



## CONFERENCE PROGRAMME

**18 MAY 2023**

**PHYSICAL SESSIONS**

*(A refers to HALL A, B refers HALL B)*

**The timezone is GMT+3 (Eastern European)**

**08:50-09:00**

**OPENING SESSION 0A- The Welcome Messages**

**Prof. Dr. Erol Kurt**

**(Founder & Chairman)**

**Prof. Dr. Māris Kļaviņš**

**(Co-Chairman)**

### SESSION 1A: Trends in Energy Efficiency

**Session Chair: Svetlana Bronshtein**

### SESSION 1B: Trends in Solar Energy

**Session Chair: Tomasz Trawiński**

SESSION 1A: Trends in Energy Efficiency		SESSION 1B: Trends in Solar Energy		
Session Chair: Svetlana Bronshtein		Session Chair: Tomasz Trawiński		
<b>09:00-10.30</b>	<b>32-</b> The Analysis of Energy Efficiency Measures in Multiapartment Buildings in Latvia	<b>Aleksandra Cimbale</b> , Iveta Amoliņa	<b>40-</b> Characterization of Bifacial Technology PV Systems	L. P. López, S. M. M. Buesa, G. N. Garrido, S. Gulkowski, E. Muñoz Cerón, J. C. Higuera, <b>Jorge Aguilera Tejero</b>
	<b>73-</b> Elasticity in Electricity and Heat Consumption	<b>Merja Mäkelä</b> , Turo Laine, Paulus Kiviranta, Erja Tuliniemi	<b>118-</b> About DC Parameters of PV Panels	<b>Nugzar Gomidze</b> , L.Kalandadze, O. Nakashide, I. Jabnidze
	<b>162-</b> The Influence of Recuperative Cooling Approach for Energy Harvesting on Efficiency of Thermoelectric Cooling	<b>Vilnis Jurkāns</b> , Juris Blūms	<b>131-</b> The Relation Between Top-Cell Bandgap and Silicon Bottom-Cell Thickness in Double-Junction 2-Terminal Silicon-Based Tandem Solar Cells	<b>Hesan Ziar</b>
	<b>223-</b> Cost Models of Single-Phase and Three-Phase Cable Underground Lines	Alexander Bronshtein, Dmitry Baimel, <b>Svetlana Bronshtein</b>	<b>177-</b> Study of The Use of Agrovoltatics in The Canary Islands. Issues to consider	<b>A. Pulido Alonso</b> , G.W. Althaus, N.Rubén Florido Suárez, Y. A. Mosteiro, R.Sainani Vega
	<b>243-</b> Efficiency Analysis of Fixed and Axis Tracking Options of Photovoltaic Systems to be Installed in A Marina	Ali Rıza Dal, Hiwa Najmalddin Nasraldeen, <b>Hacı Mehmet Şahin</b>	<b>233-</b> Simulation Model of A Parabolic Trough Concentrated Solar Power Plant in Khobar City, Saudi Arabia	<b>Nidal Abu-Libdeh</b> , Huda Mohammed Alotaibi, Saleh Mahmoud, Wael Al-Kouz
<b>113-</b> Design of A Shape Memory Alloy Heat Engine by Using Waste Heat	<b>Chi Hsiang Pan</b>	<b>221-</b> Parameter estimation of PV system towards self-consumption of electric energy for dormitory	<b>Tomasz Trawiński</b> , Arkadiusz Mężyk, Piotr Hylla, Bartosz Polnik	

