

FINAL PROGRAM

"Alternative Energy Sources, Materials & Technologies (AESMT'25)", Sofia, Bulgaria

MONDAY (May 12, 2025):

1. **Sightseeing** of Sofia, Bulgaria: 14:00 - 18:00 h (on your own).
2. **Registration and Welcome party**: 19:00 - 21:00 h (venue in the hotel "Dom na uchenia"/ Hotel of Bulgarian Academy of Sciences, BAS - Address: 50 "Shipchenski prohod" blvd, 1113 Sofia): <http://www.domnaucheniya.com>.

TUESDAY (May 13, 2025):

1. **Registration (Large hall, hotel BAS)**: 8:00 - 8:25 h

2. **Plenary sessions (Large hall, hotel BAS)**:

- 2.1. **Opening**: 8:25 - 8:30 h.

- 2.2. **Plenary session 1**: 8:30 - 10:30 h (**Chair: Aleksandar Georgiev**)

- 8:30 - 9:00 h; **Aleksandar Georgiev (Sofia, Bulgaria)**: E. Y. Gürbüz, I. Sahinkesen, O. V. Güler, A. G. Georgiev, A. Keçebas. Enhancing photovoltaic panel efficiency through phase change material-based passive cooling: A novel thermal management approach (**VIDEO**).

- 9:00 - 9:30 h; **Paolo Valdiserri (Bologna, Italy)**: P. Valdiserri. Thermal characterization and application of do-it-yourself insulation in buildings from reused material (**ORAL**).

- 9:30 - 10:00 h; **Alberto Coronas (Tarragona, Spain)**: D. S. Ayoub, A. Coronas. Decarbonizing industrial process heating using absorption-based heat pumps: Advances, challenges and outlook (**ORAL**).

- 10:00 - 10:30 h; **Arnaldo Walter (São Paulo, Brazil)**: A. Walter, J. Seabra, M. Moreira, M. Guarenghi. Potential and Prospects for the Production of Sustainable Aviation Fuels in Brazil (**ORAL**).

- 2.3. **Coffee break**: 10:30 - 11:00 h (in hotel BAS);

- 2.4. **Plenary session 2**: 11:00 - 13:00 h (**Chair: Aleksandar Georgiev**)

- 11:00 - 11:30 h; **Yong Hao (Beijing, China)**: Yong Hao, Bin Wang, Xiao Li, Yu Shao. Synergistic Conversion of Hydrocarbon Fuels and Solar Energy for Sustainability (**ON-LINE**).

- 11:30 - 12:00 h; **Bin Chen (Beijing, China)**. Bin Chen. Energy-driven Water Footprint and Scarcity Implications of Chinese Data Centers (**ON-LINE**).

- 12:00 - 12:30 h; **Ming Jun Huang (Belfast, UK)**: Ming Jun Huang, Neil J. Hewitt. Advanced PLC control for residential building heat supply with PCM-EG radiant underfloor system (**ON-LINE**).

- 12:30 - 13:00 h; **Ahmet Alper Aydin (Istanbul, Turkey)**: R. Bayraktar, A. Aydogan, A. A. Aydin. Lab-Scale Development of Polyurethane Rigid Foam Composites with Latent Heat Storage Capacity for Thermal Insulation: Insights from the ECHO Project (**ORAL**).

3. **Poster session 1 (Large hall, hotel BAS)**: 13:00 - 13:30 h

- Mariya Aleksandrova (Sofia, Bulgaria)*: 3D patterns implemented as the backside electrode of perovskite photoelectric transducers.

- Martin Calasan, Mihailo Micev (Podgorica, Montenegro)*: M. Calasan, S. Vujošević, M. Micev, I. Radonjic, M. Petronijević. Enhanced Two-Diode Model for Solar Cells: The Impact of Series Resistance Repositioning on Performance and Accuracy.

M. Asim Amin (Genova, Italy): M. Asim Amin, Milutin Petronijevic, Renato Procopio, Marco Invernizzi, Ivana Radonjic Mitic. Flexibility Trading Through Load Reshaping in Energy Communities Using Deep Reinforcement Learning.

