

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

Monday, 3 November 2025

**Ground-104 - Lecture Hall/60 - Fusion and Advanced Reactors: Light Water SMRs and Supercritical Fluids Applications
(14:00 - 13:00)**

Conveners: OKSANA SHIMAN; Andrea Pucciarelli-

time	id] title]	presenter
13:00	Stress Analysis of Inlet Cross-Flow Fitting Component for the Canadian [25194] SCWR Concept	
13:15	Reinforcement Learning-Based Optimization of NuScale Power Module [25266] Fuel Assembly Design Using Proximal Policy Optimization and CASMO Neutronics Simulation	
13:30	KE-100: Pressurized Water Cooled Small Modular Reactor Benchmark [25369]	

Tuesday, 4 November 2025

(Ground-103 - Lecture Hall (11:00 - 12:00/60 - Fusion and Advanced Reactors: Micro Reactors Applications

Conveners: Husam Khalefih; Mariusz Dąbrowski-

time	id] title]	presenter
11:00	Invited Talk: Polish Advanced Modular Reactor HTGR-POLA: basic [25351] applications on land, and possible extensions at sea and in space	
11:20	Stability optimization and dynamic analysis of active magnetic bearing [25271] rotor system in mobile micro-reactor	
11:35	Engineering Challenges in Nuclear Electric Propulsion for Deep Space [25158] Missions	

(Ground-101 - Lecture Hall (13:00 - 14:30/60 - Fusion and Advanced Reactors: Advanced Reactors II

Conveners: Reem Alnuaimi; Husam Khalefih-

time	id] title]	presenter
13:00	:Comparative Analysis of Neutronic D-T and Aneutronic p- ¹¹ B Fusion [25197] Neutron Flux, Material Damage, Activation and Shielding Requirements	
13:15	Enabling Extended Space Missions with Advanced Liquid-Core Nuclear [25218] Thermal Rocket	
13:30	Neutronic Modelling of a Low Power Research Reactor Using OpenMC [25276]	
13:45	Development and Validation of an OpenMC-Based Neutronic Model of [25300] the OPAL Research Reactor for Research and Educational Applications	
14:00	Neutronic Feasibility Study of Dual-Cooled Annular Duplex PuO ₂ -ThO ₂ [25148] Fuel for Next-Generation PW-SMRs: Assembly Level Analysis	

Wednesday, 5 November 2025

(Ground-103 - Lecture Hall (09:30 - 11:00/60 - Fusion and Advanced Reactors: Fusion Technologies

Conveners: Francesco Galleni; Bostjan Koncar-

time	id] title]	presenter
09:30	Invited Talk: Heat removal challenges in the divertor of [25459] nuclear fusion reactors	Dr KONCAR, Bostjan
09:50	Using Universal Machine Learning Interatomic Potentials for Irradiation [25107] Damage Modeling in RAFM Steels for Fusion Applications	
10:05	Numerical activities using STH codes to support the WCLL BB in-box [25251] LOCA experimental campaign for fusion reactors safety	
10:20	Technoeconomic analysis of High Temperature Gas-cooled Reactors [25318] for industrial steam production based on Levelized Cost Assessment and multi-agent trading simulations	
10:35	An Economic Evaluation of Hydrogen Production from Small Modular [25463] Molten Salt Reactor by Using HEEP	