Model Approach" *C. Méndez, R. Baldacci, M. Contestabile, Y. Bicer*

#310 "Techno-Economic Analysis of Green Hydrogen Production: Investigating Hybridization Potential in İzmir" *E. D. Gülay, C. O. Colpan, M. A. Ezan*

HALL B

Session 24. Hydrogen Vehicles and Mobility – II

Session Chair: Antonio Vita

#188 "Comparative Life Cycle Carbon Emissions Assessment of Utilizing Diesel Oil and Hydrogen Fuel on a Ferry" *O. Konur, M. E. Aydın, M. S. Aydın*

#204 "High Voltage Gain LLC Resonant Converter Design for Energy Transfer from Fuel Cell Electric Vehicle to Electric Vehicle" *M. Akkuş, E. Akboy, A. R. Boynueğri*

#211 "Investigation of T-Class Fuel Cell Hybrid Electric Off-Road Vehicle" *Z. S. İşleyen, M. U. Karaoğlan*

#221 "Performance Analysis of a Small Hybrid Vehicle on Inclined Roads Under WLTP Class 2 Drive Cycle" *B. Yılmaz, C. O. Colpan*

#225 "Uninterrupted Communication with PEMFC-Enhanced UAVs in Disaster Scenarios" *M. Kayaoğlu, S. Unal, B. Calisir*

#251 "Design of a Standalone Electric Vehicle DC Fast Charging Station Based on a Hybrid Energy System with Fuel Cell and PV for a Tourist Resort" *M. Yıldırım, S. Unal*

#314 "Numerical and Experimental Investigation of Electric and Fuel Cell Hybrid Mini UAV" *İ. Sağlam, Z. İşleyen, M. Karaoğlan, Ş. Yavuz*

#174 "Mathematical Modeling and Ground Tests of a Fuel Cell Hybrid Unmanned Aerial Vehicle in Cruise Phase" *M. Azer, M. U. Karaoğlan, C. O. Colpan, T. H. Karakoc*

HALL C

Session 25. Fuel Cells and Applications – III

Session Chair: Adele Brunetti

#125 "Development of Flat-Tubular Solid Oxide Fuel Cells via Mold Casting" *K. Bilgil, Ç. Timurkutluk, S. Onbilgin, B. Timurkutluk*

#129 "Microtubular Solid Oxide Fuel Cells with Ytterbium Doped Zirconia Electrolytes" *Ç. Timurkutluk, E. Yıldız, G. Germen Tutaş, S. Onbilgin, B. Timurkutluk*

#132 "Lightweight and Optimized End Plates for PEM Fuel Cells: A Comparative Structural Analysis" *F. Çetiner, A.E. Kılıç, S. Çelik, S. Toros, R.E. Ece*

#142 "Developing And Designing Different Channel Types for Micro Direct Methanol Fuel Cells Based on Mitochondria Cell Structure" *M. Menteş, A.E. Kılıç, S. Çelik, F.D. Güzel, M.K. Birhanu*

#157 "Scale up Techniques for PEMFC: Fluid Mechanics Approach" *G. Tol, A.C. Türkmen, C. Çelik, F.G. Boyacı San*

#186 "Improvement of Voltage Stability with Hydrogen Fuel Cell-Supported STATCOM" *N. Yabar, C. Haydaroğlu, A. N. Akpolat, H. Kılıç, A. Top*

#212 "Impact of Current Density on Temperature and Water Content Distribution in a PEM Fuel Cell using a Coupled Heat and Mass Transfer Model" *M. Jahanbakhsh, E. Aydın, C. Erkey*

HALL D

Session 26. Thermodynamics of Hydrogen Energy Systems

Session Chair: Aysel Kantürk Figen

#5 "Efficiency and Performance Analysis of IT-SOFC Integrated with S-CO_2 Brayton Cycles: A Comprehensive Study on Waste Heat Utilization" *S. Beygül, Y. Kalıncı*

#197 "Thermodynamic Analysis of Synthetic Fuel Production from Carbon Dioxide Obtained from Carbon Capture Facility in Oil Refinery by Combination of Hydrogen Production and Power Conversion" *S. B. Sungur, E. Kayabasi, E. Alp*

#198 "Analysis of Synthetic Fuel Production Utilizing the Waste Heat from Blast Furnace Hot Stoves by Combination of Thermal Energy Storage and Power Cycle" *S. B. Sungur, E. Alp, E. Kayabasi*

#192 "Performance Assessment of Hydrogen Production from Geothermal-Solar Based ORC System" *Y. N. Atak*

#208 "Thermodynamic Modeling of an Innovative Integrated Polygeneration System Using Sustainable Energy Resources" *M. A. Sabbaghi, C. O. Colpan, H. Genceli*

#330 "Green Hydrogen Production Station: Applying Exergetic Sustainability Parameters to a 1 MW PEM Electrolyzer" *A. E. Aluç, A. Midilli*