4. Lunch: 13:30 - 14:30 h (on your own).

5. Afternoon session 1 (Large hall): 14:30 - 16:10 h; Building Energy Performance (Chair: Paolo Valdiserri)

14:30 - 14:50 h; Xiaopeng Wang (Nottingham, UK): Xiaopeng Wang, Zhiang Zhang, Yupeng Wu, Wu Deng, Dezhou Kong, Yihang Ye. Data-optimization calibration methods for thermal dynamic modeling based on operational data in net zero energy buildings (ORAL).

14:50 - 15:10 h; Angeliki Kitsopoulou (Athens, Greece): A. Kitsopoulou, E. Bellos, C. Sammouris, P. Lykas, D. Gonidaki, E. Vidalis, G. Mitsopoulos, C. Tzivanidis. Development of a simplified comfort evaluation tool for multi-objective evaluation analysis of building energy retrofit strategies (ON-LINE).

15:10 - 15:30 h; Petros Iliadis (Athens, Greece): Petros Iliadis, Nikolaos Ziozas, Dimitra Gonidaki, Angeliki Kitsopoulou, Evangelos Bellos, Renos Rotas, Nikolaos Nikolopoulos, Elias Kosmatopoulos. Enhancing Grid Performance via Retrofitted Buildings and Distributed Resources (ON-LINE).

15:30 - 15:50 h; Ali Rafat Gigasari (València, Spain): Ali Rafat Gigasari, C. Aparicio-Fernández, M. Cañada-Soriano, J.L. Vivancos. Proactive Control of Switchable Insulation for Adaptive Energy Management and Overheating Prevention (ON-LINE).

15:50 - 16:10 h; Barbara Król (Kraków, Poland): Barbara Król. Advances in Solar Energy Integration in Buildings: Adapting Legal Regulations and Energy Policies to the Evolving Renewable Energy Market (VIDEO).

6. Coffee break: 16:10 - 16:40 h (in hotel BAS)

7. Afternoon session 2 (Large hall): 16:40 - 19:00 h; Solar Photovoltaic Systems (Chair: Martin Calasan)

16:40 - 17:00 h; Rumen Popov (Plovdiv, Bulgaria): Rumen Popov, S. Petrova, B. Nikolov, E. Yordanov, S. Kazandzhieva, Y. Klimentova-Nikolova. Stationary versus Solar tracked PV systems – which one has lower impact on biodiversity? (ORAL).

17:00 - 17:20 h; Xiaoyan Zhou (Kunming, China): X. Y. Zhou, M. Li, Y. Zhang, Y. F. Wang, G. L. Li, Y. Zhang, X. K. Guan, T. Y. Xing. Bayesian inference-based deep learning approach for performance prediction and uncertainty quantification of solar photovoltaic-driven heat pump systems (VIDEO).

17:20 - 17:40 h; Tianyu Xing (Kunming, China): T. Y. Xing, Y. F. Wang, M. Li, G. L. Li, M. C. Yao, X. Y. Zhou, Z. H. Deng. Research on Plant Photosynthetic Characteristics and Regulation Mechanisms in Photovoltaic Greenhouses under Fluctuating Solar Radiation (VIDEO).

17:40 - 18:00 h; Murat Aydin (Karabuk, Turkey): Murat Aydin, Muhammet Kayfeci. Experimental Evaluation of Industrial Pollution Impact on Photovoltaic System Performance and Machine Learning Application (ON-LINE).

18:00 - 18:20 h; Runping Li (Kunming, China): Runping Li, Ming Li, Hanwen Rao, Ying Zhang. Digital twin modelling of photovoltaic driven refrigerated warehouse using Modelica and multi-variables dynamic collaborative optimization (VIDEO).

18:20 - 18:40 h; Yinlong Zhu (Kunming, China): Yinlong Zhu, Ming Li, Yunfeng Wang, Qiongfen Yu, Ying Zhang, Guoliang Li, Zhenhua Gu. A new photovoltaic greenhouse power

prediction model based on VMD rolling decomposition combined with parallel ultra-short-term time series **(VIDEO)**.

18:40 - 19:00 h; Osmel Perez Baluja (Brasov, Romania): O. Pérez Baluja, D. T. Cotfas, P. A. Cotfas, Orlys E. Torres Breffe, Bernardo Y. León Ávila, Carlos A. García Vázquez. Impact of High Impulse Voltages on Secondary Fault Susceptibility in Photovoltaic Systems: A Systematic Review **(VIDEO)**.

