



كلية العلوم والهندسة
College of Science & Engineering
جامعة حمد بن خليفة
HAMAD BIN KHALIFA UNIVERSITY



12TH INTERNATIONAL EXERGY, ENERGY, AND ENVIRONMENT SYMPOSIUM (IEEEES-12)

December 20 – 24, 2020
Education City, Doha, Qatar

VIRTUAL SYMPOSIUM PROGRAM

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DAY 1

Sunday, December 20, 2020

Webex short link: <https://bit.ly/3mbIsPy> (Password: 20-20)

OPENING SESSION

Time (GMT+3)	WELCOME REMARKS
3:30 pm – 4:00 pm	<p>Dr. Ahmad M. Hasnah President Hamad Bin Khalifa University</p> <p>H.E. Essa Al-Kuwari President Qatar General Electricity & Water Corporation Member of Board of Trustees, Hamad Bin Khalifa University</p> <p>Dr. Ibrahim Dincer Founding Chair of Symposium Ontario Tech University</p> <p>Dr. Mounir Hamdi Dean, College of Science and Engineering Hamad Bin Khalifa University</p> <p>Dr. Hisham M. Sabir Director, Technical, Qatar National Research Fund (QNRF)</p> <p>Dr. Yusuf Bicer Chair of the Symposium Hamad Bin Khalifa University</p>

PLENARY SESSION – 1

Time (GMT+3)	PRESENTATION
4:00 pm – 4:45 pm	<p>Energy-Climate Change-Sustainability Triangle: How Can We Move Together Toward Achieving a Global Solution?</p> <p>Keynote Speaker – Prof. Dr. Feridun Hamdullahpur Professor, President and Vice-Chancellor University of Waterloo, Canada</p>
4:45 pm – 5:00 pm	BREAK
5:00 pm – 5:45 pm	<p>Novel Methods for Production of Hydrogen for Industrial Applications</p> <p>Keynote Speaker – Prof. Dr. Ibrahim Dincer Professor, Ontario Tech University, Canada</p>
END OF DAY 1	

DAY 2

Monday, December 21, 2020

Webex short link: <https://bit.ly/3mlSNIB> (Password: 20-20)

PLENARY SESSION – 2

Time (GMT+3)	PRESENTATION
8:30 am – 9:15 am	Integrated Footprints Accounting for Sustainability, Emissions and Plastic Keynote Speaker – Prof. Dr. Jiří Jaromír Klemes Professor, Brno University of Technology, Czech Republic
9:15 am – 9:30 am	BREAK
9:30 am – 10:15 am	Intricacies of the 2 nd Law and Its Application to LNG Liquefaction and Regasification Facilities Keynote Speaker – Prof. Dr. Yunus Çengel Professor Emeritus, University of Nevada, Reno, NV, USA
10:15 am – 10:30 am	BREAK

PRESENTATIONS SESSION – 1

Session Chair: Dr. Luluwah Al-Fagih

Time (GMT+3)	PRESENTATION
10:45 am – 11:00 am	IEEEES12- P338 Data-Driven Materials Discovery Fadwa El-Mellouhi
11:00 am – 11:15 am	IEEEES12- P289 Simulation Model for Designing an Optimal Site Specific Renewable Energy Based Electric Vehicle (EV) Charging Station – A Case Study in Qatar Abdulla Al Wahedi, Yusuf Bicer
11:15 am – 11:30 am	IEEEES12- P188 Al Rayyan's Wind Energy Potential to Satisfy Ahmed Bin Ali Stadium's Energy Demand During the 2022 FIFA World Cup in Qatar Carlos Mendez, Yusuf Bicer
11:30 am – 11:45 am	IEEEES12- P085 Wind Speed Analysis by Using Mixed Extreme Value Distributions Hassan Tahir, Weidong Zhao, Arsalan Ahmed
11:45 am – 12:00 pm	IEEEES12- P372 Impact of Fossil Fuel Subsidies on Renewable Energy Sector Sikandar Abdul Qadir, Furqan Tahir, Luluwah Al-Fagih
12:00 pm – 12:15 pm	IEEEES12- P193 MOPSA and SPECO Approaches for Thermo-economic Assessment of a Combined Power Cycle Using Renewable and Conventional Fuels Cuneyt Uysal, Hasan Ozcan
12:15 pm – 12:30 pm	IEEEES12- P219 Sustainable Energy Use and Decarbonization Potential in the Hungarian Residential Building Sector Tamas Palvolgyi, Attila Buzasi
12:30 pm – 12:45 pm	IEEEES12- P310 Renewable Penetration to Turkey's Electric Power Grid İzzet Alagöz, Mehmet Bulut, Mehmet Biçer

POSTERS SESSION – 1

Time (GMT+3)	PRESENTATION
12:45 pm – 12:50 pm	IEEEES12- P321 Application of Artificial Neural Networks for Solar Multi-parameters Prediction; A Case Study of Nigeria <u>Olusola Bamisile</u>, Ariyo Oluwasanmi, Sandra Obiora, Eric Okonkwo, Gaylord Asoronye, Qi Huang
12:50 pm – 12:55 pm	IEEEES12- P138 Integration of Kalina Cycle with CPVT for Multi-generation and Hydrogen Production: An Energy, Exergy and Environmental Performance Study <u>Olusola Bamisile</u>, Qi Huang, Eric Okonkwo, Tareq Al-Ansari, Patrick Ayambire, Victor Adebayo, Tahir Ratlamwala
12:55 pm – 1:00 pm	IEEEES12- P200 Research on Spatial Non-Uniformity of Power Distribution for Solar Radiation Simulation Bartosz Stanek, Łukasz Bartela, Daniel Węcel, <u>Anna Skorek-Osikowska</u>
1:00 pm – 1:05 pm	IEEEES12- P006 Blade design for horizontal axis wind turbine <u>David Esteban Albadan Molano</u>
1:05 pm – 1:10 pm	IEEEES12- P027 Assessment of TPHs and PAHs in the Marine Sediment Relating to Oil and Gas Extraction Activity on the Western Coastline of Qatar <u>Maryam Abdulla</u>, Azenith Castillo, Christopher Collins, Tom Sizmur
1:10 pm – 1:15 pm	IEEEES12- P097 Natural Gas Portfolio Optimization for Thermopower and Petrochemical Feeds Henrique Plaudio, <u>Brenno Menezes</u>, Fernando Pessoa
1:15 pm – 1:20 pm	IEEEES12- P270 Revisit of Modeling Techniques for Foam Flow in Porous Media <u>Lei Ding</u>, Dominique Guerillot, Mirna Maklad
1:20 pm – 1:25 pm	IEEEES12- P098 CO ₂ Emission through Road Gradient and Real-Time Traffic Monitoring for Vehicle Routing Problems Eduardo Escamilla, Marzieh Khakifirooz, <u>Brenno Menezes</u>, Mahdi Fathi
1:25 pm – 1:30 pm	IEEEES12- P376 Quantified literature database for Methane Dehydroaromatization - an opportunity for statistical and artificial intelligence to unravel hidden intercorrelations <u>Nagat Elrefaei</u>, Anchu Ashok, Ma'Moun Al-Rawashdeh