#308 "Mathematical Modeling and Simulation of an Anion Exchange Membrane Water Electrolyzer Using COMSOL Multiphysics" *A. Demirtaş, C. O. Colpan, Y. Devrim, Y. N. Atak*

#141 "Thermodynamic and Electrochemical Modeling of Direct Methanol Fuel Cell System for Portable Applications" *E. Kalkan, M. Alobeid, S. Çelik, H. Özcan*

HALL E

Session 27. Sustainable Hydrogen Technologies – II

Session Chair: Ivana Perović

#333 "A Compact, Efficient, and Sustainable Approach to Green Hydrogen Production Using PV Systems" *H. Topcan, A. Akpolat, U. Aydemir*

#343 "Hybrid Hydrogen Systems for Mitigating Sub Synchronous Oscillations in Weak Power Grids" *S. Shahzad, H. Kilic*

#313 "Boosting Photocatalytic Hydrogen Production through Ni_2P/g-C_3N_4/Ti_3C_2 Quantum Dots" *D. Akyüz, B. Güven, E. Demirbaş*

#338 "Metal-organic Frameworks for Hydrogen Storage" *S. Demir*

#283 "Manta Ray Foraging Optimization for Accurate Parameter Estimation of Proton Exchange Membrane (PEM) Fuel Cell Model" *D. Yağcı, H. Genceli, O. E. Turgut*

#299 "Application of Coolant Flow Channels with Different Geometries in PEM Fuel Cell" *M. Taş, K. M. W. Logan, G. Elden*

#89 "Plasma-catalytic Method of Methane Conversion in Microwave Discharge" *M. Skakov, A. Miniyazov, T. Tulenbergenov, I. Sokolov, A. Agatanova*

#151 "Speed Control of a Synchronized Induction Motor Powered by Hydrogen Fuel Cell" *H. Erdoğan*

EXHIBITION

10:45 – 11:05 Coffee Break (with Poster Session-4)