8. Official dinner: 19:30 - 22:30 h (in restaurant BAS)

WEDNESDAY (May 14, 2025):

1. Morning parallel session 1 (Large hall): 8:30 - 10:30 h; Geothermal Energy Applications, Low-Carbon Technologies **(Chair: Silvia Cesari)**

8:30 - 8:50 h; Sergio Bobbo (Padova, Italy): D. Menegazzo, G. Lombardo, L. Vallese, S. Bobbo, L. Fedele, M. De Carli, F. Poletto, A. Bortolin, A. Bernardi. Experimental Monitoring of two innovative Ground-Source Heat Pumps working with low-GWP refrigerants **(VIDEO)**.

8:50 - 9:10 h; Jinghu Sun (Guiyang, China): J. Sun, P. Pei. Investigation of Borehole Thermal Storage Efficiency in Rock Masses and Primary Controlling Factors **(VIDEO)**.

9:10 - 9:30 h; António Figueiredo (Aveiro, Portugal): R. B. Roka, A. Figueiredo, A. Vieira, R. Gholami, M. Assadi, C. Cardoso. The potential of shallow geothermal energy in Norway and Portugal: optimized bore-hole design for two different climate conditions **(ORAL)**.

9:30 - 9:50 h; Peng Pei (Guiyang, China): Peng Pei. Research on Evaluation and Classification Method for Geothermal Resource in Shallow Bedrock Formations **(VIDEO)**.

9:50 - 10:10 h; YuXian Zhou (Nanjing, China): YuXian Zhou, Xiuwei Li. Comparative study of carbon emission evaluation systems based on the Entropy Weight of Topsis and BP Neural Network **(VIDEO)**.

10:10 - 10:30 h; Bruno Armengot Carbó (Valencia, Spain): Bruno Armengot Carbó, Javier F. Urchueguia, Javier Soriano, Borja Badenes. Methodology and Experimental Validation of an Energy Recovery System Based on Secondary Water Distribution Networks in Urban Environments **(ON-LINE)**.

2. Coffee break: 10:30 - 11:00 h (in hotel BAS)

3. Morning parallel session 2 (Large hall): 11:00 - 13:00 h; Low-Carbon Technologies **(Chair: Jaroslaw Wojciechowski)**

11:00 - 11:20 h; Wanshi Zhang (Nanjing, China): W. Zhang, F. Cheng, X. Li. Research on electricity localization method for capacitive deionization desalination system **(VIDEO)**.

11:20 - 11:40 h; Vitor Ribeiro (Porto, Portugal): Vitor Miguel Ribeiro. Role of Renewable Energy Consumption in the European Energy-Growth Nexus: Superhero or Sidekick? **(VIDEO)**.

11:40 - 12:00 h; Michele Bottarelli (Ferrara, Italy): E. Baccega, I. Spasari, M. Bottarelli. Experimental energy performance of an active ventilated façade as a function of the cavity depth **(ORAL)**.

12:00 - 12:20 h; Ali Keçebas (Mugla, Turkey): B. Gürel, A. Keçebas, A. G. Georgiev, K. Kurtulus, S. Özün, M. Varol, K. Ekinici, S. Yurdakul. CO₂ capture in a modified zigzag retention column: Numerical investigation using calcined eggshell sorbents **(VIDEO)**.

12:20 - 12:40 h; Dingping Peng (Beijing, China): Dingping Peng, Bo Cao, Zhonghao Li, Xuwei Miao, Qingyue You. Nuclear accident source term inversion based on Explainable machine learning methods **(ON-LINE)**.

12:40 - 13:00 h; Ofelia Araujo (Rio de Janeiro, Brazil): O. Q. F. Araújo, I. B. Boa Morte, C. R. V. Morgado, J. L. de Medeiros. A structured critical review of decarbonization via electrification (VIDEO).

4. Poster session 2 (https://aesmt.lima-city.de/Poster_session'25.html): 13:00 - 13:30 h

Gady Golan (Ariel, Israel): G. Golan, E. Fuchs, M. Azoulay. Real-Time Electro-Optic control circuit for medical cold plasma system.

Konstantin Suslov (Irkutsk, Russia): Iliya Iliev, Andrey Kryukov, Konstantin Suslov, Aleksandr Cherepanov, Aleksandr Kryukov, Ivan Beloev, Yuliya Valeeva. Modeling the operating conditions of dc traction power systems incorporating renewable energy sources.

