



# THE SECOND SAUDI INTERNATIONAL CONFERENCE ON (NUCLEAR POWER ENGINEERING (SCOPE-2

**Monday, 3 November 2025**

**(Ground-105 - Lecture Hall (13:00 - 14:00/60 - Student Competition: Research Pitch 1-1**

**Conveners: Martina Adorni; Luis E. HERRANZ-**

time	id] title]	presenter
13:00	A Smart Bio-Engineered Spray Using Deinococcus radiodurans for [25140] Worker Radiation Protection and Nuclear Waste Transport	
13:07	Integration of Nuclear Turbine Exhaust with Spiral Wound Membrane [25221] Distillation Systems	
13:14	Damage Modeling Of Pipe Impact Under Pipe Whip Failure Conditions [25312]	
13:21	Modelling the Consequences of SGTR Accident Scenarios in a Typical [25314] PWR with the MELCOR Code	
13:28	Preliminary Risk Assessment of Nuclear-Integrated Hydrogen Systems [25187]	
13:35	Techno-economic Analysis on Converting Retiring Coal Plants into [25207] Nuclear	
13:42	GAMOWS (Gadjah Mada Monitoring Early Warning System): An Early [25289] Warning System Module with Intelligent Evacuation System Based on Artificial Intelligence of Things to Support Nuclear Facility Systems	

**(Ground-106 - Lecture Hall (13:00 - 14:00/60 - Student Competition: Research Pitch 1-2**

**Conveners: Tomasz Kwiatkowski; Konstantin Nikitin-**

time	id] title]	presenter
13:00	Multi-Criteria Decision Analysis for Selecting the Optimal Gen-IV Small [25142] Modular Reactor for Saudi Arabia	
13:07	The Development of Nuclear Core Management Optimization Codes for [25273] Innovative Small Modular Reactor i-SMR	
13:14	Reinforcement Learning-Based Optimization of NuScale Power Module [25274] Fuel Assembly Design: A Novel Physics-Informed Approach Using Proximal Policy Optimization	
13:21	Evaluation of Reflector Drums as an Alternative Control Mechanism in [25329] PWR-based Small Modular Reactors	
13:28	Nuclear Steam Cogeneration Industrial Growth [25146]	
13:35	Load-Following Control of a VVER□1000 Reactor Using a [25151] Takagi-Sugeno Fuzzy PID Sliding Mode Composite Controller Based on a Validated Nonlinear Multipoint Kinetic Model via Lyapunov Approach	
13:42	The application of SMRs for seawater desalination as a source of [25419] potable water in the Kingdom of Saudi Arabia	
13:49	Evaluation of the Use of the Moving Particle Semi-implicit Method in [25433] Simulating the Centralized Sloshing Phenomenon SFR	

**(Ground-105 - Lecture Hall (14:15 - 15:26/60 - Student Competition: Research Pitch 1-3**

**Conveners: Leon Cizelj; Michael Ojovan-**

time	id] title]	presenter
14:15	Hydrogen Build-Up Mitigation in Nuclear Reactor Vessels [25191]	
14:22	Numerical Modelling of Flow Induced vibrations in Nucelar fuel rods [25281]	
14:29	Computational Analysis of Turbulence Effects on Flow-Accelerated [25173] Corrosion in 90° Elbow Configuration	
14:36	Assessment of validation metrics for thermal-hydraulic system codes [25202] within OECD/NEA ATRIUM project	
14:43	Analysis of Fluid Flow Uniformity in Molten Salt Reactor – Repowering [25242] using CFD	
14:50	Computational Investigation of Flow-Induced Vibration in Nuclear Fuel [25171] Rods: Effects of Flow Velocity and Turbulence Models	
14:57	Exploring thermal hydraulics characteristics of hybrid TiO <sub>2</sub> -Cu/Water [25349] nanofluid in a triangular array of PWR subchannel using ANSYS Fluent	
15:12	CFD Study on Smooth Stratified to Wavy Stratified Flow in Horizontal [25229] Two-Phase Flows: Diameter-Dependent Scaling Laws and Pressure Drop	
15:19	Evaluation of the Use of the MPS Method in Simulating the Centralized [25258] Sloshing Phenomenon in an SFR Reactor	