PRESENTATIONS SESSION – 2

Session Chair: Dr. Ahmed Abdala

Time (GMT+3)	PRESENTATION
1:30 pm – 1:45 pm	IEEEES12- P151 Performance Comparison of Machined from Bulk and Fabricated via Powder Metallurgy Approach Crofer®22 APU Interconnects for SOFC Applications <u>Ömer Necati Cora</u>, Bülent Öztürk, Alparslan Topcu
1:45 pm – 2:00 pm	IEEEES12- P235 Fuel Cell Electric Vehicles: Current Prospects and Challenges Beyond 2020 <u>Ömer Necati Cora</u>
2:00 pm – 2:15 pm	IEEEES12- P155 Development of a Solar Energy Based Multigeneration Plant with SOFC for Hydrogen Production <u>Nejat Tukenmez</u>, Fatih Yilmaz, Murat Ozturk

2:15 pm – 2:30 pm	IEEEES12- P154 Investigation of Performance Improvement of Geothermal Energy Assisted Power, Heating and Hydrogen Generation Plants with Thermoelectric Generator Nejat Tukenmez, Fatih Yilmaz, Murat Ozturk
2:30 pm – 2:45 pm	IEEEES12- P222 Sintering Inhibitors of Iron Powder Particles used for Hydrogen Production Fotouh Al-Ragom
2:45 pm – 3:00 pm	IEEEES12- P266 Ni-B and Zr-Ni-B In-Situ Catalytic performance for Hydrogen Generation from Sodium Borohydride, Ammonia Borane and Their Mixtures Deniz Lim, Göksel Özkan, Gülay Özkan
3:00 pm – 3:15 pm	IEEEES12- P267 Investigation of Ni2B Additive as a Molten Carbonate Fuel Cell Anode Material Erdi Başarır, Göksel Özkan, Gülay Özkan
3:15 pm – 3:30 pm	IEEEES12- P237 Physical and Electrochemical Analysis of Calcium Co-Doped GDC and its Use as Electrolyte in IT-SOFC Ieeba Khan, Suddhasatwa Basu

PRESENTATIONS SESSION – 3

Session Chair: Dr. Islam Safak Bayram

Time (GMT+3)	PRESENTATION
3:30 pm – 4:00 pm	Performance Improvement of Silicon Photovoltaic Panels by Application of Cooling Techniques Invited Talk – Prof. Dr. Sandro Nižetić Professor, University of Split, Croatia
4:00 pm – 4:15 pm	IEEEES12- P165 Comparative Study for Solar Powered Systems in Pakistan Tahir Abdul Hussain, Sohaib Ahmed, Muhammad Umer Khan, Moiz Ahmed, Osama Tahir
4:15 pm – 4:30 pm	IEEEES12- P030 Optimized PV Power Curtailment Technique with Absolute Fairness to Eliminate Voltage Rise in Low Voltage Distribution Systems Ali Elrayyah
4:30 pm – 4:45 pm	IEEEES12- P139 Investigation of GaAsPN/GaP Quantum Dots Structures for Solar Cells Applications Abdelkader Aissat, Said Nacer Jean Pierre Vilcot
4:45 pm – 5:00 pm	IEEEES12- P178 Recovery of the Cubic Structure in Mixed Cation Perovskite Thin Films via Machine Learning Assistance Adnan Ali, Heesoo Park, Abdelhak Belaidi, Brahim Aissa and Fedwa El-Mellouhi
5:00 pm – 5:15 pm	IEEEES12- P029 Optimal Solar Hybridization of a Grid-Connected Gas Turbine Combined Cycle Power Plant: A Case Study Mohammad Mohammadzadeh, Mohammad Tajik Mansouri, Mehdi Rahimi
5:15 pm – 5:30 pm	IEEEES12- P343 Using BAT Algorithms for Techno-economic Analysis of Grid-Connected PV System and Comparison with PSO and WOA methods Abdurazaq Elbaz, Muhammet Tahir Güneşer
5:30 pm – 5:45 pm	IEEEES12- P140 Optimal Sizing of a Residential Grid-Interactive PV with Battery Storage Using HOMER Stephen Marais, Kanzumba Kusakana

5:45 pm – 6:00 pm	IEEEES12- P169 Exergoeconomic Performance Evaluation of a PV/T Assisted Wastewater Source Heat Pump System <u>Mustafa Araz, Arif Hepbasli, Huseyin Gunerhan</u>
6:00 pm – 6:15 pm	IEEEES12- P324 Enviro-economical Assessment of Hydrogen Fuel cell buses <u>Pouria Ahmadi, Nader Javani, Alireza Khoshnevisan</u>
6:15 pm – 6:30 pm	IEEEES12- P250 The Energetic and Environmental Parameters' effect on The Valuation of Bulk Carriers <u>Murat Koray, M.Ziya Söğüt</u>
6:30 pm – 6:45 pm	IEEEES12- P037 Development of Transition Metal/Alloy Nanoparticles/Nanoclusters for Water Splitting as a Sustainable Source of Energy <u>Tanveer Ulhaq, Tareq Al-Ansari</u>
6:45 pm – 7:00 pm	IEEEES12- P062 Integration of Solid Oxide Fuel Cell with Flare System in Natural Gas Plant <u>Khalid Al-Khori, Yusuf Bicer, Muammer Koc</u>
7:00 pm – 7:15 pm	IEEEES12- P232 Maximizing Energy Production for Solar PVs Installed on Complex Curvature Roofs to Mitigate Partial Shading Effect <u>Saoud Al-Janahi, Omar Ellabban, Sami G. Al-Ghamdi</u>
7:15 pm – 7:30 pm	IEEEES12- P269 Performance investigation of the reactor cascading effect on ammonia synthesis <u>Haris Ishaq, Ibrahim Dincer</u>
7:30 pm – 7:45 pm	IEEEES12- P254 Economic Analysis of Generated Boil-Off Gas of Various Liquefied Energy Carriers During Energy Storage and Transport <u>Mohammed Al-Breiki, Yusuf Bicer</u>
END OF DAY 2	

