

# **New Cryogenic and Isotope Technologies for Energy and Environment - *EnergEn 2023***

**Băile Govora, Romania**

**October 18-20, 2023**

## **Scientific Committee**

**Marius Peculea** - *Romanian Academy (Romania)*

**Ashok Vaseashta** - *International Clean Water Institute (USA)*

**Norbert Wagner** - *Deutsches Zentrum für Luft und Raumfahrt (Germany)*

**Mohamed Pourkashanian** - *Energy Institute, University of Sheffield (UK)*

**Julia Amici** - *Dipartimento Scienza Applicata a Tecnologia, Politecnico di Torino (Italy)*

**Elena Carcadea** - *ICSI Râmnicu Vâlcea (Romania)*

**Tudor Prisecaru** - *Polytechnic University, Bucharest, Romania*

**Horia Necula** - *Polytechnic University, Bucharest, Romania*

**Silvano Tosti** - *ENEA, Frascati, Italy*

**Aishui Yu** - *Department of Chemistry, Fudan University, Shanghai, China*

**Luo Wenhua** - *China Academy of Engineering Physics, China*

**Chen Changan** - *China Academy of Engineering Physics, China*

# EnergEn 2023 PROGRAMME ... at a glance

Tuesday 17 <sup>th</sup> October		Wednesday 18 <sup>th</sup> October		Thursday 19 <sup>th</sup> October			Friday 20 <sup>th</sup> October		
		08:30	Registration	08:30	Registration				
				<i>Parallel Scientific Sessions</i>			09:00	Poster Session II	
		10:30	Conference Opening	09:30	Battery Technologies Part I	Material Science for Energy and Environment Part I	10:00	Tritium R&D Technological Transfer for Fusion and Fission	Isotopes in Environmental Studies and Life Quality Applications
		11:05	Plenary Session	11:00	Coffee Break		11:00	Coffee Break	
				11:30	Battery Technologies Part I	Material Science for Energy and Environment Part I	11:30	Tritium R&D Technological Transfer for Fusion and Fission	Isotopes in Environmental Studies and Life Quality Applications
		13:00	Lunch	13:00	Lunch		13:00	Coffee Break	
				<i>Parallel Scientific Sessions</i>			13:15	Young researcher awards Closing the conference	
			<i>Parallel Sessions/Events</i>						
		15:00	Hydrogen Energy Technologies	Meeting of CINCDR Part I	14:30	Battery Technologies Part II	Material Science for Energy and Environment Part II		
		16:00	Coffee Break		16:30	Coffee Break			
		16:15	Hydrogen Workshop	Meeting of CINCDR Part II	17:00	Poster Session I			
17:00	Registration	18:00	Meeting of the Romanian Association for Hydrogen Energy		18:30	Cocktail offered by Dyomedica CND			
19:00	Ice Breaker Buffet	19:00	Conference dinner	19:30	Conference social event "Concert"				
20:00	End of the Day			20:30	Dinner				
				21:00	End of the Day	21:30	End of the Day		

Organizing Committee



## Tuesday - October 17, 2023

17:00 - 19:00	Registration <i>Location - Palace Hotel</i>
19:00 - 20:00	Ice Breaker Buffet <i>Location - Palace Hotel (Terrace)</i>

## Wednesday - October 18, 2023

08:30 - 10:30	Registration <i>Location - Palace Hotel</i>
10:30 - 11:05	<b>CONFERENCE OPENING</b> <i>Location – Virginia Andreescu-Haret Cultural Center</i>
	<i>Mihai Varlam – EnergEn 2023 Chairman</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania
	<i>Bogdan-Gruia Ivan - Minister</i> Ministry of Research, Innovation and Digitization, Romania
	<i>Mircia Gutău - Mayor</i> Ramnicu Valcea Town Hall, Romania
11:05 - 13:00	<b>PLENARY SESSION</b> <i>Location - Virginia Andreescu-Haret Cultural Center</i> Chairperson: <i>Roxana Elena Ionete</i>
11:05 - 11:45	The role of hydrogen in achieving net zero <i>Mohamed Pourkashanian</i> Energy Institute at the University of Sheffield, UK
11:45 - 12:25	Romanian Hydrogen HUB <i>Mihai Varlam, Elena Carcadea</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania
12:25 - 13:00	ICSI contribution to the CTRF construction <i>Ion Cristescu</i> Karlsruhe Institute of Technology, Germany
13:00 - 15:00	Lunch
15:00 - 16:00	<b>PARALEL SESSIONS</b>
15:00 - 16:00	<b>HYDROGEN ENERGY TECHNOLOGIES</b> <i>Location – Virginia Andreescu-Haret Cultural Center</i> Chairperson: <i>Elena Carcadea</i>
	<b>MEETING OF CINCDR (Council of the National Institutes of Research and Development in Romania)</b> <i>Location - Conference Room Palace Hotel</i> Chairperson: <i>Mihaela Doni</i>
15:00 - 15:15	The Hydrogen Strategy of Romania. Current status <i>Cătălin Stancu</i> Associated Senior Expert Horváth
15:15 - 15:30	R&D in Hydrogen Based Technologies, Energy Storage and Conversion at ICPE-CA Bucharest <i>Gimi A. Rîmbu</i> National Institute of Research - Development for Electrical Engineering ICPE-CA, Bucharest, Romania
	FIRST PART

