

# NURER 2024 –PROGRAMME

## 7<sup>TH</sup> INTERNATIONAL CONFERENCE ON NUCLEAR AND RENEWABLE ENERGY RESOURCES

27 Oct 2024 Sunday

15:30-20:30 Registration

28 Oct 2024 Monday

08:00-09:00 Registration

### Opening Session

**09:00 - 09:15 Prof. Dr. H. Mehmet Şahin (Chairman)**

**09:00 - 09:15 Prof. Dr. Sümer Şahin (Honorary Chairman)**

**Plenary Session 1 (Hall A) Chairman: Rizwan Uddin**

**09:15-10:00 Introduction to accelerator-driven systems: the power and promise of renew** Jean-Pierre Revol

**10:00-10:40 Problems and solutions in the field of geothermal energy sector** Yunus Çengel

**10:40-11:20 AEA platform on SMRs and their applications** Dohee Hahn

11:20 – 11:40 Coffe Break

Session 1 (Hall A) Small Modular Reactors **Chairman: Virginie Cartier**

11:40-12:00 Analysis of SBO sequences in a Small Modular Reactor using the TRACE code  
Jorge Arrabal  
David Canal  
Cesar Queral

12:00-12:20 Probabilistic risk assessment of Molten Salt Reactors: Evaluating safety systems and reliability  
Ümmühan Barlak  
Huseyin Sahiner

12:20-12:40 Radiological consequences of the SMRs - first steps towards deployment  
Adam Kecek

12:40-13:00 LOCA sequence analysis in NuScale SMR with TRACE code  
Yago Martinez-Gonzalez  
Jorge Sanchez-Torrijos  
Cesar Queral

13:00-14:00 Conference Photo and Lunch

Plenary Session 2 (Hall A) Chairman: Victor Hugo Sanchez-Espinoza

**14:00-15:00 Status of SMR and advanced reactors supply-chain, economic impact and licensing requirement for participation** Shoaib Usman

Session 2 (Hall A) Simulations of Nuclear Reactors **Chairman: Jean-Christophe de Mestral**

**15:00-15:20** Simulation of MOTEL experimental tests MS-SG01 and MS-SG02 using TRACE code  
Yago Martinez-Gonzalez  
Cesar Queral  
Elena Redondo-Valero  
Jorge Sanchez-Torrijos

**15:20-15:40** Mitigating recirculation zones in molten salt fast reactor models  
Ismail Yagci  
Zekeriya Parlak  
Huseyin Sahiner

15:40-16:00 Coffee Break

Session 3 (Hall A) Renewable Energies and Applications **Chairman: Shoaib Usman**

**16:00-16:20** Influence of reduced graphene oxide on anode functional layer performance in Solid oxide fuel cells  
Furkan Toruntay

**16:20-16:40** Characterization of microstructure and corrosion properties of powder metallurgy Ti-Al-Sn-Zr-Mo alloy for nuclear applications  
Eda Ergün Songül  
İlven Mutlu

**16:40-17:00** An Investigation on large scale green hydrogen production through electrolysis: Case study of AKKUYU nuclear power plant  
Fethi Mustafa Çimen  
Saltuk Buğrahan Yeşilgöl

**17:00-17:20** Design and assessment of the ARC fusion reactor integrated energy system to produce power and hydrogen  
Sulenur Asal  
Adem Acır