DAY 3

Tuesday, December 22, 2020

Webex short link: <https://bit.ly/34bZKWv> (Password: 20-20)

PRESENTATIONS SESSION – 4

Session Chair: Dr. Sami G. Al-Ghamdi

Time (GMT+3)	PRESENTATION
8:30 am – 8:45 am	IEEES12- P259 Architecture design and Energy Performance of a modular Nearly Zero Energy Building Mohammed Ahachad, Mustapha Mahdaoui, Mustapha Ouardouz, Rachid El Alaiji, Fatima Bahraoui, Youssef Berroho, Nouredine Tlemsani
8:45 am – 9:00 am	IEEES12- P010 Complexity and Use in the Built Environment: Post-occupancy Evaluation and Proposed Design Alterations for Qatar University's Most Iconic Building Mark David Major, Doha Elsaman, Lolwa Al-Mohannadi, Meera Al-Khulifi, Shaikha Al-Thani
9:00 am – 9:15 am	IEEES12- P079 Minimum Insulation Thickness to Prevent the Condensation of Building External Walls in a Different Direction Okan Kon, İsmail Caner
9:15 am – 9:30 am	IEEES12- P032 Sustainable Buildings Components: A Technical Review of Green Roofs (GFs) Sara Zaina, Fodil Fadli
9:30 am – 9:45 am	IEEES12- P246 Cost and Thermal Aspects of Solar Driven Heating Assistance Options for Residential Buildings Ümit Deniz Akyavuz, Hasan Özcan
9:45 am – 10:00 am	IEEES12- P077 Energy-Efficient Retrofitting Strategies for Hospital Building for Heating Season İsmail Caner, Nadir İlten
10:00 am – 10:15 am	IEEES12- P361 The Effect of Air Layer Thickness on Insulation Thickness Applied to Buildings with Sandwich Walls Okan Kon, İsmail Caner
10:15 am – 10:30 am	IEEES12- P363 Comfort as the Dead State of Buildings: A Preliminary Discussion Valentina Bonetti

PRESENTATIONS SESSION – 5

Session Chair: Dr. Tareq Al-Ansari

Time (GMT+3)	PRESENTATION
10:45 am – 11:00 am	IEEES12- P175 Turkeys Industrial Waste Heat to Power Potential for Power and Hydrogen Generation Hasan Ozcan, Funda Ates
11:00 am – 11:15 am	IEEES12- P016 Study of Methane Enrichment in a Biogas Fuelled HCCI Engine Feroskhan M, Saleel Ismail, Panchal Shreyash Hemant
11:15 am – 11:30 am	IEEES12- P208 Potential of Biocrude Production from Camel Manure via Hydrothermal Liquefaction: A Qatar Case Study Mohammad Alherbawi, Prakash Parthasarathy, Tareq Al-Ansari and Gordon Mckay

11:30 am – 11:45 am	IEEES12- P262 An Experimental Study on Gas-to-Liquids (GTL) and Biogas Dual Fuel Operation of a Diesel Engine Saket Verma, L M Das, S C Kaushik
11:45 am – 12:00 pm	IEEES12- P297 CSP-hybrid staged-gasification of solid waste to produce hydrogen enriched syngas: ASPEN Plus simulation Shahid Hussain Ansari, Xinying Liu, K. L. Nkhonjera
12:00 pm – 12:15 pm	IEEES12- P181 Synthetic Natural Gas Production in Power-to-Gas Approaches Involving Biomass Gasification and Anaerobic Digestion Anna Skorek-Osikowska, Jose Luis Galvez-Martos
12:15 pm – 12:30 pm	IEEES12- P056 Exergy Analysis of a Biogas-Diesel Fueled Dual Fuel Engine Feroskhan M, Sreekanth M, Saleel Ismail
12:30 pm – 12:45 pm	IEEES12- P040 Performance and emission characteristics of a biogas fueled dual-fuel engine with various DEE fractions Prashant Dhar Dwivedi, Prashant Das, Hrushikesh V Bhalerao, Sumanth Samsani, Subham Balyan, Yasonandan Vadlamudi, Saleel Ismail, Feroskhan M

POSTERS SESSION – 2

Time (GMT+3)	PRESENTATION
12:45 pm – 12:50 pm	IEEES12- P148 Removal of Crystal Violet Dye from Water by Sand of Algerian Sahara Arris Sihem, Ndermouchi Aida, Bencheikh Lehocine Mossaab, Meniai H-A
12:50 pm – 12:55 pm	IEEES12- P149 Characterization of natural carob used for removal of crystal Violet dye from wastewater Arris Sihem, Bencheikh Lehocine Mossaab, Meniai H-A
12:55 pm – 1:00 pm	IEEES12- P101 Underwater Solar Irradiance and Performance analysis of various Silicon Solar Cells with Change in Water Conditions: A Comparative Study Prasanth K. Enaganti, Prabhat K. Dwivedi, Alok K. Srivastava, Sanket Goel
1:00 pm – 1:05 pm	IEEES12- P184 CFD Investigation of Falling Film Flow over Horizontal Tube Furqan Tahir, Abdelnasser Mabrouk, Muammer Koc
1:05 pm – 1:10 pm	IEEES12- P129 Development of Virtual Sensors for Prediction of Flue Gas Composition of a Cement Plant through Ensemble Learning Technique Usman Khan Jadoon, Iftikhar Ahmad, Arshad Hussain and Brenno C. Menezes
1:10 pm – 1:15 pm	IEEES12- P130 Simulation-Based Design and Analysis of Fluidized Bed Membrane Reactor for Naphtha Reforming Process Adnan Ahmad Bhatti, Iftikhar Ahmad, Arshad Hussain, Brenno C. Menezes
1:15 pm – 1:20 pm	IEEES12- P367 Geospatial assessment of <i>Jatropha curcas</i> plantation in Qatar: A GIS modelling approach Mohammad Alherbawi, Maryam Haji, Hazrath Bilal Khan, Gordon Mckay, Tareq Al-Ansari
1:20 pm – 1:25 pm	IEEES12- P185 3D Analysis of Film Thickness Distribution in a Horizontal Type Falling Film Evaporator Furqan Tahir, Abdelnasser Mabrouk, Muammer Koc