Konstantin Suslov (Irkutsk, Russia): Iliya K. Iliev, Andrey Kryukov, Konstantin Suslov, Aleksandr Cherepanov, Aleksandr Kryukov, Nguyen Quoc Hieu, Ivan H. Beloev, Yulia Valeeva. Integration of renewable energy sources in DC traction networks.

Antonina Filimonova (Kazan, Russia): I. Iliev, A. Filimonova, A. Chichirov, A. Vlasova, R. Kamalieva. Experimental Testing of Adsorbents from Natural Materials and Wastes for the Capture of Sulfur Compounds from Gaseous Fuels and Petroleum Refining Products.

Konstantin Suslov (Irkutsk, Russia): Olga Melnikova, Aleksandr Nazarychev, Iliya Iliev, Ivan Beloev, Konstantin Suslov. Diagnostic statistical characteristics of dielectric strength of power transformer oil insulation.

Jingxuan Zhang (Kunming, China): Jingxuan Zhang, Xiaoqiao Huang, Yonghang Tai. Solar irradiance prediction using Transformer model based on data input from K-means++ clustering.

Liuyangrui Hui (Kunming, China): Liuyangrui Hui, Xiaoqiao Huang, Yonghang Tai. Dual-Branch SOFTS for Hourly Solar Irradiance Prediction.

Meini Dong (Kunming, China): Meini Dong, Xiaoqiao Huang, Yonghang Tai. Multiscale mixing solar irradiation forecasting based on improved TimeMixer networks.

Jiawei Liu (Kunming, China): Jiawei Liu, Qiong Li, Kun Liu. Double-Diffusive Convection in Solar Greenhouse: Mechanisms and Effects on Heat and Mass Transfer.

Zijian Wang (Kunming, China): Zijian Wang, Qiong Li, Hai Yao, Zhaopeng Huang. Hybrid Reduced Order Model Integrated with Real-Time Data Assimilation for Thermal Performance Forecasting of Photovoltaic Water Heaters.

Hai Yao (Kunming, China): Hai Yao, Qiong Li, Zijian Wang, Yiyuan He. Multi-Modal CFD-Experimental Hybrid Modeling for Dynamic Simulation and Performance Analysis of Photovoltaic Water Heater.

Kadirkbek Baizhumanov (Almaty, Kazakhstan): T. Tusseyev, K. D. Baizhumanov, M. A. Zhumanov, B. Amir, A. B. Sharipkhanov. Photoadsorption processes on the surface of silicon dioxide.

Sultan Ybray (Astana, Kazakhstan): Arystan Dikhanbaev, Bayandy Dikhanbaev, Aleksandar Georgiev, Sultan Ybray, Zhangazy Alimzhan, Hakim Esentai. On the issue of obtaining artificial gas from thermal waste of a smelting reactor.

Freidoon Zibaei (Shahrekord, Iran): Freidoon Zibaei. Climate Change, Rising Fossil Fuel Consumption, And Global Warming Countermeasures.

Asem Baktybekova (Karaganda, Kazakhstan): N. K. Tanasheva, M. A. Burkov, A. N. Dyusembaeva, A. K. Khassenov, A. R. Bakhtybekova, D. Zh. Karabekova, N. N. Shuyushbayeva, N. T. Abdirova, A. Rakhmankyzy. CFD simulation of horizontal-axis sail wind turbine with controlled blades.

David Bondartsev (Almaty, Kazakhstan): A. A. Genbach, D. Yu. Bondartsev, A. G. Georgiev. Study of heat transfer in coatings made of strong mineral media.

Biao Li (Harbin, China): V. S. Olawoore, C. Lei, M. Riaz, B. Li, Yijun Zhao, Y. Shuai. A numerical study for wind profile characterisation within and above PV canopies.

Zihan Jiang (Shanghai, China): Zihan Jiang, Zaiguo Fu. A Review of Photovoltaic/Thermal (PV/T) Technology: A Review of Photovoltaic/Thermal (PV/T) Technology: Recent Progress and Future Application.

Tao Zhang (Shanghai, China): Y. Z. Chen, T. Zhang. Numerical optimization and experimental study of biomass pellet stoves.