15:30 - 15:45	<p>Dynamical mechanical analysis (<i>DMA</i>) characterisation of high-performance polymers and compounds used for low-pressure liquid H<sub>2</sub> storage system for aviation</p> <p><i>Daniela Ion-Ebrasu, Arthur Visse</i></p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>	
15:45 - 16:00	<p>Hydrogen storage potential of bulk and exfoliated WS<sub>2</sub></p> <p><i>Ali Altuntepe, Recep Zan</i></p> <p>Nanotechnology Application and Research Center, Niğde Ömer Halisdemir University, Turkey</p>	
16:00 -16:15	Coffee Break	
16:15 - 18:00	<p><b>HYDROGEN WORKSHOP</b></p> <p><i>Location – Virginia Andreescu-Haret Cultural Center</i></p> <p>Chairperson: <i>Dragoş Ştefan Şeuleanu</i></p> <p>Theme debate: Hydrogen technology – steps from research &amp; development to industrial applications</p>	<p><b>MEETING OF CINCDR (Council of the National Institutes of Research and Development in Romania)</b></p> <p><i>Location - Conference Room Palace Hotel</i></p> <p>Chairperson: <i>Mihaela Doni</i></p>
18:00 - 19:00	<p><b>MEETING OF THE ROMANIAN ASSOCIATION FOR HYDROGEN ENERGY</b></p> <p><i>Location – Virginia Andreescu-Haret Cultural Center</i></p> <p>Chairperson: <i>Ioan Iordache</i></p> <p>General Assembly</p>	SECOND PART
19:00 - 21:00	<p>Conference Dinner</p> <p><i>Location – Palace Hotel</i></p>	

## Thursday - October 19, 2023

08:30 - 09:30	Registration <i>Location - Palace Hotel</i>	
09:30 - 13:00	<b>PARALEL SCIENTIFIC SESSIONS</b>	
09:30 - 13:00	<b>BATTERY TECHNOLOGIES – Part I</b> <i>Location – Virginia Andreescu-Haret Cultural Center</i> Chairpersons: <i>Norbert Wagner &amp; Mihaela Buga</i>	<b>MATERIAL SCIENCE FOR ENERGY AND ENVIRONMENT – Part I</b> <i>Location - Conference Room Palace Hotel</i> Chairpersons: <i>Ashok Vaseashta &amp; Adriana Marinoiu</i>
09:30 - 10:00	Keynote: Enhancing the safety of lithium metal anodes through polymer-based electrolyte systems <i>Julia Amici, Matteo Gandolfo, Mattia Longo, Daniele Versaci, Simone Siccardi, Carlotta Francia, Silvia Bodoardo</i> Department of Applied Science and Technology (DISAT), Politecnico di Torino, Italy	09:30 - 10:00 Keynote: Electrospun nanofibers of PLZT/PVDF for IoT sensors and energy harvesting applications <i>Ashok Vaseashta</i> International Clean Water Institute, New Jersey University, US
10:00 - 10:30	Keynote: Chemistry of interphases: influence of the surface fluorination on electrochemical properties of Li-ion positive electrode <i>Nicolas Louvain, Oumaima Hatim, Daniela Josepetti, Soha Aldroubi</i> Université de Montpellier, France	10:00 - 10:30 Keynote: Considerations regarding the development of deep learning regression algorithms used in material science, energy, and environment <i>Laurențiu Asimopolos, Violeta-Carolina Niculescu, Adrian-Aristide Asimopolos, Natalia-Silvia Asimopolos</i> Geological Institute, Romania
10:30 - 10:45	Solid molecular ionic composite electrolytes for solid state lithium-ion batteries <i>Soha Aldroubi, Nicolas Louvain</i> Université de Montpellier, France	10:30 - 10:45 Covalent functionalization of graphenes with azulenes – Innovative materials for PEM-fuel cell electrodes <i>Andreea Dogaru, Adrian Ion, Adriana Marinoiu, Mihaela Florea, Simona Nica</i> CD Nețescu Institute of Organic and Supramolecular Chemistry, Romania
10:45 - 11:00	Solid polymer electrolyte for high-performance lithium batteries <i>Radu Dorin Andrei, Giorgian Cosmin Ungureanu, Ciprian-Ghiorghita Iacob, Luisa Roxana Mandoc, Irina Petreanu, Soha Aldroubi, Nicolas Louvain, Julian Richard Tolchard</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania	10:45 - 11:00 A facile single-step synthesis of iodine-dopes graphene for PEM-fuel cell applications <i>Adriana Marinoiu, Elena Carcadea</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania
11:00 - 11:30	<b>Coffee Break</b>	
11:30 - 12:00	Keynote: Bulk and surface optimization of Ni-rich ternary cathode materials for Li-ion batteries <i>Aishui Yu</i> FUDAN University, China	11:30 - 12:00 Keynote: Synergetic intersection of IoT, IoB, nanogenerators, and AI in energy and environment <i>Ashok Vaseashta, Roxana Elena Ionete</i> International Clean Water Institute, USA
12:00 - 12:30	Keynote: Revisiting Tin oxide anodes with a scalable nanoscale fabrication process <i>Julian Richard Tolchard, Charifa Hakim, Ole Andreas Øie, Soha Aldroubi, Radu Andrei</i> SINTEF, Norway	12:00 - 12:15 Nitrogen-doped graphene decorated with iron oxide nanoparticles as highly efficient electrocatalyst for oxygen reduction reaction in alkaline media <i>Adriana Vulcu, Teodora Radu, Alexandru Turza, Camelia Berghian-Grosan</i> National Institute for Research and Development of Isotopic and Molecular Technologies – ITIM Cluj Napoca, Romania