PLENARY SESSION – 3

Time (GMT+3)	PRESENTATION
1:30 pm – 2:15 pm	Modern Methods for the Comprehensive Evaluation and Improvement of Energy Conversion Systems Keynote Speaker – Prof. Dr. George Tsatsaronis Professor, Technical University of Berlin, Germany
2:15 am – 2:30 am	BREAK
2:30 pm – 3:00 pm	Thermal Optimization of Heat Transfer Performance Using Nanotechnology: A Hybrid Thermal and Environmental Application Invited Talk – Prof. Dr. Ziad Saghir Professor, Ryerson University, Canada
3:00 am – 3:30 am	BREAK

PRESENTATIONS SESSION – 6

Session Chair: Dr. Hamish Mackey

Time (GMT+3)	PRESENTATION
3:30 pm – 3:45 pm	IEEEES12- P204 Effects of Microstructure Shape Parameters on Water Removal in a PEMFC Lotus-Like Flow Channel Xie Xuan, Yin Bifeng, Xu Sheng
3:45 pm – 4:00 pm	IEEEES12- P086 Commodities Relationships Effect on Adopting Pro-Environmental Measures Reem Mamoon Mohmed, Frank Himpe
4:00 pm – 4:15 pm	IEEEES12- P176 Energy-enviro Investigation of Solar Powered Self-Sustainable Minimal Liquid-Solid Discharge Toilet Policherla Venkata Sai, K S Reddy
4:15 pm – 4:30 pm	IEEEES12- P160 Formulation of Indicators for Sustainable Groundwater Development in Qatar Salah Ajjur, Husam Baalousha
4:30 pm – 4:45 pm	IEEEES12- P104 Biochar: A Sustainable Approach for Water Stress and Plant Growth Snigdhendubala Pradhan, Hamish R. Mackey, Tareq Al-Ansari, Gordon McKay
4:45 pm – 5:00 pm	IEEEES12- P166 Assessing the Environment Impacts of Grocery Bags Tahir Abdul Hussain, Adeel Asghar, Hammad Parvez, Shoaib Shahbaz, Abeer Farooq
5:00 pm – 5:15 pm	IEEEES12- P360 Synthesis and characterization of carbonized nano-micro materials from agricultural and industrial wastes Maria Kanwal, Rao Arsalan Khushnood, Abdul Ghafar
5:15 pm – 5:30 pm	IEEEES12- P127 Effects and critical analysis for Carbon Emission Estimation in the Transportation Sector Ruba Al- Foraih, Sreekant K J
5:30 pm – 5:45 pm	IEEEES12- P341 Urban sprawl and its impact on the environment: case of the Greater El Jadida, (Morocco) Ikram El Mjiri, Abdelmejid Rahimi, Abdelkrim Bouasria
5:45 pm – 6:00 pm	IEEEES12- P377 Prospects of CO2 Utilization after Carbon Capture Process Binash Imteyaz, Sikandar Abdul Qadir, Furqan Tahir

6:00 pm – 6:15 pm	IEEEES12- P082 De-watering of Microalgae through Auto-flocculation for Sustainable Biofuels Production <u>Naim Rashid</u>, Bongsoo Lee, Yong-Keun Chang
6:15 pm – 6:30 pm	IEEEES12- P225 Evaluation of regional climate innovation potential in Hungary <u>Maria Szalmane Csete</u>, Orsolya Barna
6:30 pm – 6:45 pm	IEEEES12- P135 Removal of Toxic Cadmium From Water Using a Binary Site ion Exchange Resin Derived From Waste Printed Circuit Board Meng Xu, Haya Alyasi, Junaid Saleem, Ning Chao, Chi Wai Hui, Hamish Mackey, Tareq Al Ansari, Gordon McKay
6:45 pm – 7:00 pm	IEEEES12- P174 A Predictive Model for the Thermal Conductivity of Nanofluids Using Machine Learning Algorithms Humphrey Adun, Ifeoluwa Wole-Osho, <u>Eric Okonkwo</u>
7:00 pm – 7:15 pm	IEEEES12- P284 Synthesis and Testing of Hybrid Micro-Nano Coatings for Advance Nucleate Boiling <u>Shoukat Alim Khan</u>, Muammer Koc, Sami G. Al-Ghamdi
7:15 pm – 7:30 pm	IEEEES12- P303 Utilization of the osmotic power potential of desalination brine <u>Nurettin Sezer</u>, Yusuf Bicer, Muammer Koc
7:30 pm – 7:45 pm	IEEEES12- P323 Thermodynamic analysis of a polygeneration system designed for Controlled Environment Poultry Farming <u>Muhammad Luqman</u>, Tareq A. Al-Ansari
7:45 pm – 8:00 pm	IEEEES12- P378 Energy and Water Conservation Index Application for Optimizing the Conservation of Energy and Water at Facility <u>Andreas Prasetyadi</u>, Budi Setyahandana
8:00 pm – 8:15 pm	IEEEES12- P261 Thermodynamic Comparison of Cooling Options for Clean SOFC-Powered Locomotives <u>Khaled Al-Hamed</u>, Ibrahim Dincer

END OF DAY 3

DAY 4

Wednesday, December 23, 2020

Webex short link: <https://bit.ly/37gpgvO> (Password: 20-20)