Jihao Huang (Shanghai, China): Jihao Huang, Jingyong Cai, Tao Zhang, Zhengrong Shi. Techno-Economic Evaluation of PV-Hydrogen Systems with BESS and Heat Pumps.

Hong Zhao (Kunming, China): H. Zhao, Y. F. Wang, M. Li. Research on the Characteristics of Photovoltaic-driven Refrigerated Warehouse with Ice Storage under the Synergistic Response of Irradiance and Expansion Valve.

Bianyeng Yang (Kunming, China): Bianyeng Yang, Xu Ji. Optimization on efficiency of non-tracking non-imaging concentrator by adjusting regularly installation angle.

Ping Zhang (Kunming, China): Ping Zhang, Xu Ji, Sixia Yang, Jianjun Wang. Photocatalytically coupled soil microbial fuel cells for the degradation of cyfluthrin.

Haiyang Xu (Kunming, China): Haiyang Xu, Xu Ji, Le Zhang, Yue Yang, Keqin Huang, Shengjie Wei. Design and Performance Study of Triple Reflection Solar Concentrated Photocatalytic Nitrate Reduction Reactor.

Yifan Wu (Kunming, China): Yifan Wu, Keqin Huang, Xu Ji. Design of Multi-effect Solar Stereoscopic Seawater Membrane Distillation Desalination System and Research Method of Microporous Membrane Performance.

Shaoliang Yin (Xuzhou, China): Shaoliang Yin, Chengyun Xin, Qiansong Yu, Tairan Fu, Qiaoqi Xu, Chulin Gao, Chen Zhao. Design of Water-Cooled Borescope for in-Situ Monitoring in Gas Turbine Combustors.

Ben Sun (Xuzhou, China): Ben Sun, Lei Qin, Saoliang Yin, Chengyun Xin, Tuo Zhou, Tairan Fu. Study on the influence of fin structure on the thermal-hydraulic performance of integrally-molded spiral finned tubes.

Gulzhan Ilyassova (Almaty, Kazakhstan): Zh. E. Baizhuma, G. O. Ilyassova, R. K. Manatbayev, M. S. Isataev, A. G. Georgiev. Heat transfer and flow dynamics in heat exchangers for efficient waste heat utilization.

Alimkhan Kelimkhanov (Almaty, Kazakhstan): Zh. Baizhuma, R. Manatbayev, M. Isatayev, N. Kalasov, A. Kelimkhanov. Investigation of the aerodynamic characteristics in twin-rotor carousel wind turbines.

Bin Zhao (Hefei, China): Bin Zhao, Xianze Ao, Bowen Li, Wengan Sun, Chongwen Zou, Gang Pei. Efficient energy harvesting by switchable terrestrial solar heating and radiative cooling.

Ke Wang (Hefei, China): Ke Wang, Yaozu Guo, Li Zhang, Bin Zhao. Moth-eye photonic cooler for efficient daytime radiative cooling.

Aizhan Nugymanova (Almaty, Kazakhstan): A. S. Askarova, A. G. Georgiev, Sa. A. Bolegenova, V. Yu. Maximov, Sy. A. Bolegenova, A. O. Nugymanova, K. Berdikhan. Modeling of the combustion process of gaseous fuel in combustion chambers.

Dusan Hribik (Bratislava, Slovak republic): D. Hribik, M. Variny. Modeling of distillation column for C₃ fraction for multiple pressure levels.

Saulesh Minazhova (Almaty, Kazakhstan): S. A. Minazhova, N. Zh. Nalibayev, A. G. Georgiev, A. B. Bekbayev, Y. A. Sarsenbayev. CFD Analysis of PV Panel Temperature Reduction via Cooling Methods under High Irradiance Conditions.

Zhannat Bekbolatova (Almaty, Kazakhstan): Z. K. Bekbolatova, D. V. Grigoryev, B. Ongar, A. G. Georgiev, D. D. Rasolomampionona, K. Zagrajek. Market Integration Strategies of Renewable Generation Units.

F. Philibert Andriniriniainimalaza (Iasi, Romania): F. Philibert Andriniriniainimalaza, Telesphore Randriamaitso, George Balan, S. Njara Rhevihaja, Lova Rakotomalala, Dorin D.