**(Ground-106 - Lecture Hall (14:15 - 15:26/60 - Student Competition: Research Pitch 1-4**

**Conveners: Mariusz Dąbrowski; Timothy Hunter-**

time	id] title]	presenter
14:15	Solid-Liquid Separation of Radwaste Suspensions Using [25240] Polyacrylamide Flocculation Agents	
14:22	Research Gaps and Strategic Opportunities in High Integrity Container [25270] Technology for Radioactive Resin Waste in Developing Countries	
14:29	Advanced Multi-Objective Optimization of Nuclear Fuel Disposal: A [25280] Comparative Study of Exact and Heuristic Algorithms	
14:36	Investigating cesium's relative bioavailability and bioaccessibility in [25177] contaminated concrete following single-dose exposure	
14:43	Project Management Strategies for Managing Low to Moderate Nuclear [25295] Incidents in Saudi Arabian Nuclear Power Plants	
14:50	Industrial Waste As a Secondary Source of Rare Earth Elements for [25130] Nuclear Fuel Applications	
14:57	Effect of Pellet-Cladding Interaction on the Structural Behavior of Spent [25179] Nuclear Fuel Cladding	
15:04	A Smart Bio-Engineered Spray Using Deinococcus radiodurans for [25381] Worker Radiation Protection and Nuclear Waste Transport	
15:19	Industrial Waste As a Secondary Source of Rare Earth Elements for [25428] Nuclear Fuel Applications	

# Tuesday, 4 November 2025

**(Ground-105 - Lecture Hall (10:00 - 11:00/60 - Student Competition: Research Pitch 2-1****Conveners: Lewis Blackburn; Omar Al-Yahya-**

time	id] title]	presenter
10:00	Thermal Analysis of the Dual-Cooled Lead-Lithium Blanket in a Fusion [25327] System	
10:07	Numerical Evaluation of Turbulent Mass Transfer in Separated Flows [25326] for the Prediction of Flow-Accelerated Corrosion	
10:14	Exploring thermal hydraulics characteristics of hybrid TiO <sub>2</sub> -Cu/Water [25305] nanofluid in a triangular array of PWR subchannel using ANSYS Fluent	
10:21	Numerical Investigation of Heat Transfer from Tube Banks to Simulate [25301] Secondary Loop in Small Modular Reactor	
10:42	Optimization of Flow Uniformity in a 300 MWth Molten Salt Reactor for [25400] Coal Plant Repowering Using CFD	
10:49	Simulation Analysis of the flow characteristics during Solidification [25416] process of PCM	

**(Ground-106 - Lecture Hall (10:00 - 11:00/60 - Student Competition: Research Pitch 2-2****Conveners: April Novak; Rosa Lo Frano-**

time	id] title]	presenter
10:00	Radiation-induced modification of the properties of starch:PVA and [25127] starch:PVA:cellulose nanocrystals films composition. The effect of the starch component	
10:07	Optimization of Radiation Shielding in TNG-40 Using Machine [25206] Learning-Enhanced Monte Carlo Simulations	
10:14	Relationship Between 3D Printing Direction and Gamma [25159] Radiation-Shielding Performance	
10:21	– "Neutron Imaging for nuclear and radiological security in Bangladesh" [25238] Prospects and Possibilities	
10:28	Optimization of the ionization chamber structure for nuclear radiation [25244] measurement system	
10:35	Irradiation Dose and Temperature Effects in Tungsten Carbide Fusion [25110] Reactor Shielding	
10:42	Developing Polymer Compounds for Effective Radiation Shielding Using [25373] Nuclear Techniques for Medical Applications	
10:49	Analysis of Conformational Changes in Calf Thymus DNA Induced by [25423] Ionizing Radiation from a <sup>137</sup> Cs Source Using UV Spectroscopy and CD Spectroscopy	