Wednesday – May 28, 2025

PARALLEL SESSIONS – 7

	HALL A	HALL B	HALL C	HALL D	HALL E	
	PANEL **Hydrogen Technologies in the Defense Industry**	**Session 28. Electrolysis and Electrolyzer Technologies – II** **Session Chair: Gülfeza Kardaş**	**Session 29. Hydrogen Storage Systems – II** **Session Chair: S. Aykut Korkmaz**	**Session 30. Sustainable and Renewable Hydrogen Technologies** **Session Chair: David Alique**	**Session 31. Biohydrogen and Waste-to-Hydrogen** **Session Chair: Krzysztof Kapusta**	
11:05 12:50	**Moderator** **Selmiye Alkan Gürsel** *Sabancı University, Türkiye* **PANELISTS** **Deniz Demirci** *Secretariat of Defense Industries (SSB), Türkiye* **Hüseyin Devrim** *TEKSIS, Türkiye* **Uğur Kayasal** *Roketsan Missiles Inc., Türkiye* **Devrim Köseoğlu** *Turkish Aerospace Industries (TUSAŞ), Türkiye* **İbrahim Pamuk** *LENTATEK, Türkiye* This panel aims to provide insights into how hydrogen can revolutionize military propulsion systems, enhance energy resilience, and support sustainable logistics.	**#138** "Synthesis of NiFeMo HER Catalyst on Nickel Foam for AEM Electrolyser" *Y.S. Adam, M. Farsak, G. Kardaş* **#166** "Simulation-Based Performance and Cost Optimization of Alkaline Electrolysers" *S. Ş. Demirezen, H. Özcan, S. Çelik* **#168** "Comparison of IrO_2-FeVS and IrO_2-FeVS-Co Catalysts in PEM Electrolysis at Different Temperatures" *M. Çokyaşa, A. Ekinci, Ö. Şahin, O. Baytar* **#243** "Experimental Analysis of Proton Exchange Membranes for Water Electrolyzers Across a Range of Operating Parameters" *A. Albadwi, S. B. Selçuklu, M. F. Kaya* **#48** "Optimization of Boron-doped Nickel Electrodes for Enhanced Hydrogen Production via Alkaline Electrolysis" *C. Demir, K.A. Uğurlu, D. Türkyılmaz, A.D. Tümer, B.C. Filiz* **#139** "Investigation of Long-term Degradation Effects in PEM Electrolyzers" *A. Çankaya, S. Çelik, B. Sevinç, K. Dağıdır, H. Özcan* **#148** "Design of Single Porous Transport Layer with Strut-based Lattice Structures for PEM Electrolyzers" *K. Dağıdır, A. Çankaya, S. Çelik*	**#126** "Geological Hydrogen Storage for Long-duration Energy Resilience" *A. Özmumcu, A. Baba* **#180** "Performance Assessment of a Hybrid Compressed Air Energy Storage System Fed by Hydrogen from RES" *V. Tola, R. Caria* **#210** "Performance of Metal Hydride Composite Compacts for Hydrogen Storage and Fuel Cell Powering" *A. Parida, P. Sharma, M. Palanisamy, R. Thangavel, A. Dalal* **#239** "Fly Ash-Derived Supported Iron Catalysts for Efficient Ammonia Decomposition: A Sustainable Approach for CO_x-free Hydrogen Storage" *B. Sekizkardeş, S. F. Kurtoğlu-Öztulum* **#285** "Structural Modification of the AB-Type TiFe Alloy with V, Zr and Ni: Study of the Solid-State Hydrogen Storage Capacity and Kinetics at Room Temperature" *J. A. L. Rodas, J. A. Velandia, R. A. Ocampo, A. A. Z. Gil, S. Bello, E. Correa, C. Arrieta, F. J. Bolivar, F. E. Echeverria* **#361** "Intelligent Health monitoring of Hydrogen Storage and Transport Systems" *S. Sikdar* **#38** "A Novel Experimental Approach for Hydrogen Storage Using an External Electric Field" *A.K. Gandham, V.K. Pal*	**#298** "Sustainable Hydrogen Production Through Hybrid Nanofluid Integrated Evacuated Tube Solar Collectors with Organic Rankine Cycle" *S. G. Güngör* **#346** "From Agricultural Waste to Renewable Energy: Integration of Soil-based Microbial Fuel Cells in Biobed Systems for Sustainable Treatment of Olive Oil Mill Wastewater" *S. Gunes, A. Ayol* **#316** "Producing Hydrogen and Heat from Solar Towers: A Path toward Energy-Independent Cities" *E. Kocaman, H. Yağlı, H. Tutumlu, E. Oğur, R. Yumrutaş* **#106** "Investigation of the Conditions for the Use of New Generation Hydrogen Generator in Geothermal Power Plants: Kizildere Geothermal Field Case Study" *R. Ş. Çetin, F.G.Boyacı San, F. S. T. Haklıdır* **#249** "Renewable Energy-Based Hybrid System Optimization for Wastewater Treatment Plants: A Case Study on Hydrogen and Ammonia Production" *E. B. Güneş, H. Tekin, H. Kılıç* **#334** "Hydrogen Production from NaCl, $CaCl_2$ and $MgCl_2$ Salts using Carbon Rods Extracted from Waste Batteries" *S. Damarseckin, M. Erden, A. Atiz, H. Karakilcik, M. Karakilcik* **#366** "Development and Analyses of a Nuclear-Driven Polygeneration System with Helium Brayton Cycle, Hydrogen and Ammonia Production, Ejector Cooling, and Desalination" *O. Kizilkan, G. Soytürk*	**#42** "Comparative Analysis of Biohydrogen Production Studies in Türkiye Using Evidence Synthesis Methodology" *K.K. Yiğit, T. Keskin-Gündoğdu* **#43** "Evaluating the Performance of Boosting Regressors for Predicting Biohydrogen Production under Variable Experimental Conditions" *M.A. Ergün, T.K. Gündoğdu, B.E. Köktürk- Güzel* **#99** "Evaluation of Hydrogen Production Efficiency by Dark Fermentation Process of Various Airport-derived Wastes" *F. Altay, N. Semerci, A. Öngen, Ş. Duran, M.C. Altay, N. Yeşilova* **#219** "Challenges and Limitations of Dark Fermentative Hydrogen Production" *Ş. Arıcı, G. Koçar* **#220** "Integration of Dark Fermentation and Microbial Electrolysis Cells for Hydrogen Production from Wheat Straw" *Y. D. Yilmazel, İ. Konar, R. Kunayeva, İ. Bulat, R. Harb* **#345** "Comparative Assessment of Bioelectricity Generation from Various Industrial Wastewaters and High-strength Organic Wastes Using Microbial Fuel Cell Technology" *I. Biryol, A. Ayol* **#79** "Enhanced Catalytic Performance of Titanium Dioxide-supported CuCo Bimetallic Catalyst for Hydrolysis of Ammonia Borane" *M. Kılıç, E. Özdemir*	**EXHIBITION**
12:50 13:30	**LIGHT LUNCH** *(Foyer)*				**Optional Social Tour (starts at 12:30)**	
	KEYNOTE SESSION 3 (HALL A) **Session Chair: Azize Ayol**					
13:30 14:10	**Feridun Hamdullahpur**, *University of Waterloo* **Green Ammonia: A Pragmatic Pathway for Early Green Hydrogen Commercialization**					

Wednesday – May 28, 2025

14:10 – 14:30 — **NHA AWARDS CEREMONY & REMARKS (HALL A)**

PARALLEL SESSIONS – 8

14:30 – 16:30

HALL A

Session 32. Catalysts for Hydrogen Applications – IV

Session Chair: Hadi Genceli

#23 "Development of Fe-C Microwave Catalysts for Conversion of H_2S into CO_x-free H_2" *N. Demirhan, H.Akansu, Y. Ataseven, M.Y.Doğan, S.Yaşyerli, H.Arbağ, H.M.Taşdemir, N.Yaşyerli*