12:30 - 12:45	<p>Pulsed laser deposited V2O3 thin-films on graphene/aluminum foil for micro-battery applications</p> <p><i>Teddy Tite, Cosmin Ungureanu, Mihaela Buga, Ionel Stavarache, Elena Matei, Constantin Catalin Negri, Lucian Trupina, Andrei Galatanu, Adnana Spinu-Zaulet, Aurelian Catalin Galca</i></p> <p>National Institute of Materials Physics, Romania</p>	12:15 - 12:30	<p>Structures and functionality of materials under non ambient conditions</p> <p><i>Martina Vrankić, Jasminka Popović, Takeshi Nakagawa, Yang Ding, Kejun Bu, Xujie Lü, Haozhe Liu</i></p> <p>Ruđer Bošković Institute, Croatia</p>
12:45 - 13:00	<p>Operando/in situ synchrotron X-ray techniques for studying rechargeable magnesium battery</p> <p><i>Zhao Li, Yi Li, Da Tie, Xiaodong Lin, Xiaolong Li, Jianxin Zou, Alexandru Vlad</i></p> <p>Université Catholique de Louvain, Belgium</p>	12:30 - 12:45	<p>High temperature thermal energy storage composites based on metallic bismuth and porous oxide matrices</p> <p><i>Raul Mitran, Daniel Lincu, Simona Ioniță, Mihaela Deaconu, Florica Papa, Bogdan Trică, Cristian Matei, Daniela Berger</i></p> <p>Ilie Murgulescu Institute of Physical Chemistry, Romania</p>
		12:45 - 13:00	<p>ICMET Craiova a National Institute with tradition in experimental research from Romania</p> <p><i>Ioan Iordache</i></p> <p>ICMET Craiova, Romania</p>
13:00 - 14:30	Lunch		
14:30 - 16:30	<b>PARALEL SCIENTIFIC SESSIONS</b>		
	<p><b>BATTERY TECHNOLOGIES – Part II</b></p> <p><i>Location – Virginia Andreescu-Haret Cultural Center</i></p> <p>Chairpersons: <i>Julia Amici &amp; Teddy Tite</i></p>	<p><b>MATERIAL SCIENCE FOR ENERGY AND ENVIRONMENT – Part II</b></p> <p><i>Location - Conference Room Palace Hotel</i></p> <p>Chairpersons: <i>Simona Nica &amp; Marijana Jurić</i></p>	
14:30 - 15:00	<p>Keynote: Production and characterization of meta-sulfur and metal-air batteries</p> <p><i>Norbert Wagner, Maryam Nojabae, Martina Gerle, Alexander Kube, Kaspar Andreas Friedrich</i></p> <p>German Aerospace Center (DLR), Institute of Engineering Thermodynamics, Stuttgart, Germany</p>	14:30 - 15:00	<p>From ion hopping to polaron tunneling: quantum transport in superionic conductors</p> <p><i>Athanasios Tiliakos</i></p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>
15:00 - 15:15	<p>Innovative high voltage electrodes based on LMNO/LFP blended materials for lithium-ion batteries</p> <p><i>Daniele Versaci, Giorgio Montinaro, Roberto Colombo, Mihaela Buga, Carlotta Francia, Silvia Bodoardo</i></p> <p>Department of Applied Science and Technology (DISAT), Politecnico di Torino, Italy</p>	15:00 - 15:15	<p>Proton conductive heterometallic coordination polymers as precursors for mixed metal oxides</p> <p><i>Marijana Jurić, Ana Lozančić, Lidija Molčanov, Sanja Renka, Sanja Burazer, Martina Vrankić, Lidija Androš Dubraja, Krešimir Molčanov</i></p> <p>Ruđer Bošković Institute, Croatia</p>
15:15 - 15:30	<p>Revealing the reversible solid-state electrochemistry of lithium-containing conjugated oximates: towards a new functionality for organic batteries</p> <p><i>Rambabu Darsi, Jiande Wang, Petru Apostol, Xiaolong Guo, Deepak Gupta, Alexandru Vlad</i></p> <p>Université Catholique de Louvain, Belgium</p>	15:15 - 15:30	<p>Selective hydrogenation of nitrobenzene over MOFs supported NPs-catalysts</p> <p><i>Oana Grad, Monica Dan, Maria Mihet, Angela Kasza, Gabriela Blanita, Mihaela D. Lazar</i></p> <p>National Institute for Research and Development of Isotopic and Molecular Technologies – ITIM Cluj Napoca, Romania</p>

15:30 - 15:45	Towards scaling up in sustainable electrode production <i>Elisa Raveiso, Valentina Sumini, Giorgio Montinaro, Daniele Versaci, Silvia Bodoardo</i> Department of Applied Science and Technology (DISAT), Politecnico di Torino, Italy	15:30 - 15:45	Modified Pechini method used for the synthesis of Cs-fullerenes aerogel <i>Ana Maria Iordache, E. I. Ionete, S.-M. Iordache, C. N. Zoita, S. Caramizoiu, A. M. Raduta, I. C. Vasiliu, I. Chilibon, C. E. A. Grigorescu</i> National Institute of Research and Development for Optoelectronic – INOE 2000, Romania
15:45- 16:00	Reintegration of Li-ion batteries in electronic devices – A sustainable option? <i>Ioana Alina Ciobotaru, Danut-Ionel Vaireanu, Florin-Mihai Benga</i> University Politehnica of Bucharest, Faculty of Applied Chemistry and Materials Science, Romania	15:45- 16:00	Analysis of mechanical and thermal properties for bio composites with different volume proportions of Dammar matrix <i>Maria Alexandra Ivan, Alexandru Bolcu, Ion Ciuca, Dumitru Bolcu, Marius Marinel Stanescu</i> National University of Science and Technology Politehnica Bucharest, Romania
16:00 - 16:15	Energy cube for versatile, reliable, and scalable hybrid electric energy storage systems <i>George Ionuț Sava, Eleni Kaplani, Mihai Machedon-Pisu, Paul Nicolae Borza</i> Transilvania University of Brașov, Romania	16:00 - 16:15	MIEC solid oxides for SOFC manufacture. Structural and technical challenges. <i>Nicoleta Cioatera, Mihaela Mureșeanu, Cezar-Ionuț Spînu</i> Craiova University, Romania
		16:15 - 16:30	Stirling engine and DC generator coupled. Design and analysis by control <i>Nicolae Aldea, Florica Matei, Vasile Rednic</i> National Institute for Research and Development of Isotopic and Molecular Technologies – ITIM Cluj Napoca, Romania
16:30 - 17:00	Coffee Break		
17:00 - 18:30	POSTER SESSION – I <i>Location – Virginia Andreescu-Haret Cultural Center</i>		
18:30 - 19:30	Cocktail offered by Dyomedica CND <i>Location – Virginia Andreescu-Haret Cultural Center</i>		
19:30 - 20:30	Conference Social Event <i>Location – Virginia Andreescu-Haret Cultural Center</i>		
20:30 - 21:30	Dinner <i>Location – Palace Hotel</i>		