**10:30-11:00 COFFEE BREAK -1**

SESSION 2A: Energy and environmental management Session Chair: <i>Hong Hocheng</i>			SESSION 2B: Hydrogen Energy Session Chair: <i>Andrzej Grzebielec</i>		
11.00-12.15	23- Forecasting Electricity Consumption for Covid-19 Pandemic Period and Beyond	<b>Gabriel Nasser Doyle de Doile</b> , M. de Castro Cesário, P. Paulo Balestrassi, M.C. Fernandez	11.00-12.15	65- Energy Utilization of Waste for The Production of Hydrogen	<b>Jan Najser, Jan Kielar</b>
	41- Development of Skutterudite-Type Thermoelectric Materials LaxCo4Sb12 Using High-Pressure Synthesis Method	<b>Yuttana Mona</b> , Chatchawan Chaichana, Pana Suttakul, S. Phounsavath, Yukihiko Kawamura, Chihiro Sekine		134- Iron-Chlorine Chemical Cycle for On-Demand Green Hydrogen Production Powered by Waste Heat	<b>Matjaz Valant</b> , Uroš Luin, Andreea Oarga-Mulec
	43- Comparable Recovery of Metals from Waste Photovoltaic Panel using Microbial Media and Organic Acids	Mital Chakankar, Cheer Su, <b>Hong Hocheng</b>		107- Experimental Study of the ORC System with Isobutane (R600a) as a Working Fluid	<b>Andrzej Grzebielec</b> , A. Szelągowski, Ł. Cieślakiewicz, P. Łapka, Mirosław Seredyński
	50- Decarbonizing a Thai Coal Power Plant: Effect of Flue Gas Loads on Carbon Capture Performance and Economics	T. Lungkadee, S. Tangparitkul, C. Chaichana, W. Wongspai, C. Jaroenphasemmesuk, <b>K. Y. Tippayawong</b> , N. Tippayawong		53- The Effect of Thin Strontium Titanate Films on the Raman spectrum: Ab Initio Calculations	<b>Veera Krasnenko</b> , Alexander Platonenko, Leonid L. Rusevich, Yuri A. Mastrikov, Maksim Sokolov, Eugene A. Kotomin
	38- Role of The Transport Sector in Hydrogen Energy System	<b>Amela Ajanovic</b> , Marlene Sayer, Reinhard Haas		93- Study of Thermodynamic Processes of Hydraulic Compression of Hydrogen by Numerical Simulation	<b>Bezrukovs V.</b> , Bezrukovs VI., Konuhova M., Bezrukovs D., Kaldre I.
SESSION 3A: Energy Storage Session Chair: <i>Andrzej Grzebielec</i>			SESSION 3B: Alternative & Hybrid Energy Applications Session Chair: <i>Liliana Rusu</i>		
12.15-13.30	46- Comparative Study of Cylindrical and Triple Concentric Tube Models for PCM-based Thermal Energy Storage	<b>Abhinav Rajan</b> , K. S. Reddy	12.15-13.30	42- Assessment of the Synergy Between Marine Energy Resources in The West Iberian Coast	<b>Liliana Rusu</b>
	108- Towards Li2S All Solid State Batteries	<b>Zahilia Cabán Huertas</b> , Alberto Varzi, Maider Zarrabeitia, Stefano Passerini		132- Characterization of Biocrude Oils from Hydrothermal Liquefaction of De-Ashed Energy Grass	T. Katongtung, S. Phromphithak, T. Onsree, Jochen Lauterbach, <b>Nakorn Tippayawong</b>
	133- Conceptual Design of An Aluminum-Air Battery System to Remove Hydrogen and By-Products	<b>Jeongseog Oh</b> , Siwon Yoon, Ucheol Kim		218- Numerical Study on Indoor Air Purification and Heating Energy Consumption	<b>Andrejs Sabanskis</b> , Dagis Daniels Vidulejs, Jānis Virbulis, Andris Jakovičs
	142- Optimization of The Iron Chloride Electrochemical Cycle as a Long-Term Energy Storage Technology	<b>Uroš Luin</b> , Matjaž Valant, Iztok Arčon		196- Groundbreaking Materials for Retrofitting Light Water Reactor Fuels	<b>Raul B. Rebak</b>
	159- Enhancing the Performance of Human Motion Energy Harvesting through Optimal Smoothing Capacity in The Rectifier	<b>Ilgvars Gorņevs</b> , Juris Blūms		244- Breakdown Voltage of DC Capacitive Discharge Plasma	<b>Bekir Dursun</b> , Erol Kurt

**13:30-14:00 LUNCH BREAK**  
**(There will not be conference lunch, will be gala dinner at 19.00)**

**14:00-15:00 KEYNOTE SESSION**  
**Prof. Dr. Ahmed F. Zobaa - Brunel University London, UK**  
**Hydrogen in Electricity's Future**

**15:00-15:30 POSTER SESSION**  
**Please put your poster to the poster field & Please wait aside the poster for the questions**  
**(You can see the poster list at the end of this programme)**