#29 "Ultrasonic Spray Synthesis of Coal Layered Double Hydroxide: A Novel and Scalable Approach to Oxygen Reduction Catalysis" *K. Büyükkanber, Ö. Şahin*

#66 "Synthesis of Ru/C and PtRu/C Catalysts by Microwave-Assisted Polyol Method at High Temperature and Pressure" *S. Karadeniz, N. Ayas*

#69 "Microwave Assisted Methane Decomposition Reaction Using Nickel-palladium Catalysts Supported on Different Carbon Supports" *R.C. Seyfeli, D. Varisli*

#119 "Preparation of Pd/Ni Foam Catalyst and Its Catalytic Performance for Hydrogen Production by Hydrolysis of Ethylenediamine Bisborane Solution" *O.S. Angı, G. Özkan, G. Özkan*

#274 "Understanding of the Activity of NiFe Oxide Based OER Catalysts Toward Mesoporous NiFe Oxide Thin Films" *A. E. Başaran, C. Karakaya, N. Solati, S. Kaya*

#75 "Comparison of Performances of Imidazole-based Polymeric Catalysts for Hydrogen Production" *M. Zumacı, K. Gökkuş, M. Gür*

#370 "Development of Innovative Catalysts for AEM Electrolyzers Through Various Electrodepotions Techniques" *E.S. Akyüz, Ö. Aydın, B. Hüner, E. Telli, M. Farsak*

HALL B

Session 33. Sustainable Hydrogen Technologies – III

Session Chair: Shirsendu Sikdar

#46 "Trends and Insights in Hydrogen Energy: A Bibliometric Approach" *N. Ersoy, İ. Ekmekci*

#189 "Hydrogen Production from Wastewater of Domestic Heat Pump Based Tumble Dryers: An Innovative Approach for Sustainable Energy" *A. Erdogan, A. Basdemir*

#28 "Modeling the Economic Viability of Integrated Hydrogen Fuel Cell / Heat Pump CHP Systems for Residential Applications" *F. Laan, C. Acar, W Rohlfs*

#108 "Optimizing Hydrogen/Vanadium Redox Flow Batteries: Advanced Electrode Modifications for Enhanced Performance" *V.C. Erdoğan, B. Fıçıcılar*

#167 "Effect of Temperature and Cathode Flow Rate on Performance of Hydrogen-Bromine Redox Flow Battery" *A. C. Turkmen, C. Celik, F. G. B. Sa*

#194 "Development of Membranes for Hydrogen Bromide Redox Flow Batteries" *K. C. Ata, A. C. Türkmen, F. G. B. San, C. Çelik*

#360 "The Effect of Earthquakes on Underground Hydrogen Storage Caverns" *H. Karakilcik*

#164 "Green Synthesis of MnVS and Co-Doped MnVS Nanoparticles: Applications in Photocatalysis and Hydrogen Production via Methanolysis" *M. Çokyaşa, Ö. Şahin, A. Ekinci, O. Baytar*

HALL C

Session 34. Hydrogen Carriers – II

Session Chair: Özgün Tezer

#25 "Investigating the Superior Effect of g-C_3N_4 on Co-B Catalysts for Efficient Hydrogen Generation via $NaBH_4$ Hydrolysis" *B.C. Çelik, H.Elçiçek*

#47 "Cobalt-copper-boron Doped Graphitic Carbon Nitride as a Promising Catalyst for Hydrogen Production Via Sodium Borohydride Hydrolysis" *Ö. Şahin, F.E.G. Güner, M.E. Kenar*

#348 "Hydrogen-rich Syngas for Cold Chain Logistics: A Life Cycle Assessment of Biomass Gasification Integration" *M. U. Ozturk, A. Ayol*

#104 "Catalytic Potential of g-C_3N_4 in $NaBH_4$ Hydrolysis: A Scientometric Study on Hydrogen Production" *B. Yılmaz, B.C. Çelik, H. Elçiçek, A.S. Karakurt*

#371 "The Use of Hydrogen-Rich Solvent Improves the Extraction of Phenolics, Pigments, Reducing Sugars, Organic Acids, and Vitamin C from Cowslip (*Primula veris* L.) Flower" *T. Engin, A. Çiğdem, M. H. Alma, D. Alwazeer*

#117 "Maximizing the Degree of Dehydrogenation of Perhydro-dibenzyl Toluene via in-line Distillation for Continuous Hydrogen Release" *M. Naseem, M. Luqman, Y. Biçer*

#301 "Advancements and Challenges in Liquid Hydrogen Storage Tank Design for Maritime Applications: A Comprehensive Review" *S. A. Çetinkaya, S. A. Korkmaz, N. Bimbo, S. Afshan*