Lucache. Intelligent MPPT Strategies for Vertical-Axis Tidal Turbines: Comparative Performance of Neuro-Fuzzy and Neuro-PSO Controllers.

Iuliana Costiuc (Brasov, Romania): I. Costiuc, E. Chircan, V. Gheorghe, L. Costiuc. The study of thermal conductivity of composite panels for buildings using recycled materials.

Yang Ming (Chengdu, China): Y. Ming, F. Jiang, M. Hu, Y. Yuan. Design development and optical characterization of thermotropic honeycomb slat façade system.

5. Lunch: 13:30 - 14:30 h (on your own).

6. Afternoon parallel session 1 (Large hall): 14:30 - 16:30 h; Energy Materials, Ocean/Tidal Energy (**Chair: Ahmet Alper Aydin**)

14:30 - 14:50 h; Yunfei Xu (Hefei, China): Yunfei Xu, Yongjun Sang, Kongfu Hu, Ken Chen, Gang Pei, Zhaohui Huang. Preparation and properties of high strength spherical particles based on low grade bauxite (**ORAL**).

14:50 - 15:10 h; Magdalena Szumera (Krakow, Poland): M. Szumera, M. Maruszak, A. Kijo-Kleczkowska, P. Rutkowski, A. Berezicka, J. Krzywanski, I. Iliev. Innovative Insights into Heat Conduction Mechanisms of Phosphate-Silicate Glasses via Experimental and SHAP-Driven Feature Importance (**VIDEO**).

15:10 - 15:30 h; Marek Baraniak (Poznan, Poland): J. Wojtalewicz, M. Baraniak, K. Tokarek, J. Wojciechowski, F. Walkiewicz, M. Pajak, K. Hubkowska, D. Monikowska, A. Czerwinski, G. Lota. Electrodeposited Ni-Co alloys with modified microstructure for enhanced hydrogen evolution reaction (**ORAL**).

15:30 - 15:50 h; Alexandra Grekova (Novosibirsk, Russia): A. Grekova, A. Cherpakova, M. Tokarev, L. Gordeeva. Systematic screening of numerous salt hydrates for passive adsorptive PV cooling/water harvesting system (**VIDEO**).

15:50 - 16:10 h; Radhamanohar Aepuru (Santiago, Chile): Marcello Avello, Radhamanohar Aepuru, Durgaprasad Pabba, Ali Akbari, Vijaya Bhaskar Bhaviripudi, Rodrigo Espinoza-González. Influence of Yttrium on the Mechanical and Energy Harvesting Performance of PVDF Based Flexible Piezoelectric Nanogenerator for Wearable Applications (**ON-LINE**).

16:10 - 16:30 h; Mariana Panaitescu (Constanta, Romania): F. V. Panaitescu, M. Panaitescu, I. Voicu. Waves statistics for metocean analytics on Galata platform, Bulgaria (**VIDEO**).

7. Coffee break: 16:30 - 17:00 h (in hotel BAS)

8. Afternoon parallel session 2 (Large hall): 17:00 - 19:00 h; Solar and Hybrid Thermal Systems (**Chair: Alberto Coronas**)

17:00 - 17:20; Zaikang Lu (Changsha, China): Z. Lu, J. Cao, L. Zheng, M. Zhao, J. Chen, J. Peng, H. Li, M. Hu, Q. Wang. Experimental investigation on steady-state performance of a flexible loop thermosyphon in tracking-type photovoltaic/ thermal system (**ON-LINE**).

17:20 - 17:40; Ali Keçebas (Mugla, Turkey): E. Kasaba, A. Keçebas, O. V. Güler, E. Y. Gürbüz, A. G. Georgiev, I. Sahinkesen. Experimental analysis of a hybrid air-based solar collector with integrated photovoltaic modules for thermal and electrical efficiencies (**VIDEO**).

17:40 - 18:00; Junyao Mao (Kunming, China): Junyao Mao, Xu Ji, Bianfeng Yang, Junneng Nie. Investigation on greenhouse irrigation water recovery based on carbon-based composite adsorbents for moisture adsorption (**VIDEO**).

18:00 - 18:20; Dongxue Wu (Kunming, China): Dongxue Wu, Xu Ji, Keqin Huang, Jianjun Wang, Qing Lan. Research on the performance of solar concentrating dish photothermal catalytic water splitting for hydrogen production (**VIDEO**).

