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7th International HYDROGEN TECHNOLOGIES Congress

10-12 May 2023

Firat University, Elazığ, Türkiye

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Presentation duration: 10 minutes + 2 minutes for Q&A

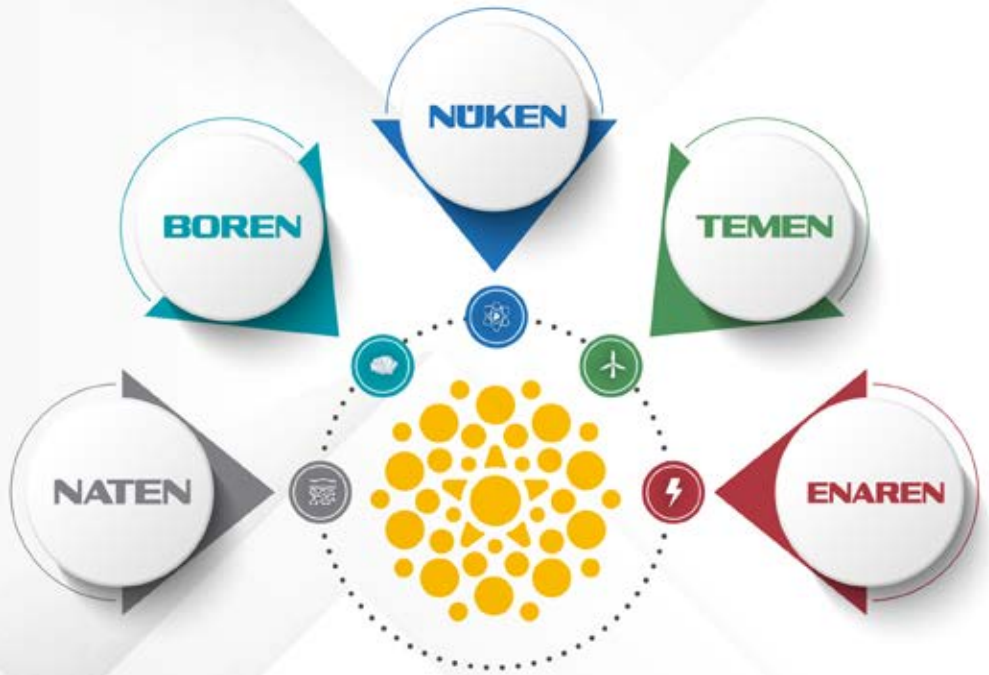
	MIMAR SINAN HALL
08:00-09:15	Registration
09:15-09:45	Opening Talks Mahmut Temel ÖZDEMİR (Congress Chair) İbrahim DİNÇER (President, National Hydrogen Energy Association) Fahrettin GÖKTAŞ (Rector, Fırat University)
	MIMAR SINAN HALL
09:45-10:25	Theme Speaker / Abdulkadir BALIKÇI (Türkiye Hydrogen Strategy and the role of TENMAK)
10:25-11:05	Overview Talk / İbrahim DİNÇER (Hydrogen Sector Development: Challenges and Opportunities)
11:05-11:20	Coffee Break
	Chair: İbrahim DİNÇER
11:20-11:50	Invited Speaker / Saim ÖZKAR (Transition metal nanoparticles as catalysts in hydrogen generation from the hydrolysis of ammonia borane)
11:50-12:20	Invited Speaker / Adnan MİDİLLİ / (Plasma Gasification: A new Option for Waste to Hydrogen)
12:20-14:00	Lunch / Fırat University University House

PARALLEL SESSIONS		
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
14:00-15:35	Session 1A: TENMAK Session	Session 1B: Renewable Hydrogen Technologies and Application-I
	Chair: Adnan Midilli	Chair: Ramazan Solmaz
	R&D Infrastructure at TENMAK NUKEN Erkan Özcan	#36 Renewable Hydrogen Production Steps Up Wastewater Treatment under Low-Carbon Electricity Sources-A Call-Forth Approach / S. Pitchaiah and Ravishankar Sathyamurthy
	R&D Activities of TENMAK BOREN Serap Topsoy Kolküsa	#89 A Review Study: Hydrogen Capture from Greenhouse Gases; Sulfur Dioxide / Gökhan Başman, Hande Ardıçoğlu , Erdoğan Karip and Şeyma Yüksel Sağman
	Rare Earth Elements Research Institute Merve Taner Camcı	#87 Copper(4%)@Cement Nanoclusters: Synthesis and Catalytic Application in Green Hydrolysis of Dmiethylamine-Borane / Sibel Duman
	The Role of Energy Research Institute Under the 2053 National Energy Strategy Sinan Yiğit	#88 Methanolysis of Sodium Borohydride Catalyzed by Keratin / Sibel Duman and Bülent Kaya
	R&D Base of Hydrogen Technologies in Türkiye İbrahim Ateş	#90 Hydrogen Production with CO ₂ Storage from Olivine Which Is By-Product of Chromite Mining by Hydrothermal Method / Gökhan Başman, Tuğçe Özcan, Yiğit Turguz and Tuğçe Ergül
	Türkiye Hydrogen Technologies Roadmap Celal Erbay	#63 The Hydrogen potential Assessment based on Wind and Solar Energy in Elazığ Province, Türkiye / Hasan Bektaş Perçin and Abuzer Çalışkan 
	From Concept to Commercialization: The Role of TUGEP in Developing New Technologies and Products Ali Çelik	#153 Fuel Cell and PV Supported Sustainable Cells-on-Wheels Design for Use in Disaster Areas / Sencer Unal and Süleyman Emre Dağteke

PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 1C: Green Hydrogen-I	Session 1E: Renewable Hydrogen Technologies and Application-II
Chair: Fatih Sorgulu	Chair: Muhsin Tunay Gençoğlu
#6 Estimation of The Amount Of Hydrogen Production Using Wind Energy / <u>Mustafa Tan</u> and Cem Emeksiz 	#26 Transport and thermodynamic limitations in photocatalytic hydrogen production over Pt/TiO ₂ / <u>Elif Can Özcan</u> , Deniz Üner and Ramazan Yıldırım 
#21 Investigation of Electrooxidation and Methanolysis of Sodium Borohydride on Activated Carbon Supported Co Catalysts from Poplar Sawdust / <u>Aykut Çağlar</u> , Sefika Kaya, Ceren Saka, Derya Yıldız and Hilal Kıvrak 	#76 Thermodynamic Analysis of a Floating Storage and Regasification Unit (FSRU) with Renewable Energy for Hydrogen Carrier Vessels / <u>Dindhya Andriani</u> and Yusuf Bicer 
#22 Methanolysis and Electrooxidation of Sodium Borohydride on CNT Supported Pd and Au Bimetallic Catalysts / <u>Sefika Kaya</u> , Aykut Çağlar, Ceren Saka and Hilal Kıvrak 	#74 B, F co-doped TiO ₂ / Graphene Oxide based BODIPY Decorated Cyclotriphosphazene Nanocomposite Photocatalyst for Efficient Hydrogen Evolution / <u>Burcu Topaloğlu Aksoy</u> , Emrah Özcan, Esra Tanrıverdi Eçik, Mahmut Yıldız and Bünyemin Çoşut 
#23 Synthesis and Electrochemical Applications of Carbon Nanotube Supported Pd-based Anode Catalysts for Direct Methanol Fuel Cell / <u>Sefika Kaya</u> 	#78 Modeling ECEC Catalytic Cycle of H ₂ Evolution Reaction in Water Using Cobalt(II)-Polypyridyl Catalyst / <u>Ayas Kiser</u> and Yeliz Gurdal 
#45 Assessment of Green Hydrogen Production and Usage in Türkiye / <u>Cansu Gümüş</u> and Inci Eroglu 	#82 ANN-Based Intelligent Controller Design for a Bidirectional Converter Topology Considering in Fuel Cell-Powered EV Charging Applications / <u>Davut Ertekin</u> , Mustafa Özden and Gokay Bayrak 
#108 Numerical Effects of Axial Force on the Structural Behavior of PEMFC by Finite Element Method / <u>Safiye Nur Özdemir</u> , İmdat Taymaz and Emre Kurt 	#98 A New Community Energy System with Hydrogen and Ammonia Trilateral Cycle / <u>Mert Temiz</u> and Ibrahim Dincer 
#109 Parameter Optimization for PEM Electrolysis Cell Including Bolt Torque Effects / <u>Safiye Nur Özdemir</u> , İmdat Taymaz, Fatma Gül Boyacı San and Emin Okumuş 	#99 An Integrated Community Based Energy System with Renewables and Hydrogen / <u>Muarij Khalil</u> and Ibrahim Dincer 
#110 Assessment of a Multigeneration System Utilizing Heliostat and Digester Technology for Hydrogen Generation / <u>Moslem Sharifishourabi</u> , Ibrahim Dincer and Atef Mohany 	#103 Optimization of hydrogen production for a microgrid based power-to-X: Renewable hydrogen conversion / <u>Heybet Kilic</u> 

15:35-15:55	Coffee Break and Poster Session
	MIMAR SINAN HALL
	Chair: Adnan Midilli
15:55-16:30	Keynote Speaker / Xianguo Li (Investigation of Optimizing Manufacturing Methods for Advanced Membrane-Electrode Assemblies in PEM Fuel Cells) 🎧
16:30-17:05	Keynote Speaker / Yun Hang Hu (Advanced Processes for Hydrogen Production) 🎧
17:05-17:40	Keynote Speaker / John William Sheffield (The Role of Green Hydrogen in the Race to Zero) 🎧
17:40-19:10	Board Meeting of Hydrogen Technologies Association (Invite only)
19:15-22:00	Dinner (Elazığ Belediyesi Kültürpark)

ENERJİ, NÜKLEER VE MADEN TEKNOLOJİLERİNİN AR-GE KURUMU





TENMAK











TÜRKİYE ENERJİ, NÜKLEER VE
MADEN ARAŞTIRMA KURUMU





T.C. ENERJİ VE TABİİ
KAYNAKLAR BAKANLIĞI

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MIMAR SINAN HALL	
	Chair: Ramazan Solmaz
09:00-09:35	Keynote Speaker / Wei-Hsin Chen (Hydrogen Production and Separation Optimization for Decarbonization and Net Zero) 
PARALLEL SESSIONS	
MIMAR SINAN HALL	YUSUF HAS HACIP HALL
09:35-10:35	Session 2A: Hydrogen in Smart Grids-I
	Session 2B: Green Hydrogen-II
	Chair: Adnan Midilli
	Chair: Ramazan Solmaz
	#94 Modeling and Fuzzy Logic Based Energy Management of EV Charging Station Supported by Photovoltaic and Fuel Cell / Recep Çakmak and Gokay Bayrak
	#195 A Geothermal Driven Thermochemical Cycle Based Integrated System for Hydrogen Production and Effective Utilization / Fatih Sorgulu and Ibrahim Dincer
	#104 Charging Demand Management in Fuel Cell Supported EV Charging Station by Interval Type-2 Fuzzy Decision Making / Recep Çakmak , Gökay Bayrak
	#14 Hydrogen Production from Domestic Wastewater and Electricity Generation Using PEM Fuel Cell / Barbaros Durmuş , Buğra Yılmaz, Nilüfer Nacar Koçer and Muhsin Tunay Gencoglu
	#107 A powerful optimization approach for load frequency control of off grid delayed fuel cell microgrid / Vedat Çelik
	#105 Dynamic Simulation of a PV and PEM Fuel Cell Based Hybrid Energy System for an Off-Grid House / Gamze Soy Turk , Onder Kızılkın, Mehmet Akif Ezan and Can Ozgur Colpan
	#143 Novel Generation Synchronous Generator: Fuel Cell+STATCOM / Kivanç Doğan , Melike Esen Güngör, Ahmet Orhan and Mehmet Özdemir
	#150 Assessment of Green Hydrogen Production: A Case Study / Ibrahim Dincer and Kubilay Karayel
	#13 Control for the PEM Fuel Cell Air-Feed System Based on Multi-Agent Fuzzy Q-Learning / Meysam Gheisarnejad, Burak Yıldırım and Mohammad Hassan Khooban 
	#177 A Microwave Plasma Arc Based Water Steam Dissociation for Hydrogen Generation / Dogan Erdemir and Ibrahim Dincer
10:35-11:00	Coffee Break

















PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 2C: Green Hydrogen-III	Session 2E: Renewable Hydrogen Technologies and Application-III
Chair: Barış Karakaya	Chair: Zehra Ural Bayrak
#112 Binary Geothermal Driven Methanol Synthesis with Power and Freshwater Production / <u>Hilal Akci</u> and Ibrahim Dincer 	#113 An Integrated CSP System with Hydrogen Production and Energy Generation from Waste / <u>Mohamed M. Ismail</u> and Ibrahim Dincer 
#115 Investigation of a New Steel Multigenerational System with Hydrogen Production / <u>Andre A Bolt</u> , Ibrahim Dincer and Martin Agelin-Chaab 	#129 A Novel control strategy for PV/WTG/ Fuel cell/Electrolyzer/SMES based isl and ed microgrids / Mehmet Emin Asker and <u>Heybet Kilic</u> 
#119 Green Hydrogen Production for New Oizs To Be Built in Aksaray / <u>Yasin Ögütcü</u> and Bahattin Tanç 	#141 Electrification and hydrogen use in aviation: a scenario-based simulation of Turin Airport / <u>Giampiero Sacchi</u> and Hossam Gabbar 
#120 Investigation of Hydrogen Blending from the Green Deal Perspective / <u>Zeliha Kırılmış Öztürkten</u> , Süha Orçun Mert and İzzet Alagöz 	#151 Photovoltaic Modules in Electricity Generation and Production of Hydrogen From Solar Energy / <u>Yasemin Tokaç</u> and Bahattin Tanç 
#134 Integrated Solar-based PEMFCs for Green Electricity Production / <u>Ayşe Kocalmis Bilhan</u> 	#182 A New System for Hydrogen and Methane Production with post-combustion amine-based Carbon Capturing in a Coal-Fired Power Plant / <u>Mitra Ghannadi</u> and Ibrahim Dincer 
Coffee Break	

PARALLEL SESSIONS		
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
11:00-12:35	Session 3A: Sustainable Hydrogen Technologies-I	Session 3B: Modeling, Simulation and Optimization-I
	Chair: Mustafa Kaan Baltacıoğlu	Chair: Hasan Gunduz
	(Invited Talk) Hydrogen Energy Economy as a Key to a Clean and Sustainable Future: Progress and Challenges Abdulaziz Mohamed Atabani 	#12 Mathematical Model and Analysis of Hybrid PV Panel and PEM Fuel Cell System / Buğra Yılmaz and Muhsin Tunay Gencoglu
	#38 NiMoO ₄ electrocatalyst for hydrogen evolution reaction / Goncagül Aksaray and Gülfeza Kardeş	#24 Power Based Model Parameter Estimation of the PEMFC with Coati Optimization Algorithm / Soner Celikdemir
	#39 The facile production of Bi ₂ O ₃ - rGO composite catalyst for methanol electrooxidation / Goncagül Aksaray , Mehmet Erman Mert, Başak Doğru Mert and Gülfeza Kardeş	#59 A new control algorithm for increasing efficiency of PEM fuel cells / Yurdagül Benteşen Yakut
	#183 Synergistic Effects of Sulfur Vacancies and MoS ₂ on the Photocatalytic Activity of Cd _x Zn _{1-x} S for H ₂ Evolution / Mohammed Alfatih Salah Hamza Hamid , Yaşar Zengin and Ismail Boz	#93 Frequency response of fuel cell-based bio-microgrid with an enhanced controller during cyber-intrusions / Süleyman Yıldız, Hasan Gunduz , Burak Yıldırım and Mahmut Temel Özdemir
	#184 Development of a novel OTEC-based CO ₂ Rankine cycle with LNG cold energy recovery for sustainable hydrogen, oxygen and freshwater production / Gamze Soy Turk and Onder Kızılkın	#126 Investigation of the Efficiency of Deep Reinforcement Learning Method in Energy Management System of Fuel Cells / Bircan Çalışır and Ayhan Akbal
	#187 Plasmonic Nickel Nanoparticle-Decorated Twinned Crystal Cd _x Zn _{1-x} S for Enhanced Photocatalytic Hydrogen Production: A Crystal Engineering Approach / Mohammed Alfatih Salah Hamza Hamid , Yaşar Zengin, Busra Kaya and Ismail Boz	#27 Forecast Sustainable Renewable Hydrogen Production via Circular Bio-Economy of agro waste / S. Pitchaiah and Ravishanka Sathyamurthy
	#164 Investigation of an Integrated System for Methanol Production by Carbon Capture from Ocean Water / Merve Ozturk and Ibrahim Dincer	#162 Determination of Optimum Controller Gains of Two Degrees of Freedom PI in Fuel Cell Based Nanogrids by Improved Dwarf Mongoose Optimization / Zehra Ural Bayrak
	#203 A Case Study for Electric Power System Based Determination of Hydrogen Production Centers of Türkiye / Soner Celikdemir and Mahmut Temel Özdemir	

PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 3C: Green Hydrogen-IV	Session 3E: Renewable Hydrogen Technologies and Application-IV
Chair: Yağmur Nalbant Atak	Chair: Alper Nabi Akpolat
#137 WO ₃ /Fe ₂ O ₃ /Bi ₂ S ₃ ternary heterojunction photoanode material for photoelectrochemical water splitting / Fatih Tezcan , Abrar Ahmad and Gulfeza Kardaş 	#185 Hydrogen Production Efficiency and Rate Evaluation of Fermentative Bioreactor Configurations / Murat Can Kenez and Ibrahim Dincer 
#149 Potential Routes for Hydrogen Based Charging Stations in Ontario / Ali E Karaca and Ibrahim Dincer 	#194 Ultra-short-term combined power forecast for renewable hydrogen generation from wind energy system / Cem Haydaroğlu and Heybet Kilic 
#155 Synthesis of Hematite Fibers by Electrospinning for Producing Photoanode for Hydrogen Production by Water Splitting / Sükrü Kaya and Cevat Saroğlu 	#200 Sizing and Techno-Economic Analysis of Utility-Size PV System with Battery Energy Storage in Commercial Buildings / Kivanc Basaran and Gokay Bayrak 
#158 The availability of Onboard Hydrogen Production with Waste Heat / Çağlar Dere , Burak Zincir and Omer Berkehan Inal 	#202 A New Intelligent Power Quality Disturbance Classification Approach Using Vision Transformer Learning in Hydrogen Energy-based Distributed Generators / Ahmet Küçüker , Burhan Baraklı, Gökay Bayrak 
#191 New Vertical Wind Turbine Integrated with Electrolyser for Hydrogen Production / Ibrahim Eren Dincer and Martin Agelin-Chaab 	#204 Modeling and Operation of a Fuel Cell Stack for Distributed Energy Resources / Alper Nabi Akpolat , Erkan Dursun and Ahmet Emin Kuzucuoğlu 
#205 Fabrication of Bingöl Pollen Self-Assembled Monolayer Films on Copper As A Novel Cathode for Electrochemical Hydrogen Production / Yeşim Aydın Dursun , Ramazan Solmaz 	#4 Comparison of Fuzzy Logic and Power Follower Control Strategies in Fuel Cell Hybrid Vehicles / Ceyda Kök and Suha Orçun Mert 
#49 CO ₂ to Methane Over Nickel-Iron Based Catalyst for Simultaneous CO ₂ Utilization and Hydrogen Conversion / Buket Keleşoğlu , Şerife Sarıoğlu, Şahika Sena Bayazit, Alper Sarıoğlu and Tahsin Bahar 	#15 Conceptual Design of a High Altitude Long Endurance Drone with Electrical Motors and Hydrogen Fuel Cells / Serdar Avsar 
	#157 Evaluation of Hydrogen Fuel Compatibility with Other Conventional Alternative Marine Fuels / Çağlar Dere 

12:35-14:00	Lunch / Firat University University House	
	PARALLEL SESSIONS	
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
14:00-15:40	Session 4A: Hydrogen Vehicles	Session 4B: Fuel Cells-I
	Chair: Hüseyin Turan Arat	Chair: Hasan Güler
	(Invited Talk) Hydrogen: A Green Fuel for 21st Century / Subramanyan Vasudevan 	#9 Electrochemical Behavior of Single Pt atoms dispersed on Cu/Ni Electrode in Alkaline Environment / Serap Toprak Döşlü and Ali Döner
		#61 Catalyst Electrode Based on In-Situ Grown Pt Nanowires / Emre Yıldırım , Yichang Yan, Shangfeng Du
	#111 Performance Analyze of Fuel Cell Electric Vehicle / Habip Şahin and Hikmet Esen	#114 Parameter Verification of PEMFC and Remote Monitoring Systems via LabVIEW / Can Ekim and Turgay Kaya
	#122 Simulational determination of a hydrogen fuel cell wall temperatures on cold conditions / Hüseyin Turan Arat and Bilge Albayrak Çeper	#131 Energy Management and Control of a PEM Fuel Cell and Supercapacitor Powered Four-Wheel Drive Electric Vehicle Using Geographic Information System / Eyyüp Öksüztepe and Merve Yıldırım
	#133 Driving Performance Enhancement Using Fuel Cell in E-scooters / Hilal Bıyık and Sencer Ünal	#169 Cyber-intrusion to Fuel Cell Electric Vehicle Battery Management: An Analytical Study / Hasan Gunduz
	#142 States Based EMS for Li-ion Battery & Fuel Cell Powered Unmanned Aerial Vehicle / Zehra Ural Bayrak and Merve Nur Kaya	#173 MPPT Control of PEM Fuel Cell Powered BLDC Motor / Hakan Çelik and Hasan Güler
	#152 Energy Comparison of Modelled Train's Propulsion Systems Battery Electric vs Fuel Cell / Mustafa Kaan Baltacıoğlu, Hüseyin Turan Arat and Mustafa Tunahan Başar	#91 Thermodynamic analysis of waste heat assisted multi-generation system for multi-production / Arif Karabuga , Melik Ziya Yakut and Zafer Utlu
#163 Hydrogen Refuling of a Fuel Cell Electric Vehicle / Habip Şahin		
15:40-16:00	Coffee Break	