#332 "Effect of Thermal Conditions on a PV-AEMWE System Integrated with Metal Hydride Storage Tanks" *C. Celebi, M. Ezan, C. Colpan, Y. Devrim*

HALL D

Session 35. Modeling, Simulation, and Optimization – II

Session Chair: Yağmur Nalbant Atak

#7 "Optimization of the Biogas-to-Hydrogen Production Process via Methane Reforming Routes Using Aspen Plus® V14" *M.M.Khan*

#9 "Techno-economic Evaluation of Hydrogen's Role in Dutch Heating Networks: A Dynamic Modeling Approach" *A. Kaabinejadian, A.Pozarlik, C.Acar*

#94 "Simulation Tool for Techno-Economic Analysis of Renewable Hydrogen Production Plants" *F. Machado, H. Monteiro, L. Fernandes, L. Marcon*

#112 "Advanced Machine Learning Approaches to Hydrogen Compressibility Classification and Prediction" *T. Ç. Akıncı, H.S. Nogay, M. Yılmaz, A.A. Martinez-Morales, S. Ekici*

#161 "Improving the Accuracy of PEMFC Power Model Parameters Using Whale Optimization Algorithm" *H. Acar*

#321 "Design and Analysis of a Wind-powered Hydrogen Production System for a Maritime Autonomous Surface Vessel" *S. A. Korkmaz*

#337 "Numerical Simulation of High-Temperature Proton Exchange Membrane Fuel Cell Performance Using 3-D COMSOL Model" *M. Buyuk, Y. Nalbant Atak, Y. Devrim*

#367 "Design and Evaluation of Dual-Fluid Geothermal Cycles with tRC Topping and ORC Bottoming for Electricity, Hydrogen, and HDH unit" *O. Kizilkan, G. Soytürk*

HALL E

Session 36. Electrolysis and Electrolyzer Technologies – III

Session Chair: T. Hikmet Karakoç

#324 "Solar Syngas Production via a ZnO/Zn Based Carbothermal Reduction and Water Splitting Cycle" *R. Bhosale*

#279 "Investigation on Performance of Anion Exchange Membrane Electrolyzer with Different Flow Field Configurations" *U. Ergin, A. B. A. Ibrahim, S. Tumse, G. M. Ozkan, G. Kardas, H. Akilli*

#172 "Techno-Economic Analysis of MoS_2/Carbon Composites as Sustainable Platinum Alternatives in PEM Electrolyzer Cathodes" *H. Sarıaltın*

#352 "A Comparative Study on the Hydrogen Production Efficiency of Various Membranes in a Chlor-alkali Electrolyzer" *S. Damarseckin, E. Durar, M. Karakılçık, A. Atiz, H. Karakılçık*

#114 "Nickel Oxide Catalysts for Hydrogen Production Via Urea Electrolysis" *N-N. Liang, D.S. Han, H. Park*

#128 "Fluid Flow of Alkaline Water Electrolysis Hydrogen Cell: Design and Experimental Investigation" *M.A. Farahat, M. Abdelmordy, H.H. Eldeeb, A.M. Abdelsalam, W. A. El-Askary, I.M. Sakr*

#304 "Novel Cylindrical Electrolysis System with Copper-Coated Electrodes for Enhanced Hydrogen Production" *E. K. Oguz, I. Dincer*

#178 "Structural and Catalytic Insights into Sr-Modified $LaNi_{0.5}Mg_{0.5}O_3$ Perovskites" *P. Ebrahimi, A. Kumar, M. Al-Marr*

EXHIBITION

CLOSING REMARKS (HALL A)

Poster Sessions Chair: Olgun Konur

Poster Session – 1 (Monday – May 26, 2025 | 16:00 – 16:30)

π13 "Eco-friendly Leaching Strategies for Recycling Electronic Waste CPUs to Enhance Hydrogen and Oxygen Evolution" *S. Mitrović, S. Brković, M. Seović, M. Pijović Radovanović, P. Laušević, N. Zdolšek, I. Perović*

π14 "Electrochemical Surface Modification and Effects on the Catalytic Activity of Nickel-based Electrodes for Hydrogen Evolution" *S. Mitrović, S. Brković, M. Seović, P. Laušević, N. Zdolšek, Đ. Katnić, I. Perović*

π15 "Non-stoichiometric Tungsten-oxides as the Anode Catalyst Supports for PEM Fuel Cells" *S. Brković, I. Perović, M. Seović, S. Mitrović, P. Laušević, V. Nikolić, M.M. Kaninski*

π18 "Dual-doped Iron-copper Carbon Electrocatalyst for Enhanced Water Splitting Performance in Alkaline Media" *J. Georgijević, I. Perović, S. Brković, M. Seović, N. Zdolšek, J. Milikić, B.Šljukić*