## 29 Oct 2024 Tuesday

Planary Session 3 (Hall A) <b>Chairman:</b> Adam Kecek		
<b>09:00-10:00</b>	<b>Transmutex</b>	<b>Jean-Christophe de Mestral</b>
Session 4 (Hall A)	Analysis of VVERs	<b>Chairman:</b> Cesar Queral
<b>10:00-10:20</b>	KIT Investigations of the VVER-1000 plant behavior under design basis accidents	<u>Victor Hugo Sanchez-Espinoza</u> Nuri Beydogan Gianfranco Huaccho Zavala
<b>10:20-10:40</b>	Analysis of the impact of passive safety systems on accidental sequences of VVER-1000 reactors.	Elena Redondo-Valero <u>Cesar Queral</u> Kevin Fernandez-Cosials
<b>10:40-11:00</b>	Comparative analysis of accidental sequences with conventional and Advanced Tolerant Fuels (ATF) in VVER-1000 reactors	Elena Redondo-Valero <u>Cesar Queral</u> Jorge Sanchez-Torrijos Emilio Castro-Gonzalez
11:00-11:20 Coffee Break		
Session 5 (Hall A)	Neutronic Analysis and Reactor Physics	<b>Chairman:</b> Khurrum Saleem Chaudri
<b>11:20-11:40</b>	Optimized fuel cycle and burnup analysis for pebble-bed reactors	<u>Sefa Bektaş</u> Volkan Seker Üner Çolak Thomas Downar
<b>11:40-12:00</b>	Neutronic Study of a Molten Salt Uranium Mixture in a Fusion Reactor Blanket	<u>H. Mehmet Şahin</u> Güven Tunç Alper Karakoç
<b>12:00-12:20</b>	Reactor physics analysis of accident tolerant fuel cladding system for 24-month cycle of APR-1400	<u>Khurrum Saleem Chaudri</u> Mohammad Alrwashdeh Saeed A. Alameri
13:00-14:00 Conference Photo-2 and Lunch		
Planary Session 4 (Hall A) <b>Chairman:</b> Jean-Pierre Revol		
<b>14:00-14:40</b>	<b>Integration of multiple energy sources (including nuclear) and multiple uses in an optimally designed and optimally operated energy network</b>	<b>Rizwan Uddin</b>
Session 6 (Hall A)	Nuclear Management	<b>Chairman:</b> Hidemasa Yamano
<b>14:40-15:00</b>	International cooperation for nuclear management: an institutional framework	<u>Mehmet Şahin</u> Ömer Faruk Kocatepe
<b>15:00-15:20</b>	Environmental impacts of energy production and alternatives	<u>Huseyin Sahiner</u>
<b>15:20-15:40</b>	Tsunami flood protection - system	<u>Jens Wieneke</u>
<b>15:40-16:00</b>	Role of nuclear-renewable hybrid energy systems – a case study of natriumtm energy system for power and hydrogen production	Hailei Wang
<b>16:00-16:40</b>	Synthetic time series modeling and sensitivity study for robust techno-economic analysis of advanced nuclear energy systems	Hailei Wang
16:40-17:00 Coffee Break		
Session 7 (Hall A)	Renewable-Hydrogen Technologies	<b>Chairman:</b> Hailei Wang
<b>17:00-17:20</b>	Hydrogen technology development during a revolutionary era in Europe	<u>Virginie Cartier</u> Elisabeth A. Cazier
<b>17:20-17:40</b>	Long-term planning of power generation volumes for the Akkuyu nuclear power plant	<u>Saltuk Buğrahan Yeşilgöl</u> Fethi Mustafa Çimen
<b>17:40-18:00</b>	Prediction of fuel variability impacts on the combustion characteristics of NH <sub>3</sub> /H <sub>2</sub> /N <sub>2</sub> fuel mixtures using machine learning techniques	<u>Israfil Soyler</u> Cihat Emre Ustun Amin Paykani Nader Karimi
<b>18:00-18:20</b>	Numerical analysis of air-channel photovoltaic thermal collectors and evaluation of hydrogen production	<u>Erdem Çiftçi</u> Murat Öztürk
<b>18:20-18:40</b>	Ultra-low NOx emissions and increased power in a	<u>Berre Kumuk</u>

combustor-SOFC System under CDC conditions		
19:30 GALA DINNER		
<b>30 Oct 2024 Wednesday</b>		
Session 8 (Hall A)	Thermal-Hydraulic and Energy Storage	<b>Chairman:</b> Gulnur Tyulepberdinova
<b>09:40-10:00</b>	Safety design technologies for sodium-cooled fast reactor coupled to thermal energy storage system with sodium-molten salt heat exchanger	<u>Hidemasa Yamano</u> Kazuya Takano Kenichi Kurisaka Shin Kikuchi Toshiki Kondo Masaaki Hayashi
<b>10:00-10:20</b>	Numerical simulation of underground hydrogen storage in a depleted gas reservoir: Effect of well configurations	Emrah Sarı <u>Erdem Çiftçi</u>
<b>10:20-10:40</b>	Numerical simulation of thermal-hydraulic performance of staggered tube bank with longitudinal triangular fins	<u>Mustafa Söyler</u>
10:40-11:00 Coffee Break		
Session 9 (Hall A)	Renewable Energy and Applications	<b>Chairman:</b> Farimehr Ghanizadeh Geraili
<b>11:00-11:20</b>	Utilizing gamma-irradiated Iranian propolis (bee glue) extract for the synthesis of green silver nanoparticles	<u>Farimehr Ghanizadeh Geraili</u> Seyed Mahmoud Reza Aghamiri Marzieh Heidarieh
<b>11:20-11:40</b>	Heat pump system of renewable energy sources utilization as a basis for the development of a digital twin	<u>Gulshat Amirkhanova</u> Murat Kunelbayev Gulnur Tyulepberdinova Madina Mansurova Baurzhan Amirkhanov
<b>11:40-12:00</b>	Experimental studies of a double-circuit solar installation with thermosiphon circulation with a heat pump	<u>Gulnur Tyulepberdinova</u> Murat Kunelbayev Gulshat Amirkhanova Ardak Tolepberdinova
12:00- 12:20 Planery Session 6 Closing Talk ( <b>Prof. Dr. H. Mehmet Şahin</b> )		
13:00-14:00 LUNCH		