## Friday - October 20, 2023

09:00 - 10:00 <b>POSTER SESSION - II</b> <i>Location – Virginia Andreescu-Haret Cultural Center</i>			
<b>PARALEL SCIENTIFIC SESSIONS</b>			
10:00 - 13:00	<b>TRITIUM R&amp;D AND TECHNOLOGICAL TRANSFER FOR FUSION AND FISSION</b> <i>Location – Virginia Andreescu-Haret Cultural Center</i> Chairpersons: <i>Liviu Ștefan &amp; Sebastian Brad</i>	10:00 - 13:00	<b>ISOTOPES IN ENVIRONMENTAL STUDIES AND LIFE QUALITY APPLICATIONS</b> <i>Location - Conference Room Palace Hotel</i> Chairpersons: <i>Carmen Varlam &amp; Oana Botoran</i>
10:00 - 10:15	Tritium transfer during different decommissioning techniques <i>Arno Vankrunkelsven, Dylst Kris, D'Joos Yves</i> SCK-CEN, Belgium	10:00 - 10:30	Biosensors array for the detection of virgin oils adulteration with seed oils <i>Constantin Apetrei, I. G. Munteanu, A. V. Bounegru, I. M. Apetrei</i> Dunărea de Jos University of Galați, Faculty of Sciences and Environment, Romania
10:15 - 10:30	Influence of various operation parameters of the wet scrubber column for detritiation system <i>Fei Jiang, Changan Chen, Peilong Li, Bin Yu, Min Chen, Li Deng, Jun Hu, Yan Shi, Jiangfeng Song</i> CAEP, China		
10:30 - 10:45	Aspects concerning the manufacture with increase productivity of Compact CP mixed catalytic packing for heavy water detritiation <i>Gheorghe Ionitã, Nicolae Sofilca, Gheorghe Titescu, Adrian Armeanu, Constantin Ciortea</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania	10:30 - 10:45	Wine fingerprinting: A chemometric approach utilizing NMR and IRMS data <i>Marius Miricioiu, Oana Romina Botoran, Diana Costinel, Roxana Elena Ionete</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania
10:45 - 11:00	Numerical simulation of hydrogen isotope separation by thermal cycling absorption process <i>Deng Li, Xiaoqiu Ye, Guoqiang Huang, Jiangfeng Song, Jun Hu, Changan Chen</i> CAEP, China	10:45 - 11:00	Using hydrogen and carbon radioisotopes as complementary analysis in wine authentication <i>Irina Vagner, Varlam Carmen, Făurescu Ionuț, Costinel Diana, Bogdan Diana, Miricioiu Marius, Făurescu Denisa</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania
11:00 - 11:30 <b>Coffee Break</b>			
11:00 - 11:15	Modelling the co-permeation of hydrogen isotopes through metals in all rate-limited regimes <i>Jipeng Zhu, Xiaoqiu Ye, Chang'an Chen, Sun Fei, Xuxu Liu, Wei Jin</i> CAEP, China	11:00 - 11:15	Cytogenotoxic activity of <i>Anemone Nemorosa</i> L. extracts and their nanostructured mixtures <i>Anca Șuțan, Mihai Cortizo Pandeleanu, Codruța Mihaela Dobrescu, Oana Drăghiceanu, Cristina Soare, Denis Negrea, Diana Ionela (Stegarus) Popescu</i> Politehnica Bucharest, Pitești University Center, Romania
11:15 - 11:30	Large-current density and high-durability proton exchange membrane water electrolysis for hydrogen isotope separation <i>Ning Zeng, Cun Hu, Chao Lv, Aojie Liu, Jinguang Cai, Tao Tang</i> CAEP, China	11:15 - 11:30	Innovative method for exploring the aromatic profile of wines using GC-MS without ISTD after LLME <i>Yevgheniia Korolova, Diana Ionela Popescu, Oana Romina Botoran</i> National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania



11:30 - 11:45	<p>Performance comparison of the MHE heat exchanger prototype through practical experimentation, computational simulation and preliminary theoretical considerations</p> <p><u>Claudia Dumitrescu</u>, Sebastian Brad, Horia Necula, Mihai Vijulie, Alin Lazar, Catalin Brill, Oleksandr Sirosh, Aleksander Grafov, Andrii Rozhentsev</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>	11:30 - 11:45	<p>Deuterium protium exchange protects mRNA from thermal &amp; enzymatic hydrolysis and improves translational efficiency of mRNA molecules</p> <p><u>Pavel Gris</u>, Alfred James Farmilo, Cassidy Tomlinson, Marjo Piltonen, Amanda Matthews, Diego Sobera, Anastasia Mickiewicz, Jewel Mickiewicz, Ashwini Rajasekaran, Denis Gris</p> <p>Isowater, Canada</p>
11:45 - 12:00	<p>Exploratory studies on the separation of Helium isotopes using gas chromatography</p> <p><u>Gheorghe Bulubaşa</u>, Alina Niculescu</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>	11:45 - 12:00	<p>Nitrogen and carbon stable isotope analysis from human hair as an origin assignment – a Romanian case study</p> <p><u>Teodora Mathiu</u>, Diana Costinel, Roxana Elena Ionete, Marius Gheorghe Miricioiu, Oana Romina Botoran</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>
12:00 - 12:15	<p>Thermodynamics and kinetics hydrogen isotope effects of hydrogen/deuterium absorption in the separation materials: Pd-5wt.%Pt alloy and Pd-Al<sub>2</sub>O<sub>3</sub> pellets</p> <p><u>Xiaoqiu Ye</u>, Na Lin, Jiliang Wu, Yanxia Yan, Li Deng, Changan Chen</p> <p>CAEP, China</p>	12:00 - 12:15	<p>Hydroelectric power plant Brežice and environment changes observation through tritium and radiocarbon measurements</p> <p><u>Romana Krištof</u>, Polona Gerjol, Jasmina Kožar Logar, Benjamin Zorko</p> <p>University of Ljubljana, Slovenia</p>
12:15 - 12:30	<p>Technique of reactor experiments of Tin-Lithium alloy interaction with hydrogen isotopes under neutron irradiation conditions</p> <p><u>Kuanysh Samarkhanov</u>, Yuriy Ponkratov, Yuriy Gordienko, Yevgeniy Tulubayev, Radmila Sabitova, Yekaterina Martynenko, Vadim Bochkov, Eldana Saparbek</p> <p>Institute of Atomic Energy Branch of the National Nuclear Center, Republic of Kazakhstan</p>	12:15 - 12:30	<p>Dehalogenation of Delta-hexachlorocyclohexane by iron sulfide nanoparticles</p> <p><u>Silviu Badea</u>, Violeta-Carolina Niculescu, Nicolae-Ionut Cristea, Stanica Enache, Amalia Soare, Athanasios Tiliakos, Oana-Romina Botoran, Roxana-Elena Ionete</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>
12:30 - 12:45	<p>Dyomedica's Capabilities to Support the Commissioning and Operation Phases of Cernavoda Tritium Removal Facility (CTRF)</p> <p><u>Bogdan Crăciunoiu</u>, <u>Lucian Biro</u>, <u>Iliescu Virgil</u></p> <p>Dyomedica CND Ltd., Bucharest, Romania</p>	12:30 - 12:45	<p>Agro-waste – A circular economy approach to produce alternatives fuels</p> <p><u>Marius Constantinescu</u>, Felicia Bucura, Anca Zaharioiu, Florian Marin, Gili Saroş, Claudia Şandru, Ionuţ Spiridon, Eusebiu Ionete, Violeta Niculescu</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>
12:45 - 13:00	<p>New achievements of the ICSI Cryogenic Laboratory</p> <p><u>Sebastian Brad</u>, Catalin Brill, <u>Claudia Dumitrescu</u>, Aleksandr Grafov, Alin Lazar, Andrii Rozhentsev, Oleksandr Sirosh, Mihai Vijulie, George Bulubaşa, Anișoara Oubraham, Alina Niculescu</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>	12:45 - 13:00	<p>Valorization of apple pomace for a healthy food system and a sustainable environment</p> <p><u>Elisabeta Irina Geană</u>, Corina Teodora Ciucure, Violeta Carolina Niculescu, Ana Nasture, Roxana Elena Ionete</p> <p>National Research and Development Institute for Cryogenics and Isotopic Technologies – ICSI Rm. Vâlcea, Romania</p>
13:00 - 13:15	Coffee Break		
13:15 - 13:30	Closing the Conference Awarding prizes for young researchers		