π19 "Synthesizing Cost-effective, Dual-function Catalysts from Recycled CPUs and Lemon Peel for Water Splitting" *M. Seović, S. Brković, I. Perović, D. Jugović, J.M. Vukajlović, P.Laušević, S.Mitrović*

π21 "Life Cycle Assessment of Green Hydrogen Production via Electrolysis" *H. Camur, A. Isler-Kaya, F. Karaosmanoglu*

π22 "Development of Iron-Sulfide Catalysts for Green H_2 Production from H_2S" *N. Demirhan, H.Akansu, Y. Ataseven, M.Y.Doğan, S.Yaşyerli, H.Arbağ, H.M.Taşdemir, N.Yaşyerli*

π27 "Biohydrogen Production by Bacterial Co-Culture Using Agro-Industrial Waste as Carbon Source" *L. Nascimento, C. Reis, T. Rodrigues, M.V. Rocha*

π33 "Hydrogen Production by Dark Fermentation Using Cashew Apple Bagasse as Feedstock" *E. de Sousa Moreira, G.F. Simão, C. L. B. Reis, M.V.P. Rocha*

π45 "Production of Methanol from Biogas Obtained from Renewable Sources Using Carbon Dioxide Hydrogenation Method" *E. İncedere, Ç. Aydın*

π56 "Gasification of Agricultural Residual Biomass, Vector in the Production of Green H_2" *G.C. Lăzăroiu, L. Mihăescu, I. Pîșă, R.M. Grigoriu, D. Stoica, I. Simion*

π58 "Cost-effective Porous NiO/Ni@NF Nanosheet Catalysts for Hydrogen Production via Electrocatalytic Ethylene Glycol (EG) Oxidation" *S.A. Aladeemy, T.R.Al-Rijraji, M.S.Amer, P. Arunachalam, A.M. Al-Mayouf*

π60 "Results of Combustion Tests of H_2 – CH_4 Mixture with High H_2 Content" *L. Mihăescu Lucian, G. Lăzăroiu, A. Niculescu, D. Stoica, R.M. Grigoriu, M.G. Osman*

π61 "Ionic Liquid-enhanced Multifunctional Electrolytes for Hydrogen Evolution Reaction and Zn-based Batteries" *N. Zdolšek, A. Dimitrijević, I. Perović, S. Brković, M. Seović, P. Laušević, M.K. Roković*

π62 "Enhanced Electrochemical Performance of V_2O_5 Electrode with 1-butyl-3-methylimidazolium Salicylate Electrolyte for Hydrogen Evolution, Oxygen Evolution and Oxygen Reduction Reactions" *N. Zdolšek, A. Dimitrijević, I. Perović, S. Brković, M. Seović, M.K. Roković, M. Božiković*

π64 "Performance Analysis of Stand-alone Solar Systems in Coastal Environments: A Case Study" *M.G. Osman, G. Lazaroiu, C.V. Strejoiu, C. Panait, D. Stoica*

π65 "Increasing the Energy Efficiency and Economic Viability of a Photovoltaic Park in Craiova" *M.G. Osman, G. Lazaroiu, C.V. Strejoiu, C. Panait, D. Stoica*

Poster Session – 2 (Tuesday – May 27, 2025 | 10:30 – 10:50)

π80 "Synthesis and Characterization of Semiconductor Oxides CuO and ZnO for the Production of Green H_2 by Photo Catalysis under UV-visible Light" *N. Djamel, A. Samira, S. Farouk, F. Djawad, H.H. Aya*

π82 "Hydrogen Gas Production onto Fe_2O_3 and Clay/ Fe_2O_3 by Photo Chemical Conversion under UV-visible Light" *N. Djamel, A. Samira, S. Farouk, F. Djawad, H.H. Aya*

π88 "High-Value Carbon Production through Thermal Plasma Dry Reforming for E-fuel Viability" *A.R.C. Labanca, A.G. Cunha, R.P. Ribeiro, C.G. Zucolotto, M.B. Cevolani, M.A. Schettino Jr., F.G. Emmerich*

π92 "Innovative Electrolysis Using Non-Critical Raw Materials and Circular Economy Techniques to Improve Green Hydrogen Production" *A. Muscolino, A.S. Aricò*

π93 "A PEM Electrolyser with Low Precious Metal Loading" *V. Cicciò, S. Siracusano, A.S. Aricò*

π103 "Exploring TiV-based Alloys as Potential Anode Materials for High-capacity Ni-Mh batteries" *G. Çakmak, B. Pişkin, F. Pişkin, H. Yüce*

π121 "Dehydrogenation of Dimethylamine Borane in the Presence of Ru^0/TiO_2 Catalyst" *A. Al-Areedheea, S. Karaboğa, İ.A. Morkana, S. Özkar*

π123 "Electrodeposition of Platinum on Electropolymerized ABA on Reduced Graphene Oxides as a Catalyst for Propanol Oxidation in Alkaline Solution" *P. Waenkaew, S. Sriwichai, S. Themsirimongkon*