**(Ground-105 - Lecture Hall (11:00 - 12:00/60 - Student Competition: Research Pitch 2-3****Conveners: Emilio Baglietto; Tomasz Kwiatkowski-**

time	id] title]	presenter
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11:00	The role of small modular reactors in hybrid electricity systems to [25346] achieve a circular carbon economy	
11:07	Evaluation of a Small Subcritical Hybrid Reactor for Transuranic [25341] Transmutation	
11:14	Verification of CUPID-MSR for Molten Salt Nuclear Reactor Fluid [25345] Design	
11:28	The Effect of Control Rod Position On Control Rod Worth In Gama [25395] Micro Space Reactor	
11:35	Heterogeneous Core Simulation of the MSRE Using a CAD Model and [25399] High Density Moderator in OpenMC	
11:42	Prediction Of The Effective Multiplication Factor Of The Fuji-U3 Molten [25425] Salt Reactor Using Artificial Neural Networks Based On Monte Carlo Simulations With OpenMC	
11:49	HTGR core simplified modelling with Monte Carlo code [25437]	

**(Ground-106 - Lecture Hall (11:00 - 12:00/60 - Student Competition: Research Pitch 2-4**

**Conveners: Iztok Tiselj; Jure Oder-**

time	id] title]	presenter
11:00	Pressurized Thermal Shock in Pressurized Water Reactor [25294]	
11:07	A Sustainable IoT-Based Monitoring Architecture for Radioactive Waste [25317] Management Across Its Lifecycle	
11:14	Lightweight and Lead-Free Radiation Shielding: LDPE Composites [25370] Reinforced with Cement and Bismuth Oxide	
11:21	A Systems-Theoretic Approach to Dynamic Risk Assessment of [25388] Blended Threats in Nuclear Facilities	
11:28	Deep Learning Approach for Accurate Wind Profile Prediction in TRIGA [25393] Bandung Site as Safety-Related and Resilience Trustworthy Decision-Making	
11:35	Wind Profile Analysis in TRIGA Bandung Nuclear Installation by [25394] Machine Learning as Site Safety-Related Decision-Making Resources	
11:42	High-Fidelity Transient Simulation of Reactivity-Initiated Accident [25430] Scenarios in SPERT III-E Reactor Using Coupled Serpent-SUBCHANFLOW Scheme	
11:49	Thermal Performance Modeling of Deep Geological Repositories for [25438] High-Level Nuclear Waste in Bangladesh	

**(Ground-105 - Lecture Hall (14:45 - 15:45/60 - Student Competition**

**Conveners: Andrea Pucciarelli; Agnieszka Boettcher-**

time	id] title]	presenter
14:45	Synthesis and Characterisation of Ce-doped Zirconolites Formed by [25343] Reactive Spark Plasma Sintering	
14:52	RVE Analyses of Zirconium Alloy with Hydride Inclusions under Varing [25178] Temperature Conditions	
14:59	Investigation Of Detection Performances Of Cadmium Zinc Telluride [25291] CdZnTe) Radiation Detectors By Doping With Se,In,Bi, and Pb)	

15:06	CrNb Coating System as a Novel Near-Term Accident Tolerant Fuel [25279] Solution for Boiling Water Reactors	
15:13	Influence of Dynamic Strain Aging (DSA) on Tensile Behavior in FeCrAl [25320] APMT® Alloy	
15:20	Impact of Coconut Shell Ash on the Gamma Radiation Shielding [25401] Properties of Borotellurite Glass System	
15:27	Enhancing the ionized radiation shielding, mechanical, and structure [25450] features of bismuth-reinforced tin-based alloys: Comparative investigation	