18:20 - 18:40; Junneng Nie (Kunming, China): Junneng Nie, Xu Ji, Bianfeng Yang, Junyao Mao. Experimental study on drying chili peppers with PV direct-drive heat pump **(VIDEO)**.

18:40 - 19:00; Danijela Kardaš Ancic (Banja Luka, Bosnia and Herzegovina): D. Kardaš Ancic, M. Komatina, P. Gvero, B. Knežević, M. Pupčević. Experimental comparison of electrical efficiency of photovoltaics and photovoltaics-thermal hybrid system in real operation conditions **(ON-LINE)**.

9. Morning paralel session 1 (Small hall): 8:30 - 10:30 h; Energy storages, Mechanical Engineering and Technologies **(Chair: Arnaldo Walter)**

8:30 - 8:50 h; Giulia Lombardo (Padova, Italy): G. Lombardo, D. Menegazzo, L. Vallese, M. Scattolini, A. A. Aydin, S. Bobbo, L. Fedele. Empirical Insights into Enhanced PCM Cold Storage: Experimental Results from the ECHO Project for Sustainable Cooling **(VIDEO)**.

8:50 - 9:10 h; Georgi Rahnev (Sofia, Bulgaria): Georgi Rahnev, Daniela Dzhonova-Atanasova. Sustainable bio-based carbon-enhanced PCM composites **(ORAL)**.

9:10 - 9:30 h; Jaroslaw Wojciechowski (Poznan, Poland): J. Wojciechowski, G. Lota. Electrochemical capacitor with Mn(II)/Mn(IV) redox pair **(ORAL)**.

9:30 - 9:50 h; Hua Li (Chengdu, China): Hua Li, Yong Zhang, Yanping Yuan, Mingke Hu. Efficiency and Flow Resistance Optimization of a Perforated Shell-and-Tube Reactor for Thermochemical Energy Storage **(ON-LINE)**.

9:50 - 10:10 h; Yongjun Sang (Hefei, China): Yongjun Sang, Yunfei Xu, Shuyi Chen, Howard Njoku, Gang Pei. Study on Convective Heat Transfer Characteristics of Sweeping Jet Impingement on a Flat Target Surface **(ORAL)**.

10:10 - 10:30 h; Amangeldy Karmanov (Pavlodar, Kazakhstan): A.E. Karmanov, E. V. Prikhodko, A. S. Nikiforov, A. K. Kinzhibekova, U. K. Zhalmagambetova, N. M. Aripova. Investigation of the Ultimate Strength of Refractory Materials and Analysis of Their Defect Structure Characteristics at Elevated Temperatures **(ON-LINE)**.

10. Coffee break: 10:30 - 11:00 h (in hotel BAS)

11. Morning parallel session 2 (Small hall): 11:00 - 13:00 h; Phase Change Materials (PCM) Applications, Hydrogen Energy **(Chair: Marek Baraniak)**

11:00 - 11:20 h; Silvia Cesari (Ferrara, Italy): S. Cesari, M. Bottarelli. Optimised integration of phase change materials in ground heat exchangers to overcome the distal effect **(ORAL)**.

11:20 - 11:40 h; Tingting Luo (Guiyang, China): Tingting Luo, Peng Pei, Shixun Hu, Chen Wang, Long Tang. Enhanced Thermal Storage Performance in Borehole Using Sol-Gel Prepared **(VIDEO)**.

11:40 - 12:00 h; Muhammed Yeler (Kocaeli, Turkey): Müslüm Arıcı, Muhammed Emirhan Yeler, Çagatay Yildiz, Ekrem Tunçbilek, Amin Shahsavari. Ultrasonic Frequency Effects on Lauric Acid Melting: An Experimental Study **(ON-LINE)**.

12:00 - 12:20 h; Yiting Yang (Kunming, China): Yiting Yang, Ming Li, Ying Zhang. Preparation of cold-storage Microencapsulated Phase Change Suspension: dispersion stability and thermal conductivity performance improvement **(VIDEO)**.

12:20 - 12:40 h; Nadezhda Bondareva (Tomsk, Russia): N. S. Bondareva, M. A. Sheremet. Effect of anisotropic metal foam on convective effects in PCM melting **(ON-LINE)**.