π137 "Development of $NiCo(OH)_2$ Based OER Catalysis for Alkaline Water Electrolysis" *Y.S. Adam, G. Aksaray, E. Faki, M. Farsak, G. Kardaş*

π140 "Performance Analysis of Plant-Inspired Bipolar Plate Flow Channels for PEM Electrolysers using 3D Modelling" *M. Alobeid, S. Çelik*

π143 "Hydrogen Economy: Key Developments in China, Europe, and the USA" *D. Üngüder, A.C. Krutoff, M. Wappler*

π150 "The Role of Ammonia in Renewable Energy and Emergency Power Supply: A Feasibility Study" *H. B. Perçin, A. Çalışkan*

π152 "Exploring Hydrogen Mobility: A Feasibility Study on Sustainable Campus Transportation" *H. B. Perçin, A. Çalışkan*

π156 "Synthesis and Characterization of (Gd,Nd) – Doped $CeO_2/SrTiO_3$ Heterostructures for Lt-SOFC" *N. Kırkgeçit Aksoy, D. Kara, S. Kerli, M. Şaşmaz Güldal, O. Türkoğlu, H. Özlü Toru*

π159 "Seawater Electrolysis for an Advanced H_2 Production" *F. Giacobello, S. Siracusano, A. Muscolino, V. Cicciò, M. A. Mancuso, V. Antonucci*

π171 "Contribution of SM-Doped CeO_2 Nanoparticles to Hydrogen Production" *A. Kırkgeçit, H. Ö. Torun, N. K. Aksoy, M. Kisti, G. Özkırar, M. F. Kaya*

π175 "Development of Alkaline Electrolysis Catalyst Using Waste Zinc-Carbon Batteries" *H. Hançer, M. Farsak*

π200 "High-Efficiency Hydrogen Storage via Porous Germanene Nanostructures" *A. Miranda, G. González, B. J. Cid, M. Calvino, J. E. Santana, F. Salazar*

π222 "Energy Management in a Hybrid System Integrating PV Panels, PEM Fuel Cells, and Batteries" *B. Yılmaz, C. O. Colpan*

π235 "Electrooxidation of Methanol and Sodium Borohydride on Nano-Silver Electrode for Alkaline Fuel Cells" *A. Aytaç, F. Ö. Gökmen*

Poster Session – 3 (Tuesday – May 27, 2025 | 16:00 – 16:30)

π240 "Development of a New Generation Hybrid System for the Electric Vehicle" *A. Aytaç, O. Yılmaz*

π242 "Optimal Design of a New Photovoltaic-Electrolyser-Fuel Cell-Battery Hybrid System" *A. Aytaç, O. Yılmaz*

π246 "Impact of Operational Stoppages on the Stability of Anion Exchange Membrane Electrolysis" *M. Mizanur Rahman, A. H. M. Videla, M. Santarelli*

π250 "Derivation of CeO_2 Photonanocatalysts through a Practical Sol-Gel Method" *E. Erünal, D. Çil, E. G. Uyar, M. Ay, İ. Cansever*

π257(1) "Green Synthesis of Fuel Bioadditive Solketal Levulinate by Functional Catalytic Membrane" *N. Y. Yüzer, G. Hasırcı, A. O. Hoşöz, E. E. Çakırca, E. Alptekin, O. İlgen, M. Çanakçı, N. Hilmioğlu*

π257(2) "Development of Environmentally Friendly the Catalytic Membrane as a Catalyst for Synthesis of the Green Fuel Bioadditive Glycerin Carbonate" *G. Hasırcı, N. Y. Yüzer, A. O. Hoşöz, E. E. Çakırca, E. Alptekin, O. İlgen, M. Çanakçı, N. Hilmioğlu*

π258 "Integration and Storage of Hydrogen-Based Fuel Cells for Unmanned Aerial Vehicles" *M. F. Özbek, R. Ak, E. Telci, E. Çelik, H. Settaşı, S. Sezer, V. Alizada, E. C. Duğan, S. A. Angin, R. G. Akay, C. Çelik*

π264 "Sc- and Ti-Functionalized Doped SnC Nanosheets for Hydrogen Storage" *D. Romero, A. R. Montoya-García, L. G. Arellano, M. I. Iturrios, L. A. Pérez, M. Cruz-Irisson*

π269 "Kinetic Modelling on Transient Photocurrent Responses of WO_3 Photoanodes" *E. Ayral, F. Uçar, E. Haznedar, E. Altuntaş, S. Kaya*

π280 "Understanding the Kinetic Mechanism of WO_3 Photoanodes for PEC Applications" *E. İ. Haznedar, F. Uçar, E. Ardalı, E. Altuntaş, S. Kaya*

π292 "Sun – Water – Hydrogen Nexus in Artificial Reservoirs within Hydropower Infrastructure" *R. Felseghi, P. W. Ungureşan, F. I. Bode, M. C. Bălan*