Lunch / Firat University University House	
PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 4C: Fuel Cells-II	Session 4E: Synthetic Fuels
Chair: Anil Erdoğan	Chair: Hadi Genceli
#42 Design of hydrogen assisted turbulent jet ignition pre-chamber for Wankel engine / Ozgur Oguz Taskiran , Arda Cetiner, Harun Dillice, Omer Cihan, Alper Tolga Calik, Hikmet Arslan and Osman Akin Kutlar 📞	#66 Effect of Ce and Ca Metals on Light Olefins Production in Methanol to Olefins Reaction / Ezgi Cigdem Arpacı , Pinar Degirmencioglu and Nuray Oktar 📞
#20 The Carbon Nanotube Supported Pd and PdAu Catalysts for the Electrooxidation of Hydrazine / Aykut Çağlar 📞	#69 Valuable Chemicals Production from Bio-Oil Model Mixture / Ogun Tastan , Merve Celik Ozcan, Birce Pekmezci Karaman and Nuray Oktar 📞
#40 Increased hydrogen transport in microbial fuel cells by using copper based metal organic frameworks doped membrane / Mustafa Akel and Filiz Uğur Nigiz 📞	#102 Bio-Fuel Production from Pomace Based Bio-oil in the Presence of Mn Coated SiO ₂ Microsphere Catalysts / Beyza Gül Kaya, Birce Pekmezci Karaman , Levent Degirmenci and Nuray Oktar 📞
#46 A Machine Learning Method-Based Approach for Advanced MPPT Control of PEM Fuel Cell Systems / Beşir Dandil, Hakan Açıkgöz and Resul Çöteli 📞	#170 Technoeconomic Analysis of Synthetic Fuel Production Using Waste Gas Released from Industrial Reheating Furnaces / Büşra Beşevli and Erhan Kayabaşı 📞
#48 Membrane electrode assembly design for a proton exchange membrane fuel cell stack developed for unmanned aerial vehicle applications / Diogo Santos , Daniela S. Falcão, Alexandra R Pinto and Rui B Ferreira 📞	#172 Heat Integration in Synthetic fuel production plants / Mohammed Abdulmunem Alsunousi and Erhan Kayabaşı 📞
#56 Oxygen diffusivity and ionic conductivity of Ba _(1-x) NaxTi _(1-y) VyO _(3-delta) (x=0.05; y=0.05; delta=0.05) as the air cathode material for solid oxide fuel cells / Nilüfer Ertekin 📞	#125 Thermodynamic Performance Evaluation of Direct Dimethyl Ether Fuel Cells Using Exergy Analysis / Hadi Genceli , Güvenç Umur Alpaydın, Can Ozgur Colpan and Yilser Devrim 📞
#67 Performance comparison of bio-inspired flow field designs for direct methanol fuel cell (DMFC) and Proton exchange membrane fuel cell (PEMFC) / Mikail Yağız , Selahattin Çelik and Alparslan Topcu 📞	#116 Environmental Assessment of Hydrogen Fuel Cells as an Electric Generation Unit: A Case Study of a General Cargo Ship / Omer Berkehan Inal , Burak Zincir and Çağlar Dere 📞
#219 The stability of polyrhodanine films in water splitting process / Ramazan Solmaz , Dursun Öztürk	#130 Synthesis of Catalytic Nanoparticles via Sustained Combustion Fronts for Syngas Production / Anand Kumar 📞
Coffee Break	

PARALLEL SESSIONS		
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
16:00-17:40	Session 5A: Sustainable Hydrogen Technologies-II	Session 5B: Modeling, Simulation and Optimization-II
	Chair: Ayse Kocalmis Bilhan	Chair: Gökay Bayrak
	#32 Comparative Environmental Sustainability Analysis of Biohydrogen Production Methods / <u>Aysegul Yagmur Goren</u> , Ibrahim Dincer and Ali Khalvati 	#8 An Effective New Controller for Grid-Connected Solid Oxide Fuel Cells / <u>Dursun Öztürk</u> 
	#68 Hydrogen Production via H ₂ S Decomposition Over Activated Carbon Supported W Catalysts / <u>Mert Yekta Doğan</u> , H. Mehmet Taşdemir, Hüseyin Arbağ, Nail Yaşerli and Sena Yaşerli 	#44 Simulation and Assessment of Transition to Alternative Fueled-Buses for a Local Municipality / Merve Nur Dinç, Saltuk Buğra Selçuklu and <u>Bezza Nur Erbay</u> 
	#101 Energy and Exergy Analyses of an Innovative Geothermal Energy-based Re-Compression Supercritical Brayton Cycle for Power and Hydrogen Generation / <u>Fatih Yılmaz</u> , Murat Ozturk and Resat Selbas 	#53 Energy Efficiency and Path Tracking Performance Comparison of Optimization Techniques Based PID Controller Designs for a Hybrid Automated Guided Vehicle / <u>Habibe Gursoy Demir</u> , Mehmet H Demir and Suha Orcun Mert 
	#100 Investigation and Evaluation of a Renewable Energy based Green Hydrogen Generation / <u>Fatih Yılmaz</u> , Murat Ozturk and Resat Selbas 	#54 Grey Wolf Optimization Based Controllers Design for PEM Fuel-Cell Powered Quadrotor System to Improve Energy Efficiency and Path Tracking Performance / <u>Habibe Gursoy Demir</u> 
	#146 Sulfuric acid decomposition in iodine-sulfur cycle for hydrogen production over stable core-shell mesoporous silica/ iron oxide catalysts / <u>Sreedevi Upadhyayula</u> 	#81 Modeling of SOFC-based Hydrogen Powered Mobile Generator with 50 kW Power Designed to be Used in Earthquake and Emergency Situations / <u>Alper Yılmaz</u> , Recep Çakmak and Gokay Bayrak 
	#147 Enhanced SO ₂ Decomposition over CuFe ₂ O ₄ /β-SiC Foam in the Sulfur-Iodine Cycle for Hydrogen Production / <u>Sreedevi Upadhyayula</u> 	#121 Evaluation of Hydrogen Production From Sodium Borohydride on ZIF Catalysts With ANCOVA Analysis / <u>Gamze Özçakır</u> 
	#166 Development of Hydrogen Evolution Reaction Catalyst for PEM Water Electrolyzers from Electronic Waste Materials / <u>Muhammed Ali Durmaz</u> , Murat Kisti and Mehmet Fatih Kaya 	#174 Gasification Temperature Effect on Hydrogen Production from Waste Plastics / <u>Kaan Erdem</u> , Duygu Gündüz Han and Adnan Midilli 
#188 Thermodynamic Evaluation of a Gas Turbine-Powered Multigeneration System with Hydrogen Production / <u>Murat Koc</u> , Yunus Emre Yuksel and Murat Ozturk 	#193 A Novel Design and Study of the Transient State and Maximum Power Point Tracking of Solid Oxide Fuel Cells based Gazelle Optimization Algorithm / <u>Cem Haydaroğlu</u> and Heybet Kilic 	

PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 5C: Fuel Cells-III	Session 5E: Hydrogen Storage and Materials-I
Chair: Can Özgür Çolpan	Chair: Davood Ghaderi
#72 Graphene Supported Electrocatalysts for PEM Fuel Cells / Çiğdem Karadağ and Fatma Gül Boyacı San 📞	#7 Investigation of Initial Pressure and Inlet Temperature on Filling Process of Pressurized Hydrogen Cylinder / Mert Mercan and Muhittin Bilgili 📞
#75 Robust DC Link Voltage Control in A Fuel Cell System with Battery Energy Storage / Beşir Dandil, Hakan Açıkğöz and Resul Çöteli 📞	#19 Long-term Stability of Metal Hydride Materials with Additives / Kurshod Sattarkhanov , Gamze Atalmis, Rüveyda N. Kaplan, Mehmet Demiralp, Yüksel Kaplan 📞
#106 Film formation conditions of nanocomposite electrolytes in Solid Oxide Fuel Cells by Tape Casting Method / Senel Cobaner and Handan Özlü Torun 📞	#50 Green synthesis of TiO ₂ /CeO ₂ nanoparticles using Aloe Vera extract as catalyst support material and studies of their catalytic activity in the dehydrogenation of ethylenediamine bisborane / Büşra Dülger , Okay Serkan Angı, Göksel Özkan and Gülay Özkan 📞
#136 Optimizing Pt/C Electrocatalyst Performance with Surfactant Modification: A Comparative Analysis / Jülide Hazal Özdemir 📞	#25 Kinetic Analysis of Hydrogen Production from Ammonia Borane Hydrolysis Catalyzed by (r-GO/Fe-CeNPs)/Ru Catalyst / Memduha Ergüt and Ayla Özer 📞
#167 The clamping effects on the performance of proton exchange membrane fuel cell / Büşra Yılgin , Cenk Çelik and Fatma Gül Boyacı San 📞	#37 Nanotubular and Microfibrous Clay-Confined Ammonia borane for Solid State Hydrogen Storage Applications / Doğa Su Aydın , Bilge Coskuner Filiz and Aysel Kantürk Figen 📞
#171 Design and Thermal Performance Analysis of a Condenser Using for Separating Water Vapor from Gas Mixture in Fuel Cells / Nurettin Hazer , Kemal Bilen and Tolga Pırasacı 📞	#29 Compression Steps of Hydrogen in the EHPC System / Yasemin Aykut and Ayşe Bayrakçeken 📞
#176 Synthesis of Activated Carbon From Hazelnut Shells / Merve Özüdoğru, Tuğba Meşeli , Hilal Doğan, Gülşah Elden and Gamze Genç 📞	#58 Hydrogen Storage of Graphite, Graphene Oxide and Reduced Graphene Oxide / Ali Altuntepe , Selahattin Çelik and Recep Zan 📞
#206 Preparation of Ni-Modified Sivan Dut Pekmezi (Mulberry Molasses) as a New Anode Material for Direct Methanol Fuel Cell / Yeşim Aydın Dursun , Ramazan Solmaz 📞	#62 Hydrogen production from hydrolysis of ethylenediamine bisborane over mono-bimetallic Pd-Co catalysts and CeO ₂ /ZrO ₂ as supports / Selin Gezgen , Göksel Özkan, Hatice B Murathan and Gülay Özkan 📞

EOSB Congress Hall	
	Panel: Challenges and Opportunities for The Region in the New Hydrogen Economy (This panel will be held in Turkish)
16:45-18:15	Moderator: İlhan Kocaarslan, Istanbul Technical University Panelists: Adnan Midilli, İTÜ Emre Ata, ASPİLSAN Hasan Aksoy, SHURA İpek Harmanlı, TÜPRAŞ Ragıp Kızıldaş, TENMAK Tuğba Onur Dalgögüsoğlu, TEK-SİS
19:00-22:00	Dinner (EOSB Gedik Restaurant)

GÜNEŞTEN GELEN GÜÇ



Solar EPC



Üretim



Satış



Enerji
Depolama



Tarım



E-Mobilite


















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Yayımlar



PARALLEL SESSIONS		
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
09:00-10:35	Session 6A: Energy, Exergy and Economic Analyses	Session 6B: Multiple Topics-I
	Chair: Emin Fuad Kent	Chair: Mehmet Karakılıçık
	(invited Talk) Simultaneous H ₂ production and separation/ purification in membrane reactors: steam reforming reaction of a synthetic biogas stream as an alternative to natural gas utilization / Adolfo Lulianelli 	#156 Underst and ing the Tensile Properties of Hydrogen - Induced Molybdenum and Tungsten Metals / Halil Yılmaz , Beste Payam and Cem Örneç
		#197 Investigation of Infrastructure Study, Operation Planning, and Seismicity of the Underground Hydrogen Storage Facility / Hatice Karakılıçık
	#35 Economic Analysis of Fuel Cell and Battery Hybrid Configurations for a Recreational Boat / Olgun Konur , Aykut Suleyman Korkmaz, Sera Ayten Çetinkaya, Can Ozgur Colpan and Kadir Emrah Erginer	#10 A Study for Hydrogen Evolution on Pt-MnCu Electrocatalyst / Resit Yıldız , Selim Arslanhan and Ali Döner
	#97 Thermodynamic Performance Assessment of Kizildere – 2 Geothermal Power Plant Integrated with Proton Exchange Membrane Electrolyser / Yağmur Nalbant Atak , Anil Erdogan, Zeynep Korkmaz, Ural Halaçoğlu, Rüstem Aşık and Can Özgür Colpan	#196 Investigation of electricity and hydrogen production performance of nanofluid-cooled PV-T and uncooled PV panels / Ayhan Atiz and Mehmet Karakılıçık
	#178 Techno-Economical Assessment of Hydrogen Production from the Integrated System Including Geothermal Energy and Proton Exchange Membrane Electrolyser / Anil Erdogan , Yağmur Nalbant Atak, Zeynep Korkmaz, Ural Halaçoğlu, Rüstem Aşık and Can Özgür Colpan	#138 Design and Modeling of an Electric Vehicle Charging System Consisting of PV and Fuel Cell for Elazığ / Harput / Süleyman Emre Dağteke and Sencer Unal
	#85 Energy Transition and the Role of Hydrogen in Reaching Low Carbon Emission Goals of Emerging Economies / Canan M Ozsoy and M. Pınar Mengüç	
	#139 Exergy Analysis of Solar Hydrogen Production and Liquefaction Process / Emin Fuad Kent and Tansel Koyun	

PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 6C: Conventional Hydrogen Technologies and Applications	Session 6E: Hydrogen Storage and Materials-II
Chair: Gamze Soytürk	Chair: Zehra Ural Bayrak
#28 Improving the Durability of the Pt ₁ Pd ₁ /C Catalyst Synthesized for Hydrogen Evolution Reaction / <u>Yasemin Aykut</u> and Ayşe Bayrakçeken 	#73 Development of multi-component Mg based AB alloy for gas-phase and electrochemical hydrogen storage / Gülhan Çakmak and <u>Hakan Yüce</u> 
#31 Black Water Electrolysis for Hydrogen Production: A Solution to the Olive Oil Wastewater Problem / <u>Merve Gördesel Yıldız</u> , Özgü Yörük, Duygu Uysal, Murat O. Dogan and Bekir Zühtü Uysal 	#77 Revisiting Mixed-Metal Metal-Organic Frameworks (MM-MOFs) as H ₂ Adsorbents: GCMC and DFT Perspective / <u>Tugce Gokdemir</u> and Yeliz Gurdal 
#118 Cube-shaped metallic foam catalyst for natural gas pre-reforming in solid oxide fuel cell (SOFC) systems / <u>Kee Young Koo</u> , Hye Jin Kim, Kyoung Deok Kim, Yongha Park Unho and Unho Jung 	#95 Large scale production of BCC solid solution hydrogen storage alloy / <u>Ankita Bishnoi</u> and Pratibha Sharma 
#165 A Control System Design for Pem Water Electrolyzer's Water and Heat Managements / <u>Eda Nur Çakıraslan</u> , Murat Kışt, Bulut Hüner, Nesrin Demir and Mehmet Fatih Kaya 	#132 Structural and hydrogen storage properties of Ti _{0.35} V _{0.30} Cr _{0.25} Zr _{0.05} Ni _{0.05} high entropy alloy / <u>Dharmendra Kumar Panchariya</u> , M Meraj Alam, Ankita Bishnoi and Pratibha Sharma 
#96 Solar Based Integrated Tire Gasification System with Desalination for Multiple Useful Outputs / <u>Guven Acikalin</u> and Ibrahim Dincer 	#135 Effect of AB ₅ type intermetallic on the first hydrogenation properties of V-rich BCC solid solution alloy / <u>Ankita Bishnoi</u> , M Meraj Alam and Pratibha Sharma 
#159 The Using of Wireless Communication Systems for Energy Efficiency in Smart Agriculture Applicationsr / <u>Harun Kayaokay</u> , Ridvan Coşkun and Duygu Kaya 	#198 Optimal Expansion Planning in Electrical Energy Distribution Networks Considering Hydrogen Storage / <u>Kivanc Basaran</u> and Gokay Bayrak 
#161 Shipping Industry Plans Speed Limit Reductions To Reduce Emissions / Sertan Dincer and <u>Turgay Battal</u> 	#144 Hydrogen storage / <u>Kıvanç Doğan</u> and Ahmet Orhan 

10:35-11:00	Coffee Break	
	PARALLEL SESSIONS	
	MIMAR SINAN HALL	YUSUF HAS HACIP HALL
11:00-12:30	Session 7A: Multiple Topics-II	Session 7B: Hydrogen in Smart Grids-II
	Chair: Habip Şahin	Chair: Recep Çakmak
	#43 The Hydrogen perspective for Türkiye, which is on the Asia-Europe energy transition route. Can Türkiye become Hydrogen hub? / <u>Ismail Hilali</u> and Yusuf İşiker	#70 An improved SPWM switching control strategy for a quasi-impedance source-based inverter considering hydrogen energy-based microgrids / <u>Kubra Baltacı</u> , Davut Ertekin and Gokay Bayrak 
	#145 LCA Study on Renewable Energy and Hydrogen Technologies in Fossil-Fuel Dependent Remote Communities / <u>Muhammed Iberia Aydin</u> and Ibrahim Dincer	#71 A Space Vector PWM Switchingand DSP-based Inverter Controller Design for Fuel Cell-Integrated Microgrids: Design and Experimental Validation / <u>Kubra Baltacı</u> , Davut Ertekin and Gokay Bayrak 
	#60 Nuclear Approach to Produce Hydrogen Towards Net-Zero Emission Target / <u>Adem Afşar</u> , Yasemin Polat, İknur Keskin, Onur Bayram, Serkan Koru, Gülten Özçayan, Özlem Önenc, İrem Işık Çetin, Celal Erbay	#83 A Neuro-Fuzzy-based Real-Time Controller and a High-Gain Power Converter Design Providing High-Voltage and Low-Current Ripple in a Fuel Cell-Based Power Generator / Mustafa Özden, <u>Davut Ertekin</u> and Gokay Bayrak 
	#11 Pt-MoCo as a highly efficient electrocatalyst for hydrogen evolution / Mehmet Erman Mert, Başak Doğru Mert, Ali Döner and <u>Reşit Yıldız</u>	#86 Developing an Electric Vehicle Charging Station with Smart Fault Protection and Bi-Directional Power Flow Control: Enabling Interactive G2V and V2G Integration / Gokay Bayrak, Recep Çakmak and <u>Alper Yılmaz</u> 
	#192 Investigation of some factors affecting the current density that directly governs the hydrogen production in a membrane cell chlor-alkali reactor: An experimental study / Mustafa Erden, Ayhan Atiz, <u>Hatice Karakilçik</u> and Mehmet Karakilçik	#179 Fuel Cell Power Management using Machine Learning-Enabled DC/DC Boost Converter / <u>Ayşe Kocalmis Bilhan</u> 
	#80 Gasification of Food Wastes for Hydrogen Production: A Greenhouse Gas Emissions Approach / Hulya Civelek Yoruklu and <u>Bilge Coşkuner Filiz</u>	#199 Household Electricity Load Forecasting Using Historical Smart Meter Data for Smart Grid Application / Kivanc Basaran and <u>Gokay Bayrak</u> 
	#208 Hydrogen Policies for Smart Cities / <u>Adnan Midilli</u>	#201 Analysis of Deep Reinforcement Learning Energy Management for Hydrogen Storage-based Microgrids / <u>Ahmet Küçükler</u> , Burhan Baraklı, Gökay Bayrak 