# POSTER PRESENTATION

Thursday - October 19, 2023

17:00 - 18:30	
POSTER SESSION – I	
Location – Virginia Andreescu-Haret Cultural Center	
TP-1	<u>Radu Tamaian</u> <i>Exploring Biohydrogen Generation from Agri-Food and Tree Waste: A Holistic Approach</i>
TP-2	<u>George Calianu, Ana Nasture, Mihai Eugen Restreanu, Cristian Hoarcă, Bogdan Florian Monea, Ștefan Ionut Spiridon, Eusebiu Ilarian Ionete</u> <i>Mixing and Separating Hydrogen in/from Methane Gas: Artificial Intelligence Approach</i>
TP-3	<u>Alexandru Ciocan</u> <i>Exploring the Potential of Burning Hydrogen in a Mixture of Natural Gas for Domestic Appliances</i>
TP-4	<u>Ioan-Sorin Șorlei, Nicu Bizon, Adriana Marinoiu, Elena Carcadea</u> <i>Fuel Cell Electric Vehicle Architecture Modelling and Analysis of Energy Management Strategies</i>
TP-5	<u>Mihai Florin Gheorghe</u> <i>Hydrogen Production from Nuclear Energy</i>
TP-6	<u>Florin Lungu, Laurentiu Patularu, Ana-Maria Nasture, Elena Carcadea</u> <i>Waste Heat Recovery for a 2Nm<sup>3</sup>/h PEM Electrolyzer System – Case Study</i>
TP-7	<u>Laurentiu Patularu, Ana-Maria Nasture, Florin Lungu, Elena Carcadea</u> <i>Technical Aspects Regarding the Development of a 2Nm<sup>3</sup>/h Regenerative PSA Dryer for PEM Electrolyzer System</i>
TP-8	<u>Pravin G. Dhawale, Vikram Kumar, Maria Simona Raboaca, V.N. Kalkhambkar, Alin Nicolae Corbu, Prasenjeet Patil</u> <i>Hydrogen Green Energy: A Sustainable Path to a Carbon-Neutral Future</i>
TP-9	<u>Andrii Kachmar, Rambabu Darsi, Robert Markowski, Alexandru Vlad</u> <i>The Hybrid Boron Hydrofluoride-Based Electrolyte</i>
TP-10	<u>Yan Zhang, Jiande Wang, Petru Apostol, Darsi Rambabu, Alae Eddine Lakraychi, Xiaolong Guo, Xiaozhe Zhang, Xiaodong Lin, Shubhadeep Pal, Vasudeva Rao Bakuru, Xiaohua Chen, Alexandru Vlad</u> <i>Bimetallic Anionic Organic Frameworks with Solid-State Cation Conduction for Charge Storage Applications</i>
TP-11	<u>Radu Dorin Andrei, Giorgian Cosmin Ungureanu, Ciprian-Ghiorghita Iacob, Thomas Cacciaguerra, Jeremy Rodriguez</u> <i>SBA-15-Based Anodes and Polymer Electrolytes for Solid-State Batteries</i>
TP-12	<u>Cosmin Ungureanu, Narvin Neehall, Alexandru RizoIU, Alin Chitu, Adnana Spinu Zaulet, Noelia Cortés Félix, Sébastien Fantini, Alexandru Vlad, Simon Clark, Mihaela Buga</u> <i>Cycling Stability of High-Voltage Spinel Cathode LiNi<sub>0.5</sub>Mn<sub>1.5</sub>O<sub>4</sub> in Lithium-Ion Pouch Cells Employing Carbonate-Based Electrolytes</i>
TP-13	<u>Adnana Spinu-Zaulet, Cosmin Ungureanu, Mihaela Buga, Alin Chitu, Danut Ionel Vaireanu</u> <i>The Influence of Si-Containing Electrolyte Additive on the Cyclic Stability of NMC811/Graphite Lithium Ion Battery</i>
TP-14	<u>Adnana Spinu-Zaulet, Mihaela Buga, Cosmin Ungureanu, Alexandru RizoIU, Alin Chitu</u> <i>Electrochemical Performance of LiFePO<sub>4</sub> Cathode in Li-Ion Pouch Cells</i>
TP-15	<u>Luisa Roxana Mandoc, Violeta Niculescu, Amalia Soare, Raul Mitran, Athanosios Tiliakos, Stanica Enache, Marius Constantinescu, Giorgian Cosmin Ungureanu, Mihaela Ramona Buga</u> <i>Synthesis and Characterization of New Active Materials Based on Sulf with Applications for Li-S Batteries</i>
TP-16	<u>Luisa Roxana Mandoc, Violeta Niculescu, Amalia Soare, Athanosios Tiliakos, Giorgian Cosmin Ungureanu, Mihaela Ramona Buga, Radu Dorin Andrei</u> <i>Solid State Batteries Performances Influenced by Various Life PO<sub>4</sub> Compositions</i>
TP-17	<u>Florina Vasiliou, Adrian Sabie, Bogdan-Mihail Blaranu</u> <i>Modern Methods for the Rapid Prediction of Electric Battery Capacities</i>
TP-18	<u>Alexandru RizoIU, Mihaela Buga, Alexandru Vlad, Adnana Spînu-Zăuleț, Danuț - Ionel Văireanu</u> <i>Preliminary Studies on Sodium-Based Battery Technology</i>