π295 "Performance Assessment of a Hydrogen Liquefaction Cycle Utilizing Liquefied Natural Gas Regasification and Photovoltaic Panel-Based Power Generation Unit" *M. Taghavi, C. O. Colpan*

π297 "Hydrogen and Volatile Fatty Acid Production from Posidonia Oceanica Seagrass by Dark Fermentation" *D. Kurtdemir, E. Taylan, Ş. Arıcı*

π300 "Thermodynamic Analysis of Claude Cycle for Hydrogen Liquefaction" *Y. Kumlutaş, C. O. Colpan*

π317 "Effect of MoP/g-C_3N_4/Ti_3C_2 Quantum Dots on Photocatalytic Hydrogen Production" *E. S. Şahin, D. Akyüz, E. Demirbaş*

π362 "Assessing Electrolyte Effects in Fuel Cell Systems" *E. Durar, B. Memişoğlu Güzelgün, S. Damarseckin, A. Atız, M. Karakılçık*

π363 "High-Pressure Hydrogen Direct Injection in Optical Combustion Research" *Y. Rousseeuw*

π365 "A Preliminary Design for Centrifugal Compressor for Hydrogen Transportation" *A. Belhadj, G. Hauke*

π369 "Scalable Electrode Design Using MPt (M: Cu, Co, Ni) Alloy Nanoparticles for Efficient and Durable Hydrogen Evolution in Seawater Electrolysis" *M.Z. Nezhad, O. Metin*

Poster Session – 4 (Wednesday – May 28, 2025 | 10:45 – 11:05)

π318 "Enhancement of Photocatalytic Hydrogen Production with CoP/g-C_3N_4/Ti_3C_2 Quantum Dots" *B. Camgöz, D. Akyüz, E. Demirbaş*

π320 "Development of a Novel Catalytic Membrane by Loading Silico Molybdic Acid to Polyvinyl Alcohol and its Use as a Catalyst for Fuel Additive Solketal Synthesis" *N. Yüzer, N. Hilmioğlu*

π323 "Electrospun Copper-doped Recycled PVDF Membranes for Microbial Fuel Cell Applications" *A. Katırcı, Ö. Ipsalali, S. Kahraman, F. Nigiz*

π325 "Solar Energy Storage via H_2 Production Using a Thermochemical MnSO4/MnO Water Splitting Cycle" *R. Bhosale*

π328 "Hydrogen Fuel Cell System: A Sustainable Power Solution in Operational and High-Altitude Areas for Armed Forces" *A. V. C. Khairnar*

π335 "Evaluation of the Social Dimensions of Integrating Natural Gas and Hydrogen in Energy Consumption: The Case of Turkiye" *B. Yenihan, K. Çolak, O. Özcan*

π336 "Clean Energy Demand: Evaluating the Use of Hydrogen in Electricity Generation from a Corporate Cost Perspective" *K. Çolak, B. Yenihan, O. Özcan*

π339 "Hydrogen Storage Properties of a Zirconium Metal-organic Framework" *S. Demir, N. Bilgin*

π341 "Enhanced Photoelectrochemical Performance of CeO_2/TiO_2 Heterostructure for Hydrogen and Oxygen Evolution Reactions" *M. Behroozi, E. Doustkhah*

π342 "Integration of Metal–organic Frameworks with Titanium Dioxide for Enhanced Photoelectrochemical Performance in Sustainable Hydrogen Production" *S. Sadighi, E. Doustkhah*

π349 "Enhancing Electric Vehicle Performance with Fuel Cell Integration: Driving Range Optimisation" *V. Tekin, K. Unustu, O. Ozel, C. Colpan, M. Karaoglan*

π351 "Development of Stability and Efficiency of $FAPbI_3$ Perovskite Solar Cells for Hydrogen Evolution" *Ş. Tüzüner, O. Mahmood, Ş. Ela, P. Reiss*

π353 "An Experimental Study of Jet-wall and Jet-jet Interactions of Directly Injected Hydrogen and Methane in a Wave-piston Geometry" *M. Gong, M. Lundgren, J. Eismark, M. Andersson*

π354 "Modernization of a Semi-empirical PEM Fuel Cell Model for Heavy-duty Applications" *B. Dursun, M. Johansson, Ö. Andersson, P. Tunestål*

π357 "Process Simulation of Hydrogen Generation from Biomass Using Aspen Plus" *A. Ataş, N. Javani, Ö. Yücel*

π364 "Effect of Convective Heat Transfer Coefficient on the Metal Hydride Tank During the Absorption Process" *S.C. Bozkır, M.A. Ezan, C.O. Colpan*

π368 "Hydrogen Fuel Cell-Powered UAV Systems: Thermal Management for Extended Flight Missions" *T.M. Tavman, C.Ö. Colpan, M.U. Karaoğlan*