PARALLEL SESSIONS	
KASGARLI MAHMUD HALL	FARABI HALL
Session 7C: Multiple Topics-III	Session 7E: Multiple Topics-IV
Chair: İsmail Hilali	Chair: Hasan Gunduz
#57 The effects of hydrogen retention and helium clusters on physical characteristics of tungsten as the divertor of tokamak thermonuclear reactors / <u>Nilüfer Ertekin</u> and Sasan Rezaee 🎤	#55 Study on the effects of adding small quantities of hydrogen in diesel combustion on an optical engine / <u>Sami M Ayad</u> , Igor Zornitta, Cristiano Brito, Edson Torres, Carlos Belchior, Prandy Oliveira, Filipe Bispo, Helio Villanueva and Guenther Krieger Filho 🎤
#148 The Effect of Hydrogen on Aluminium Nanoparticles and Their Mechanical Behaviour / Yunus Onur Yıldız and <u>Unal Degirmenci</u>	#123 Comparison of hydrogen production, economic and environmental performances of biomass-driven SRC-ORC-PEM combined systems in different eight configurations / Sadık Ata, Ali Kahraman, Remzi Şahin and <u>Mehmet Aksoy</u> 🎤
#117 Legislative Approach to Fuel Cells in the Turkish Maritime Industry / <u>Omer Berkehan Inal</u> 🎤	#124 Determination of the effect of organic fluid pairs on hydrogen production and cost in the PEM unit for two geothermal driven mid and low temperature ORCs / Sadık Ata, Ali Kahraman, Remzi Şahin and <u>Mehmet Aksoy</u> 🎤
#190 A Study on Electricity Consumption During Water Electrolysis / <u>Furkan Şengüler</u> and Adnan Midilli 🎤	#175 The role of hydrogen in Synthetic fuel production strategies / <u>Mohammed Abdulmunem Alsunousi</u> and Erhan Kayabaşı 🎤
#154 A Novel Adaptive Sliding Mode Control Design for Switched Boost Inverters used in PEM Fuel Cells Powered Nanogrid Applications / <u>Melike Esen Güngör</u> , Kıvanç Doğan, Mehmet Özdemir and Ahmet Orhan 🎤	#207 Artificial Intelligence Controller for Ship DC Microgrid with Fuel Cells / Burak Yıldırım, Meysam Gheisarnejad, Mahmut Temel Özdemir and <u>Mohammad Hassan Khooban</u> 🎤
#209 The Hydrogen Defense Against Climate Change: Use of Hydrogen in Defense Industry / <u>Erkut Yılmaz</u> , Yagmur Budak and Enis Furkan Ucar	#84 The Techno-economic Analysis of a Hybrid System with Hydrogen Production for a Campus Area / <u>Hasan Bektaş Perçin</u> and Abuzer Çalışkan 🎤
	#52 Safety Analysis for a Hydrogen Storage System / <u>Hasan H Bulat</u> , Ozgur Turay Kaymakci and Hacı İlhan

MIMAR SINAN HALL	
12:30-12:45	Awards and Closing Ceremony
12:45-14:00	Lunch / Fırat University University House
14:00-19:00	Harput Cultural Trip
19:00-21:00	Dinner (Zertaşlar Harput)

POSTERS

Poster Session (Onsite)

Chair: **Mahmut Temel Özdemir**

#17 Numerical Simulation of Small-Scale Unignited Hydrogen Release / **Yanwei Liang**, Liqiang Liu, Nan Peng, Jean-Michel Ghidaglia and Yongfeng Qu

Poster Session (Online)

Chair: **Soner Çelikkemir**

#3 Energy management strategy of fuel cell electric vehicles based on model predictive control / **Yan Sun** and Changgao Xia

#41 Hydrogen purification using polyvinyl alcohol/Zr-based Metal organic framework mixed matrix membranes / **Filiz Uğur Nigiz** and Tuba Ünügül

#51 New Structure Design and Flow Field Analysis of Two-stage Baffle Type Hydrogen-water Separator / **Haolan Li**

#64 Commercial Alumina Supported Fe Catalysts for Hydrogen Sulfide Decomposition / **Hale Akansu**, Hüseyin Arbağ, Hacı Mehmet Taşdemir, Sena Yaşyerli and Nail Yaşyerli

#65 Effects of Boron Addition on the Activity of Nickel Catalyst in Dry Reforming of Methane in the Presence of H₂S / Sevtap Alp, **Hale Akansu**, Hüseyin Arbağ and Nail Yaşyerli

#160 Determination of the performance index of the decarbonization process by absorption-desorption of exhausted gases / **Maria T Cadenas**, Carlos Castañeda, GabrielaLeo Avelino and José Galen Drury Zamora



Who is Mimar Sinan?



Who is Yusuf Has Hacıp?



Who is Kaşgarlı Mahmud?



Who is Farabi?



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