PRESENTATIONS SESSION – 7

Session Chair: Dr. Gordon McKay

Time (GMT+3)	PRESENTATION
8:30 am – 9:00 am	Plasma Gasification for Better Environmental Sustainability Invited Talk – Prof. Dr. Adnan Midilli Professor, Yildiz Technical University, Turkey
9:00 am – 9:15 am	IEEEES12- P171 Experimental Study on a Thermoacoustic-Stirling Engine with Acoustic Field Adjustment Isares Dhuchakallaya, Patcharin Saechan
9:15 am – 9:30 am	IEEEES12- P359 Study on challenges and opportunities of Dish type Solar Stirling engine at UAE conditions Ben Alex Baby, N. M. Zajith Ali, Y. Raja Sekhar
9:30 am – 9:45 am	IEEEES12- P011 Acetylene as an Alternative Fuel for IC Engines- Production Methodology and Performance Tests Sri Sathya Sai S V, Rahul Ranganath, Shane Shaju, Ajay J Nayar
9:45 am – 10:00 am	IEEEES12- P342 Thermodynamic Analysis of an Automobile's Air Conditioning System Assisted by Exhaust Gas and Solar Energy Santi Sarkar, Goutam Khankari, Sujit Karmakar
10:00 am – 10:15 am	IEEEES12- P074 Error Correction of Estimation Techniques in a Synchro-Phasor Measurement Unit Hamid Bentarzi, Mahboubi Meriam, Ouadi Abderrahmane, Abdelmoumene Abdelakder
10:15 am – 10:30 am	IEEEES12- P038 Resource Provisioning in Plug-in Electric Vehicle Charging Lots Islam Safak Bayram, Raka Jovanovic, Michael Devetsikiotis

PRESENTATIONS SESSION – 8

Session Chair: Dr. Rahul Bhosale

Time (GMT+3)	PRESENTATION
10:45 am – 11:00 am	IEEEES12- P123 Thermodynamic Analysis of a Hybrid Multi-generation System Using Solar and Wind Power Tahir Abdul Hussain Ratlamwala, Danish Ashfaq, Abdul Basit Aftab
11:00 am – 11:15 am	IEEEES12- P369 Comparative 3-E (Energy, Exergy, and Environmental) Analysis of Partial Oxy-Coal and Air-Coal Combustion based 500 MWe Supercritical Thermal Power Plants with CO ₂ Capture Soumya Jyoti Chatterjee, Sujit Karmakar
11:15 am – 11:30 am	IEEEES12- P019 Solar Thermal Vapor Adsorption - Exergy Analysis M Natarajan Muthuswamy, Raja Sekhar Yendaluru, C Chiranjeevi, Tangellapalli Srinivas

11:30 am – 11:45 am	IEEES12- P352 Entropy Generation and Exergy Analysis under transient condition for Large Diameter Natural Circulation Loops Elton Dylan Nazareth, Arunachala U Chandavar, Rajat A Chandavar
11:45 am – 12:00 pm	IEEES12- P167 Comparative Economic and Exergoeconomic Analysis of a Hybrid Cascade Refrigeration System Using Ammonia-Propane, Propane-Propylene and Isobutane-Propane Refrigerant Pairs Kaushalendra Kumar Singh, Rajesh Kumar, Anjana Gupta
12:00 pm – 12:15 pm	IEEES12- P201 Exergy Analysis of Tunnel Furnace and Tunnel Dryer Gurhan Tahtali, Hayati Olgun, Mustafa Gunes and Arif Hepbasli
12:15 pm – 12:30 pm	IEEES12- P291 Preliminary Investigation of the Experimental CO ₂ Cascade Heat Pump System From Exergetic Point of View Mansour Ndiaye, Onder Kizilkan, Koshiro Uchi, Petter Neksa, Hiroshi Yamaguchi
12:30 pm – 12:45 pm	IEEES12- P072 Exergy and CO ₂ Emissions Analysis of an Emerging Alternative Iron and Steel Making Process Binay Kumar, Gour Gopal Roy, Prodip Kumar Sen

POSTERS SESSION – 3

Time (GMT+3)	PRESENTATION
12:45 pm – 12:49 pm	IEEES12- P115 3-D Computational Study on a Spray Cooled Solar Photovoltaic Panel Martin Raju, Abhilash Suryan, Sandro Nizetic
12:49 pm – 12:53 pm	IEEES12- P328 Application of Magnetite Iron Oxide Nanoparticles (Fe ₃ O ₄) Grafted with Silica Nanoparticles (SiO ₂) for separation of Oil from Oil/Water Emulsions Wamda Elmobarak, Fares Almomani
12:53 pm – 12:57 pm	IEEES12- P302 Spectral analysis of LBM-LES numerical data on lid-driven cavity Fethi Aloui, Insaf Mehrez, Ramla Gheith
12:57 pm – 1:01 pm	IEEES12- P307 Heating Rate Effect on Tetrapak Paper Pyrolysis: Thermogravimetric Analysis Fethi Aloui, Emna Berrich, Afef Bouazizi, Imene Bekri, Ezzedine Srasra
1:01 pm – 1:05 pm	IEEES12- P102 Vegan Burger Recipe Optimization for Meat Quality Nutrition in the Food Industry Brenno Menezes, Mohamed Sawaly, Tareq Al Ansari
1:05 pm – 1:09 pm	IEEES12- P247 Cobalt Based Catalysts for Water Oxidation or Oxygen Evolution Reaction Afreenuzzaman Badruzzaman, Afdhal Yuda, Anchu Ashok, Anand Kumar
1:09 pm – 1:13 pm	IEEES12- P248 Anode Catalysts for Methanol Oxidation Reaction in Direct Methanol Fuel Cell Afdhal Yuda, Anchu Ashok, Anand Kumar
1:13 pm – 1:17 pm	IEEES12- P124 Electro-Thermochemical Water-Splitting Cycle for Hydrogen Production Fares Almomani
1:17 pm – 1:21 pm	IEEES12- P022 Fuel Life Cycle Assessment of Non-Passenger Diesel Vehicles in Qatar Hanadi Al Thani, Muammer Koc, Sami Al-Ghamdi, Rima Isaifan

1:21 pm – 1:25 pm	IEEEES12- P353 Techno-economic Assessment of a Synthetic Fuel Production Facility by Utilizing the Hydrogenation with CO ₂ Captured from Biogas Alperen Tozlu
1:25 pm – 1:30 pm	IEEEES12- P373 Powertrain Analysis of Heavy Duty Electric Vehicle with Wheeled and Tracked Alternatives Eda Alpaslan, Can Özgür Çolpan, Mustafa Umut Karaoğlu