<b>TP-19</b>	<u>Narvin Neehall</u> , Adnana Spinu Zaulet, Cosmin Ungureanu, Alexandru Rizoiu, Mihaela Buga <i>Analysis of the Evolved Gases in a Multi-Layer Lithium-Ion Pouch Cell After Extensive Cycling Via Mass Spectrometry</i>
<b>TP-20</b>	<u>S.-M. Iordache</u> , A.-M. Iordache, A.M.I. Trefilov, A.M. Raduta, S. Caramizoiu, I. C. Vasiliu, I. Chillbon, C. E. A. Grigorescu <i>Electrochemical Sensor Based on Graphene-Aniline Composite for the Detection of Serotonin In Artificial Plasma</i>
<b>TP-21</b>	<u>A.M. Raduta</u> , S. Iftimie, V. A. Antohe, C. Locovei, A. Radu, L. Ion, S. Antohe, C.E.A. Grigorescu <i>Effect of Working Power on Physical Properties of Rf-Sputtered CdTe Thin Films for Photovoltaic Applications</i>
<b>TP-22</b>	<u>Emiliana-Ioana Trifan</u> , Florin Vacariu, Adrian Sabie, Bogdan Blănaru <i>The Reduction of Greenhouse Gas Emission Through the Use of Mixed Electricity Supply Systems</i>
<b>TP-23</b>	<u>Daniela Ion-Ebrasu</u> , Radu Dorin Andrei, Constantin Catalin Negrița, Adriana Marinoiu, Elena Carcadea <i>Oxygen Reduction Reaction Characterization of Platinum-Functionalized CVD Growth 3D-Graphene Foam</i>
<b>TP-24</b>	<u>Iulian Pavel Nita</u> , Rodica Pancef, Ilescu Maria <i>Design and Layout of Air-Cooled Condensers (ACC) Required as Heat Sink for the Alfred Lead Fast Reactor (LFR) Demonstrator Reactor</i>
<b>TP-25</b>	<u>Denisa Cuiibus</u> , S. Rada, S. Macavei, H. Vermesan <i>Recycled Lead Materials and Doped with Different Ions: XRD and Spectroscopic Investigations</i>
<b>TP-26</b>	<u>Oana-Georgiana Dragos-Pinzaru</u> , Luiza Racila, George Stoian, Gabriel Ababei, Firuta Borza, Ibro Tabakovic, Nicoleta Lupu <i>Electrodeposited CoPt Catalysts for Methanol Oxidation Reaction</i>
<b>TP-27</b>	<u>Simona Borta</u> , Elena Marin, Ioan Sorin Sorlei, Catalin Capris, Adriana Marinoiu <i>The Obtaining of Carbon Nanofibers Decorated with Pd by Electrospinning for Gas Diffusion Layers Applications</i>
<b>TP-28</b>	<u>Da Tie</u> , Mengyuan Du, Qi Zhu, Jiande Wang, Xuelian Liu, Neil Ebejer, Darsi Rambabu, Xiaolong Guo, Alexandru Vlad <i>Mixed Anionic and Cationic Redox Chemistry in Thiomolybdate Coordination Framework</i>
<b>TP-29</b>	<u>Mihaela Mureseanu</u> , Valentina Chivu, Mariana Osiac, Viorica Parvulescu, Cristina Bucur, Nicoleta Cioatera <i>Ce-Modified Mesoporous TiO<sub>2</sub> Thin Films As Efficient Photoanodes For Photocatalytic Fuel Cell Systems</i>
<b>TP-30</b>	<u>E. David</u> , A. Armeanu <i>Application of Biochar Derived from Agro-Industrial Residues for Biofuel Production</i>
<b>TP-31</b>	<u>Marin Elena</u> , Sucea Bianca, Marinoiu Adriana <i>Membrane Electrode Assembly (MEA) Fabrication for PEMFC</i>
<b>TP-32</b>	<u>E. David</u> , A. Armeanu, R-M. Marinescu <i>Increasing Bio-Oil and Biochar Yields in the Pyrolysis Process of Biomass by Using Catalysts with High Content of Catalytically Active Metal Species</i>
<b>TP-33</b>	<u>Adriana Marinoiu</u> , Sebastian Băltoiu, Mihaela Iordache, Sorin Șorlei, Marius Miricioiu, Elena Carcadea <i>The development of an efficient hydrogen generation system from sodium borohydride</i>
<b>TP-34</b>	<u>Anisoara Oubraham</u> , Elena Marin, Mihaela Iordache, Șorlei Ioan Sorin, Claudia Șisu, Claudia Sandru, Simona Borta, Athanasios Tiliakos, Adriana Marinoiu <i>Catalytic Hydrogenation of Carbon Dioxide (CO<sub>2</sub>) to Methanol Using Copper-Based Catalyst</i>
<b>TP-35</b>	<u>Anisoara Oubraham</u> , Mihaela Iordache, Elena Marin, Șorlei Ioan Sorin, Claudia Șisu, Simona Borta, Athanasios Tiliakos, Claudia Sandru, Adriana Marinoiu <i>Synthesis of the Cu/ZnO/Al<sub>2</sub>O<sub>3</sub> Catalysts and Application for Carbon Dioxide Hydrogenation to Methanol</i>
<b>TP-36</b>	<u>Mihaela Iordache</u> , Anisoara Oubraham, Irina Petreanu, Claudia Șisu, Simona Borta, Șorlei Ioan Sorin, Athanasios Tiliakos, Adriana Marinoiu <i>Improved Ionic Conductivity of Na<sub>1+x</sub>Zr<sub>2</sub>Si<sub>2</sub>P<sub>3-x</sub>O<sub>12</sub> (Nasicon) by Addition of Sodium Excess</i>
<b>TP-37</b>	<u>Viktoriya Podhurska</u> , Orest Ostash, Mykola Kuz'menko, Tetiana Prikhna, Volodymyr Sverdun, Anastasia Kyrsha <i>Investigation of Candidate Materials for Lightweight Interconnects of Solid Oxide Fuel Cells</i>
<b>TP-38</b>	<u>Viktoriya Podhurska</u> , Jaroslav Milewski, Olexander Kuprin, Olena Reshetnyak <i>Development of a Protective Coating Against High-Temperature Oxidation for Fuel Cell Current Collectors</i>