12:40 - 13:00 h; Yakup Dasdemirli (Karabuk, Turkey): Yakup Dasdemirli, Ulas Matik, Muhammet Kayfeci. Effect of Cu, Cu/Ag and Ag Coating on Thermal Properties of LaNi₅ Alloys in Metal Hydride Based Hydrogen Storage **(ON-LINE)**.

12. Poster session 2 (https://aesmt.lima-city.de/Poster_session'25.html): 13:00 - 13:30 h

13. Lunch: 13:30 - 14:30 h (on your own).

14. Afternoon parallel session 1 (Small hall): 14:30 - 16:30 h; Energy Efficiency (**Chair: António Figueiredo**)

14:30 - 14:50 h; Nikita Gibanov (Tomsk, Russia): N. S. Gibanov, M. A. Sheremet. Mixed convection heat transfer in channel with heat generating source and heat removal ribs under the effect of magnetic field (**ON-LINE**).

14:50 - 15:10 h; Zhihan Deng (Kunming, China): Z. H. Deng, M. Li, Y. Zhang, Y. F. Wang, G. L. Li, T. Y. Xing, M. C Yao. Research on the characteristics of double-diffusive convection of heat and mass under cross-mixed flow (**VIDEO**).

15:10 - 15:30 h; Lukasz Lasek (Krakow, Poland): L. Lasek, J. Krzywanski, K. Grabowska, D. Skrobek, A. Zylka, M. Sosnowski, A. Kijo-Kleczkowska. Utilization of AI hybrid data-driven optimization methods to improve adsorption chiller efficiency (**ON-LINE**).

15:30 - 15:50 h; Muchi Yao (Kunming, China): Muchi Yao, Ming Li, Yunfeng Wang, Guoliang Li, Ying Zhang, Zhihan Deng, Jianhuan Deng. The report title: Thermodynamic Characteristics of a Wide-Temperature-Range CO₂ Heat Pump Drying System with Multistage Heat Recovery under Low-Temperature Conditions (**VIDEO**).

15:50 - 16:10 h; Nikolaos Rogkas (Athens, Greece): Nikolaos Rogkas, Chalarampos Lazaridis, Dimitrios Patsouras, Pavlos Zalimidis, Dimitrios Rakopoulos, Vasilios Spitas. Impact of Groove Design on Viscous Drag Reduction in Wet Clutch Lubrication for Energy-Efficient Power Transmissions (**ON-LINE**).

16:10 - 16:30 h; Yu Nie (Hefei, China): Yu Nie, Bin Xu, Hong Zhang, Tao Wu, Gang Pei. Numerical Simulation on the Heat Transfer Performance of Thermosyphon with Self-Rewetting Fluids under Different Configurations (**VIDEO**).

15. Coffee break: 16:30 - 17:00 h (in hotel BAS)

16. Afternoon parallel session 2 (Small hall): 17:00 - 18:40 h; Wind Energy, Solar and Hybrid Thermal Systems (**Chair: Michele Bottarelli**)

17:00 - 17:20 h; Emre Eroglu (Tirana, Albania): Emre Eroglu, Ibrahim Gunes. Short-term wind speed estimation with the artificial neural networks in Kütahya, Turkey (**ORAL**).

17:20 - 17:40 h; Emre Eroglu (Tirana, Albania): K. Buyukatak, E. Eroglu, I. Gunes. Piecewise Bézier Curve Modeling for Wind Speed Estimation in Renewable Energy Systems (**ORAL**).

17:40 - 18:00 h; Abu Al Hassan (Krakow, Poland): Abu Al Hassan, Abdelkareem Jebreel, Cuong Duc Dao, Phong B. Dao. A change-point detection-based framework for wind turbine condition monitoring and fault detection (**ORAL**).

18:00 - 18:20 h; Theocharis Tsoutsos (Chania, Greece): T. Tsoutsos, G. Skinitis, I. Foifas. What are the risks associated with developing offshore wind farms on a Mediterranean island? (**VIDEO**).

18:20 - 18:40 h; Jun Zhong (Kunming, China): Jun Zhong, YunFeng Wang, Ming Li, Sheng Tang, JiangTao Rong. Heat transfer characteristics of the fin-tube three-fluid heat exchanger in cold warehouse with cold storage (**VIDEO**).