PRESENTATIONS SESSION – 9

Session Chair: Dr. Adel Elomri

Time (GMT+3)	PRESENTATION
1:30 pm – 1:45 pm	IEEEES12- P368 Techno-Economic Analysis of a 500MWe Supercritical Coal-based Thermal Power Plant with Solar Assisted MEA-based CO ₂ Capture Rajesh Kumar, Sujit Karmakar
1:45 pm – 2:00 pm	IEEEES12- P214 Impact of Energy Subsidies on the Economic Viability of Rooftop Photovoltaic Systems in Qatar Omar Alrawi, Islam S. Bayram, Muammer Koc, Sami G. Al-Ghamdi
2:00 pm – 2:15 pm	IEEEES12- P159 Potential Energy Optimization of the Coefficient of Performance of a Residential Air Source Heat Pump Water Heater Stephen Tangwe, Kanzumba Kusakana
2:15 pm – 2:30 pm	IEEEES12- P058 Metaheuristic Approaches for Solving the Energy Optimization Problem of Multiple Stage Evaporator System Drishti Yadav, Om Prakash Verma
2:30 pm – 2:45 pm	IEEEES12- P059 Metaheuristic-Driven Optimization for Solution of Dynamic Model of Multiple Stage Evaporator System of Paper Mills Drishti Yadav, Om Prakash Verma
2:45 pm – 3:00 pm	IEEEES12- P144 A sustainable HVAC and architectural design for historical churches: A case study of San Marcello Al Corso Mohammad Mohammadzadeh, Navid Hadifar, Bahareh Mohammadzadeh
3:00 pm – 3:15 pm	IEEEES12- P162 Microwave Melting Salt Slurries by Serpentine Granule for Thermal Energy Storage Yıldırım Tosun
3:15 pm – 3:30 pm	IEEEES12- P305 The Effect of Entering Angle on Machinability of PH 13-8 Mo Ahmet Serdar Güldibi, Halil Demir

PRESENTATIONS SESSION – 10

Session Chair: Dr. Farrukh Khalid

Time (GMT+3)	PRESENTATION
3:45 pm – 4:15 pm	Some Fundamental Investigations for the Energetic Optimization of Stirling Engines Invited Talk – Prof. Dr. Fethi Aloui Professor, Polytechnic University Hauts-de-France, France
4:15 pm – 4:25 pm	BREAK
4:25 pm – 4:55 pm	A review on energy storage technologies with a focus on thermal energy storage: State of the art and prospects Invited Talk – Prof. Dr. Lounes Tadriss Professor, Aix-Marseille University, France
4:55 pm – 5:00 pm	BREAK
5:00 pm – 5:15 pm	IEEES12- P299 Development of an Assessment Methodology for Smart Cities: Canadian Cities as Case Studies Azzam Abu-Rayash, Ibrahim Dincer
5:15 pm – 5:30 pm	IEEES12- P331 Energy and Exergy Analysis of a Solar Driven Trigeneration System for Ammonia Synthesis, Electricity Generation and Fresh Water Production Murat Emre Demir, Ibrahim Dincer
5:30 pm – 5:45 pm	IEEES12- P226 Direct synthesis of formic acid energy carrier from captured carbon dioxide and utilization in a direct formic acid fuel cell Nour Mardini, Yusuf Bicer
5:45 pm – 6:00 pm	IEEES12- P278 Borohydride Oxidation on Copper alloys deposited on carbon by Electroless coating Harsha Uskaikar, Brenda Dias Barreto, Sheela Berchmans
6:00 pm – 6:15 pm	IEEES12- P213 Potential Carbon Reduction From Atmosphere Via Urbanized Local Trees in Qatar Salma Habib, Sami G. Al-Ghamdi
6:15 pm – 6:30 pm	IEEES12- P268 Exergetic Investigation of a New Integrated Ammonia Based System Osamah Siddiqui, Ibrahim Dincer
6:30 pm – 6:45 pm	IEEES12- P224 Enhanced Thermal Conductivity of Polyethylene Composites Using Granulated Graphene Chaudhry Usman, Abdelnasser Mabrouk, Ahmed Abdala
6:45 pm – 7:00 pm	IEEES12- P230 Kinetic Studies of Camel Manure Using Thermogravimetric Analysis Prakash Parthasarathy, Samar Elkhaila, Tareq Al-Ansari and Gordon McKay
7:00 pm – 7:15 pm	IEEES12- P327 Sustainable Dairy Farm Waste Management – A Polygeneration and Hydrogen Energy-Based Approach Muhammad Luqman, Tareq Al-Ansari
7:15 pm – 7:30 pm	IEEES12- P335 Renewable energy based polygeneration system with hydrogen storage for remote decentralized coastal community Shoukat Alim Khan, Sami Al-Ghamdi
7:30 pm – 7:45 pm	IEEES12- P336 Design Quality for Green Building Delivery Ayman Raouf, Sami G Al-Ghamdi
7:45 pm – 8:00 pm	IEEES12- P125 Preliminary Energy Audit of a Residential Engineering University Campus Muhammad Sohail Malik, Aleem Ahmed Khan
END OF DAY 4	

DAY 5

Thursday, December 24, 2020

Webex short link: <https://bit.ly/3oNT2ho> (Password: 20-20)

PRESENTATIONS SESSION – 11

Session Chair: Dr. Muammer Koc

Time (GMT+3)	PRESENTATION
8:30 am – 9:00 am	Field Evaluation of Membrane Distillation Technologies for Desalination of Highly Saline Brines Invited Talk – Dr. Altaf Hussain ConocoPhillips Global Water Sustainability Centre, Qatar Science & Technology Park
9:00 am – 9:15 am	IEEEES12- P113 Numerical Analysis of a Hybrid Thermal Energy Storage System for Low Temperature Applications B Swaraj Kumar, James Varghese
9:15 am – 9:30 am	IEEEES12- P142 Numerical Analysis of 3-D Vanadium Redox Flow Battery with Flow Field Snigdha Saha, Gajanan Dattarao Surywanshi, Patnaikuni Venkata Suresh
9:30 am – 9:45 am	IEEEES12- P111 Novel Passive Heat Transport Device for Solar Indoor Cooking: A Numerical Study K. Varun, U.C. Arunachala, M. S. Manjunath
9:45 am – 10:00 am	IEEEES12- P116 Strategic and Flexible LNG Production Under Uncertain Future Demand Noor Yusuf, Tareq Al-Ansari, Rajesh Govindan, Luluwah Al Fagih
10:00 am – 10:15 am	IEEEES12- P239 Energy Use Identification for Adapted Production in Africa Aminata Kanta, Lounes Tadrist, Rachid Outbib
10:15 am – 10:30 am	IEEEES12- P132 The Advantages of Microwave Technology in Commercially Biodiesel Production Veli Gokhan Demir, Nadir Ilten, Hakan Serhad Soyhan, Ismail Caner