09:00 - 10:00	<b>POSTER SESSION – II</b> Location – <i>Virginia Andreescu-Haret Cultural Center</i>
FP-1	<u>Claudia Şisu</u> , Mihaela Iordache, Anișoara Oubraham, Simona Borta, Adriana Marinoiu <i>Characterization of Porous Ceramic Materials Using Dynamic Light Scattering (DLS) Technique</i>
FP-2	<u>Geani Teodor Man</u> , Aurelia Cristina Nechifor, Alexandra Raluca Grosu, Diana Ionela Popescu (Stegarus), Vlad-Alexandru Grosu, Gheorghe Nechifor <i>Thorium Removing from Electric and Electronic Waste</i>
FP-3	<u>Violeta-Carolina Niculescu</u> , Amalia Soare, Irina Petreanu <i>Rice Husk – Agriculture Waste as Raw Material for SBA-15 Mesoporous Silica</i>
FP-4	<u>Irina Petreanu</u> , Mihaela Iordache, Violeta Niculescu, Catalin Capris, Adriana Marinoiu <i>Characterization and Testing of the Commercial Perfluorinated Membranes FUMAPEM F-930 and FUMASEP F-1050</i>
FP-5	<u>Cristina Marcu</u> , Codruța Varodi, Ancuța Balla, Jozsef Zsolt Szűcs Balázs <i>Adsorption Isotherms and Thermodynamics of Nitrites Adsorption onto a Strong Basic Anion Exchange Resin</i>
FP-6	<u>Alexandra Urda</u> , D. Cosma, M. C. Rosu, K. Wang, C. Socaci, T. Radu, A. Rostas, M. Mihet, A. Turza <i>Photocatalytic Performance of Pt/TiO<sub>2</sub> Nanotubes/Graphene Composites Under Visible Light Irradiation</i>
FP-7	<u>Dragos Cosma</u> , Marcela Corina Rosu, Crina Socaci, Alexandra Urda, Kaiying Wang <i>Photocatalytic performance of metal-TiO<sub>2</sub>NT composites with graphene oxide or reduced graphene oxide as co-catalysts</i>
FP-8	<u>Athanasios Tiliakos</u> , Robert Rabuga <i>Design Principles of 3D Printed Modular Supercapacitors Based on the Fractal “Space-Filling Supercapacitor Carpet” Architecture</i>
FP-9	<u>Adriana Marinoiu</u> , Elena Carcadea <i>Single-Stage Syntesys of Catalyst Based on Graphene Oxide Decorated with Platinum-Cobalt-Ceria</i>
FP-10	<u>Cristian Salceanu</u> , Daniel Truta, Catalin Dobrea, <u>Hermina Deliu</u> <i>High Power Laboratory of ICMET Craiova - Professionalism and Performance in the Field of Electrical Equipment Researching and Testing</i>
FP-11	<u>Ioan Fieraru</u> , Ilie Mihalcea, Laurentiu Vlodoi <i>The Low and High Voltage Laboratory of ICMET Craiova Leader with Tradition in the Field of Equipment Testing for Energy and Environment</i>
FP-12	<u>Maria Cristina Nitu</u> , Ancuța- Mihaela Aciu <i>The Process of Revitalizing Aged Oils from Electrical Equipment in Operation</i>
FP-13	<u>Iurie Bosneaga</u> , Mircea Bologa, Elena Agarwal <i>Optimized Thermoaccumulation as a Condition sine qua non for Ensuring Sustainable Development</i>
FP-14	<u>Radu Tamaian</u> <i>Bioisosterism-Driven Optimization: Harnessing Deuterium's Potential in Drug Development</i>
FP-15	<u>Diana Costinel</u> , Oana Romina Botoran, Roxana Elena Ionete, Marius Gheorghe Miricioiu, Teodora Maria Mathiu <i>Tracing Botanical and Geographical Origins: Carbon and Nitrogen Stable Isotopes (<math>\delta^{13}\text{C}</math> and <math>\delta^{15}\text{N}</math>) in Conifer Trees of the Southern Carpathians</i>
FP-16	<u>Diana Ionela Popescu (Stegăruș)</u> , Oana Romina Botoran, Roxana Elena Ionete, Nicoleta Anca Șuțan, Corina Mihaela Oprita (Cioară), Violeta-Carolina Niculescu <i>Evaluation of the Contamination Degree with Pesticides in Vegetables - Chromatographic Techniques</i>
FP-17	<u>Carmen Varlam</u> , <u>Denisa Faurescu</u> , Ionuț Făurescu, Diana Bogdan, Irina Vagner <i>Environmental Tritium and ITS Measurement Challenges Using LSC</i>
FP-18	<u>Ionuț Făurescu</u> , Carmen Varlam, <u>Diana Bogdan</u> , Denisa Făurescu, Irina Vagner, Diana Costinel <i>Thermoelectrical Power Plant Influence on Environmental Radiocarbon Level in Govora Industrial Area</i>
FP-19	<u>Nadia Paun</u> , Violeta-Carolina Niculescu, Ionela Ramona Zgavarogea, Silviu Laurentiu Badea, Andreea-Maria Iordache <i>An Overview on Membrane-Based Methods for Lithium Isotopes Separation</i>