**15:30-16:00 COFFEE BREAK -2**

<b>SESSION 4A: Special Session</b> <b>(Utilization of unconventional biomass as energy source)</b> <b>Session Chair: Hyunook Kim</b>			<b>SESSION 4B: Optimization of Energy Systems</b> <b>Session Chair: Tugba Gurler</b>		
<b>16:00-18:00</b>	<b>84-</b> Engineering Rumen Microbiome with Megasphaera Hexanoica for Mitigating Biogas Emission	<b>Pranav Sasidharan Nair,</b> Hyunjin Kim, Byoung – In Sang	<b>16:00-17:15</b>	<b>34-</b> The Expected Dynamics of Wind Energy in Baltic and North Seas	<b>Eugen Rusu</b>
	<b>85-</b> Machine Learning Approaches for Predicting Methane Production from Anaerobic Digestion of Thermally Pretreated Slaughter Waste	<b>Darsha Prabhakaran,</b> Young Wook Go, Hyunjin Kim, Byoung-In Sang		<b>35-</b> An Evaluation of the Future Expected Wind and Wave Power in The Black Sea	<b>Alina Beatrice Raileanu,</b> Liliana Rusu
	<b>86-</b> Evaluation of the Microbial Methanation Process on The Pilot Scale with Enhanced Hydrogen Mass Transfer for the High-Purity Methane Production	<b>Young-Wook Go,</b> Byoung-In Sang		<b>78-</b> Estimating Energy Consumption of Battery Electric Vehicles Using in-Vehicle Sensing and Machine Learning Approaches	<b>Pana Suttakul,</b> N.Tippayawong, W. Wongsapai, K.Janpoom, Tossapon Katongtung, Yuttana Mona, Witsarut Achariyaviriya
	<b>56-</b> Ammonia Nitrogen Removal and Recovery Using Bipolar Membrane Electrodialysis with A Membrane Contactor	<b>Kyo Sik Hwang,</b> Jooyoun Nam, Namjo Jeong		<b>208-</b> Design of the Tubercle Leading Edge Blade for Small-Scale Wind Turbines	<b>Chung-Neng Huang,</b> Yi-Lun Tsai, Jenn-Kun Kuo
	<b>57-</b> Ball Mill Pretreatment for Improved Bioavailability of Biomass	<b>Jin Hyung Lee,</b> Hye Sun Lee, B. Seong Jeon, Yang Mo Gu		<b>173-</b> Hybrid Photovoltaic Thermal (PV/T) Heat Pump Application in The National Stone Centre in UK	<b>Tugba Gurler,</b> Zaharaddeen Hussaini, Christopher Sansom

	<b>60-</b> Challenges and Opportunities of Enhanced Biogas Production using Anaerobic Co-digestion with a Low Carbon Footprint	<b>Shu-Yuan Pan</b> , Chihhao Fan, Yo-Jin Shiau, Suraj Negi	
	<b>63-</b> Enhancing Breakdown of Microplastics by Hydrothermal Fenton Reaction	Vikash Singh, Seon Yeong Park, <b>Chang Gyun Kim</b>	
	<b>76-</b> Anaerobic Digestion of Kitchen Residue and its Biogas Production	<b>Chihhao Fan</b> , Shu-Yuan Pan	
	<b>77-</b> Anaerobic Digestion for Biogas Production Using Wastewater from Polyhydroxyalkanoates Production Process	Ingyu Lee, Changgune Lee, Jeongeun Lee, Hyo Kim, <b>Hyunook Kim</b>	

**18:00-18:10 CLOSING TALK FOR PHYSICAL SESSIONS**

**Prof. Dr. Erol KURT**

**19:00-22:00 GALA DINNER**

**Restaurant FOREST** <https://restoransforest.lv/en/>

Map link: <https://goo.gl/maps/MwgEyhSPkcDvjYGY7?coh=178571&entry=tt>

**15:00-15:30 POSTERS**

*Chairman: Maris Klavins*

<b>P1</b>	<b>28-</b> Use of A Low-Cost Catalyst for The Production of Fuel Gas and Carbon Nanotubes from The Pyrolysis of Plastic Waste	<b>Mónica Calero</b> , María Ángeles Martín-Lara, Rafael Moreno, Gabriel Blázquez
<b>P2</b>	<b>29-</b> Development of Sorbents for Carbon Capture to Achieve Carbon Neutrality	<b>Maris Klavins</b> , Linda Ansone-Bertina, Lauris Arbidans
<b>P3</b>	<b>33-</b> Investigation of Metal-Impregnated Zeolites as Catalysts in Pyrolysis of Mixed Plastic Wastes	Marco F. Paucar, Mónica Calero, Mario J. Muñoz-Batista, <b>M<sup>a</sup> Ángeles Martín-Lara</b>
<b>P4</b>	<b>36-</b> A Compact Unit of Photovoltaic Solar Still Air Gap Membrane Distillation Process for Simultaneous Production of Water and Electricity	<b>Adnan Alhathal Alanezi</b>
<b>P5</b>	<b>39-</b> Conditions for Sustainable and Democratic Electricity Systems	<b>Reinhard Haas</b>
<b>P6</b>	<b>44-</b> Prediction of The Variability of Wave Energy Potential in An Offshore Point	<b>Deivis Avila</b> , Graciliano N. Marichal, Yanelys Cuba Arana, Ramón Quiza
<b>P7</b>	<b>61-</b> Characteristics of a Low Aspect Ratio Tokamak Fusion Reactor for Nuclear Transmutation with A Molten Salt Blanket	<b>Bong Guen Hong</b>
<b>P8</b>	<b>90-</b> Saving Energy by Changing Lighting in A 24-Hour Store	<b>Artur Rusowicz</b>
<b>P9</b>	<b>92-</b> Experimental Investigation of PCM Based Thermal Energy Storage Unit with Finned Tubes	<b>Maciej Jaworski</b> , Artur Rusowicz, Andrzej Grzebielec, Adam Szelągowski
<b>P10</b>	<b>141-</b> Hydro-energy Plants Modeling in Optimal Power Flow Problems	Alberto Flores, <b>Rafael Zárate-Miñano</b> , Miguel Carrión