PRESENTATIONS SESSION – 12

Session Chair: Dr. Arif Hepbasli

Time (GMT+3)	PRESENTATION
10:45 am – 11:00 am	IEEEES12- P370 Investigation of Using Hemp as a Thermal Insulation Material in the Building Envelope in Terms of Thermal Comfort Okan Kon, Ismail Caner, Samet Arda
11:00 am – 11:15 am	IEEEES12- P236 Assessment of Three Electrochemical Energy Storage Methods for Residential Applications in Hot Climates Manal Alshafi, Yusuf Bicer
11:15 am – 11:30 am	IEEEES12- P274 Reliability Analysis of V- Trough Solar Air Heater (V-TASH) with Thermal Storage using Hourly Average Solar Radiation Data Suniraj Ba, Eswaramoorthy Muthusamy
11:30 am – 11:45 am	IEEEES12- P073 Experimental Investigation of Heat Transfer Characteristics of a Gravitational Water Vortex Flow Muhammad Tayyab, Taqi Ahmad Cheema, Ali Al Atas Khan, Muhammad Talha Riaz

11:45 am – 12:00 pm	IEEEES12- P312 Parametric Study of a Parabolic Trough Collector Based Solar Thermal System for Improving Asphalt Paving Sustainability <u>Yassine Hrimech</u> , <u>Abdallah Saad</u> , <u>Radia Ait El Cadi</u> , <u>Moaad Aboumalik</u> and <u>Mohamed Essaaidi</u>
12:00 pm – 12:15 pm	IEEEES12- P180 Life Cycle Assessment of Ammonia Synthesis from Thermo-Catalytic Solar Cracking of Liquefied Natural Gas (LNG) <u>Amro M. O. Mohamed</u> , <u>Sami G. Al-Ghamdi</u> , <u>Yusuf Bicer</u>
12:15 pm – 12:30 pm	IEEEES12- P110 Thermo-Hydraulic and Exergy Analysis of Parabolic Trough Collector with Wire Matrix Turbulator: An Experimental Investigation <u>K. Varun</u> , <u>U.C. Arunachala</u>
12:30 pm – 12:45 pm	IEEEES12- P172 Exergy Analysis of MgO-Water Nanofluid as a Coolant for Sinusoidal Mini-Channel Heat Sink <u>Muhammad Usman Sajid</u> , <u>Yusuf Bicer</u> , <u>Hafiz Muhammad Ali</u>

POSTERS SESSION – 4

Time (GMT+3)	PRESENTATION
12:45 pm – 12:50 pm	IEEEES12- P187 Study on Nitrogen doped Carbon paper electrodes for vanadium Redox Flow Battery Applications <u>Muthumeenal Arunachalam</u> , <u>Ahmed Sodiq</u> , <u>Fatima Fasmin</u> , <u>Belabbes Merzougui</u>
12:50 pm – 12:55 pm	IEEEES12- P249 Recent Progress in Catalyst Development for Water Gas Shift Reaction <u>Parisa Ebrahimi</u> , <u>Anand Kumar</u> , <u>Majeda Khraisheh</u>
12:55 pm – 1:00 pm	IEEEES12- P300 Model and Flow Sheet Improvements for Coal fired Power Plants Equipped with a CO ₂ Capture Process Using Monoethanolamine <u>Fethi Aloui</u> , <u>Tanguy Hahn</u> , <u>Jian Chen</u> , <u>Weiyang Fei</u>
1:00 pm – 1:05 pm	IEEEES12- P301 Theoretical Investigations of Stirling Engine Performances for Different Working Fluids <u>Fethi Aloui</u> , <u>Houda Hachem</u> and <u>Ramla Gheith</u>
1:05 pm – 1:10 pm	IEEEES12- P020 Mitigation of urban air pollution with green vegetation for sustainable cities: A review <u>Taif Alsalama</u> , <u>Muammer Koç</u> <u>Rima Isaifan</u>
1:10 pm – 1:15 pm	IEEEES12- P371 Impact of Hazardous Domestic Waste on Human Health in Qatar: Policy Proposal for Integration into The Environmental Law <u>Taif Alsalama</u> , <u>Muammer Koç</u> <u>Rima Isaifan</u>
1:15 pm – 1:20 pm	IEEEES12- P223 Energy Saving in an Academic Institution through Passive Daylighting Strategy <u>Manju G Nair</u> , <u>Aparna S</u> , <u>Abhilash Suryan</u> , <u>Sandro Nizetic</u>
1:20 pm – 1:25 pm	IEEEES12- P034 Facile Synthesis of Binary Phosphide as Active and Durable Catalyst for Electrochemical Oxygen Evolution <u>Assem Mohamed</u> , <u>Yahia Shoeb</u> , <u>Amina Al Jaber</u> , <u>Siham Alqaradawi</u>
1:25 pm – 1:30 pm	IEEEES12- P282 Influence of Boundary Conditions on the Exergetic Optimization of a Thermal Energy Storage Unit Combined with an Organic Rankine Cycle (ORCTES) <u>Andreas König-Haagen</u> , <u>Dieter Brüggemann</u>

PRESENTATIONS SESSION – 13

Session Chair: Dr. Mehmet Akif Ezan

Time (GMT+3)	PRESENTATION
1:30 pm – 1:45 pm	IEEEES12- P287 Economic and Social Sustainability in Low-Carbon Energy Transitions: Computer Simulations of a Proof-of-Concept Study <u>Ibrahim Ari, Muammer Koc</u>
1:45 pm – 2:00 pm	IEEEES12- P177 Supply Security in Critical Energy Infrastructures for Reliable Energy Grids <u>İsa Avcı, Cevat Özarpa, Yusuf Biçer</u>
2:00 pm – 2:15 pm	IEEEES12- P316 Transient Behavior of a Solar-Aided Shell-and-Tube Type Latent Heat TES Unit <u>Nezir Yagiz Cam, Ersin Alptekin, Levent Bilir and Mehmet Akif Ezan</u>
2:15 pm – 2:30 pm	IEEEES12- P203 Enhancements in Coal Burning in a Tunnel Furnace <u>Gurhan Tahtali, Hayati Olgun</u>
2:30 pm – 2:45 pm	IEEEES12- P374 Simulation of Heavy Duty Electric Vehicle Powertrain with Wheeled and Half Tracked Alternatives <u>Mustafa Umut Karaoğlu</u>
2:45 pm – 3:00 pm	IEEEES12- P143 Integration of Petroleum Refinery and Petrochemical Plants for Condensate Feedstock: Challenges and Opportunities <u>Salman Ashkanani, Brenno Castrillon Menezes</u>
3:00 pm – 3:15 pm	IEEEES12- P164 Production of Zeolite/ Biochar Active Carbon Composite Pellets for Hydrogen Sorption <u>Yıldırım Tosun</u>
3:15 pm – 3:30 pm	IEEEES12- P356 An Effective Hardware-In-The-Loop Testing Technology for an Electro-Mechanical System: Application on Drill String System <u>Abdelbasset Krama</u>