<b>FP-20</b>	<u>J.-Zs. Szücs-Balázs</u> , A. Balla, Ş. Bugeac, C. Lar, C. Marcu, S. Radu, C. Varodi, M. Gligan <i>Theoretical Design of a Combined Separation Cascade for Nitrogen Isotope Separation</i>
<b>FP-21</b>	<u>Pavel Gris</u> , Alfred James Farmilo, Cassidy Tomlinson, Marjo Piltonen, Amanda Matthews, Diego Sobera, Anastasia Mickiewicz, Jewel Mickiewicz, Ashwini Rajasekaran, Denis Gris <i>Effect of Deuterium Protium Exchange on mRNA Translational Efficiency</i>
<b>FP-22</b>	<u>Claudia Şandru</u> , Oana Romina Botoran, Roxana Elena Ionete, Marius Miricioiu <i>Macronutrient Pathways: Tracing Soil-To-Wine Transition in Drăgăşani and Sâmbureşti Vineyards, Romania</i>
<b>FP-23</b>	<u>C. Apetrei</u> , Mirela Voiculescu, Catalina Iticescu, Lucian P. Georgescu <i>REXDAN RI - An Original Multidisciplinary Research Infrastructure</i>
<b>FP-24</b>	<u>Valentina Neculae</u> , Cristian Dulama, Rodica Magoreanu, Cristina Diaconescu <i>Experimental Tests for the Optimization of the Tritium Determination Method in Air Using Passive Collectors</i>
<b>FP-25</b>	<u>Ciucure Corina Teodora</u> , Geana Elisabeta-Irina, Ionete Roxana Elena <i>Contaminant Residues from Plant Biomass to be Used for Extraction of Bioactive Compounds</i>
<b>FP-26</b>	<u>Claudia Stihj</u> , Antoaneta Ene, Ion V. Popescu, Oana Catalina Bute, Cristiana Radulescu, Anca Gheboianu, Ioana Daniela Dulama <i>Moss Surveys in Romania: 2010/2011, 2015/2016, 2020/2022. Heavy Metals Atmospheric Deposition Temporal Trends</i>
<b>FP-27</b>	<u>Valeria-Rodica Magoreanu</u> , Valentina Neculae, Cristian-Nicolae Dulama <i>Performance Evaluation of Internal Tritium Dosimetry</i>
<b>FP-28</b>	<u>Paul-Adrian Gogîţă</u> <i>Atmospheric Dispersion Calculations for Tritium in the Environment Using Gaussian Plume Models</i>
<b>FP-29</b>	<u>Oana Romina Botoran</u> , Elisabeta-Irina Geană, Roxana Elena Ionete <i>Improving Soil Conservation and Resilience by Boosting Biodiversity and Functional Security of Organic Food Products</i>
<b>FP-30</b>	<u>Irina Elisabeta Geana</u> , Ciucure Corina Teodora, Miricioiu Marius, Roxana Elena Ionete <i>Discrimination of Varietal and Geographical Origin of Wines by Polyphenolic Composition Coupled with Chemometrics</i>
<b>FP-31</b>	<u>Aleksander Grafov</u> , <u>Andrii Rozhentsev</u> , Sebastian Brad, Oleksandr Sirosh, Mihai Vijulie, Alin Lazar, Claudia Dumitrescu, Catalin Brill <i>Estimation of the Possibility of Using the Freezing Method to Separate Hydrogen Isotope Mixtures</i>
<b>FP-32</b>	<u>Marius Valentin Zamfirache</u> , Anisia Mihaela Bornea, George Ana, Ciprian Bucur, Iuliana Ştefan, Felicia Văsuţ <i>The Performance of the Structured Packing for the Deuterated Water Distillation Process at Above Atmospheric Pressure</i>
<b>FP-33</b>	<u>Anisia Mihaela Bornea</u> , Marius Valentin Zamfirache <i>Development of a CECE Cascade for the Separation of Hydrogen Isotopes</i>
<b>FP-34</b>	<u>Hortensia Beznilă</u> , Raluca Fako, Sorin Meglea, Cristian Postolache <i>RATEN Involvement in Multidisciplinary European Projects for Tritium Research in the Fusion/Fission Domain</i>
<b>FP-35</b>	<u>Radu Ana</u> , George Ana, Ovidiu Bălteanu, Alina Niculescu, George Bulubaşa <i>Development of the tentative 3-D layout for the TER HCPB concept based on tritium adsorption on getter bed technology</i>
<b>FP-36</b>	<u>Maria Crăciun</u> , Alina Niculescu, Gheorghe Bulubaşa, George Ana <i>Literature review on barriers against hydrogen isotopes permeation through stainless steel and EUROFER97 for use in DEMO systems</i>
<b>FP-37</b>	<u>Alina Niculescu</u> , Gheorghe Bulubaşa, George Ana <i>Development of a Thermal Cycling Process for the Recovery of Tritium Used in the Research Programs from ICSI</i>
<b>FP-38</b>	<u>Gheorghe Popescu</u> , George Ana, Liviu Ştefan, Ciprian Bucur <i>Investigating the Explosion Risk in a Hydrogen Distillation Cold Box</i>