PRESENTATIONS SESSION – 14

Session Chair: Dr. Tahir A.H. Ratlamwala

Time (GMT+3)	PRESENTATION
3:45 pm – 4:00 pm	IEEEES12- P347 Energetic analysis of human body for Indian conditions Arvind Kumar Patel, Satish Pal Singh Rajput
4:00 pm – 4:15 pm	IEEEES12- P078 The Life Cycle Assessment Related to Insulation Thickness of External Walls of The Hospital Buildings İsmail Caner, Nadir İlten, Okan Kon
4:15 pm – 4:30 pm	IEEEES12- P366 Exergetic analysis of trigeneration system using Heliostat and PTC solar technique as energy source Krishna Mani Mishra, Onkar Singh
4:30 pm – 4:45 pm	IEEEES12- P083 Entropy Generation of a FLiBe Molten Salt Modular Nuclear Reactor Cooled by Supercritical Carbondioxide Muhammed Emin Topal, Adnan Midilli
4:45 pm – 5:00 pm	IEEEES12- P346 Building transferable Reactive Force Field potentials: towards an enhanced understanding of metal dusting corrosion initiation El Tayeb Bentria, Omotayo Salawu, Charlotte S. Becquart, Normand Mousseau, Othmane Bouhali, Fedwa El-Mellouhi
5:00 pm – 5:15 pm	IEEEES12- P334 Exergy Loss Calculation in a Power Generation System for a Research Hospital Murat Hacısmanoğlu, Adnan Midilli
5:15 pm – 5:30 pm	IEEEES12- P217 Comparison of Multi-Input Single-Output Isolation-free DC-DC Converter Topologies for Hybrid Power Plants Sakir Kuzey, Muhammet Tahir Guneser, Cihat Seker
5:30 pm – 5:45 pm	IEEEES12- P024 Fabrication and Characterization of Sensor Devices Based on Graphene Decorated with Metal-Oxide Nanorods Ahmad I. Ayesh, Rayyan E. Ahmed, Mai A. Al-Rashid, Rafah Ahmed Alarrouqi, Belal Saleh, Tahir Abdulrehman, Yousef Haik, Leena A. Al-Sulaiti
5:45 pm – 6:00 pm	IEEEES12- P133 Flowsheet Development for the Steam Gasification of Camel Manure With Subsequent of CO ₂ Capturing Using CaO: An ASPEN Plus® Modelling Muhammad Shahbaz, Tareq Al-Ansari, Ahmed AlNous, Gordon Mckay

PRESENTATIONS SESSION – 15

Session Chair: Dr. Adnan Midilli

Time (GMT+3)	PRESENTATION
6:00 pm – 6:15 pm	IEEEES12- P207 Parametric study and ANN modeling of Liquid feed Direct Ethanol Fuel cells Vineesh Ravi, Caraline Ann Jacob, Yohans Varghese, Sreeja P
6:15 pm – 6:30 pm	IEEEES12- P134 A Novel Multi-Generation System with Reverse Osmosis for a Greenhouse in the Sabkha-Tah Region of Western Sahara in Morocco Eric Okonkwo, Yasser M. Abdullatif, Tareq Al- Ansari, Yusuf Bicer

6:30 pm – 6:45 pm	IEEEES12- P231 Thermodynamic Optimization of a Biomass-based Integrated Gasification Combined Cycle with Post Combustion Carbon Capture using Potassium Carbonate Ikhlas Ghiat, Ahmed Alnouss, Tareq Al-Ansari
6:45 pm – 7:00 pm	IEEEES12- P256 A Survey of International Security Standards for Smart Grids, Industrial Control System and Critical Infrastructure Isa Avci, Cevat Özarpa
7:00 pm – 7:15 pm	IEEEES12- P313 Integrated sustainability assessment of a multigeneration system Ugur Akbulut, Ibrahim Dincer
7:15 pm – 7:30 pm	IEEEES12- P243 Evaluation of Oxygen and Steam Fed Biomass Gasification within Energy, Water and Food Nexus Ahmed Alnouss, Tareq Al-Ansari, Gordon McKay
7:30 pm – 7:45 pm	IEEEES12- P017 An Overview of the Solar Potential in Qatar: From Theory to Practice Abdulsalam Al-Kholidi, Mohamed Alshaghdari, Habib Hamam
7:45 pm – 8:00 pm	IEEEES12- P009 Recommendations for Exploiting the Solar Energy Potential in Albania Abdulsalam Alkholidi, Habib Hamam, Aleksander Biberaj
8:00 pm – 8:30 pm	CLOSING AND AWARD CEREMONY
	END OF THE SYMPOSIUM



ABOUT HAMAD BIN KHALIFA UNIVERSITY

Hamad Bin Khalifa University (HBKU), a member of Qatar Foundation for Education, Science, and Community Development (QF), was founded in 2010 to continue fulfilling QF's vision of unlocking human potential.

HBKU is a homegrown research and graduate studies University that acts as a catalyst for positive transformation in Qatar and the region while having a global impact.

Located within Education City, HBKU seeks to provide unparalleled opportunities where inquiry and discovery are integral to teaching and learning at all levels utilizing a multidisciplinary approach across all focus areas.

The university provides an array of graduate programs through its College of Islamic Studies, College of Humanities and Social Sciences, College of Science and Engineering, College of Law, College of Health and Life Sciences, and College of Public Policy.

HBKU is also home to three research institutes – Qatar Biomedical Research Institute (QBRI), Qatar Computing Research Institute (QCRI), and Qatar Environment and Energy Research Institute (QEERI) – which together with the colleges are at the forefront of efforts to seek novel solutions to grand challenges facing Qatar and the region. Additionally, HBKU's Executive Education Center delivers customized programs for the business community of Qatar and the region.

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