

DAY 1 – THURSDAY 5th November	
08:00 – 08:35	REGISTRATION, REFRESHMENTS and NETWORKING
08:35 – 08:45	OPENING and WELCOME Prof. Ali Tehrani (Conference Chair)
SESSION 1 Chair: Prof. Ali Tehrani – Office for Nuclear Regulation	
08:45 – 09:10	Keynote 1: Brian Matthews Founder and Chief Executive Officer of AMPERA
09:10 – 09:30	1.1 AI Surrogate-Accelerated Reliability Analysis for FEM Workflows N. Callow, A. Kyrieleis, K. Fitzgerald, J. Horne-Jones Amentum, UKAEA
09:30 – 09:50	1.2 A Novel Application of the ALEPH2 Burn-up and Activation Code to the MINERVA Linear Proton Accelerator Facility E. Ramoisiaux, V. Baena, A. Stankovskiy, E. Delvaux, A. Fabich, S. Van Damme The Binding Energy, SCK CEN
09:50 – 10:10	1.3 Atomistic Insight into the Interactions of Small Molecules with PuO₂ Surfaces L. Kiltinavicius, J. Flitcroft, J. Skelton University of Manchester
10:10 – 10:30	1.4 Design and Development of a Low-Current Electrometer for LINAC Transmission Ion Chamber Dose Monitoring A. Saleem PIEAS
10:30 – 10:45	BREAK
SESSION 2 Chair: Prof. Paul Smith – Amentum UK	
10:45 – 11:10	Keynote 2: Professor Luis E. Herranz Head of the Nuclear Safety Research Unit (CIEMAT) and Research Professor, Polytechnique University of Madrid (UPM) <i>Severe Accident Modelling Capabilities: Experiences from Fukushima Daiichi Analyses</i>
11:10 – 11:30	2.1 Development and Validation of a Vectorised User Material Subroutine (ManVUMAT) for Explicit Finite Element Analysis V. Zolotarevskiy, G.N. Hall, A.N. Jones University of Manchester
11:30 – 11:50	2.2 Fit for Purpose Modelling – When is Good Enough, Good Enough? A. Little ONR
11:50 – 12:10	2.3 Digital Twin Development for Breeder Blanket Systems: Bridging Physics and Engineering N. Callow, E. Wilkinson, M. Brown, E. Norfield, L. Ahmed, A. Kyrieleis, Z. Parker Amentum
12:10 – 12:30	2.4 FINDER (Fissile INventory DETection and Reconstruction): A Modelling Framework for In-Situ Fissile Material Characterisation in Nuclear Decommissioning J. Wright Sellafield Ltd
12:30 – 12:50	2.5 Development of Numerical Modelling Approaches for Accurate Prediction of Natural Circulation Loops R. Petty, C. Katsamis, T. Craft, H. Iacovides, D. Wilson University of Manchester, EDF UK
12:50 – 14:00	GROUP PHOTO, LUNCH, POSTER SESSION and NETWORKING
14:00 – 14:35	PANEL DISCUSSION Chair: Dr Mark Bankhead Panellists: Dr John Jones, Prof. Chris Pain, Kuran Basra, Prof. Paul Smith

SESSION 3: Early Careers Session 1 Chair: Dr John Jones – Fairlie Associates	
14:35 – 14:55	3.1 AGRIGID Modelling of Observed and Postulated Segment Bowing J. Trotter, N. Solanki, D. Broadbent, J. Melia, C. Minors Amentum
14:55 – 15:15	3.2 A Multi-Objective Optimisation Algorithm for Nuclear Micro-reactor Radiation Shielding Design with Geant4 T. Kimber, J. Spiga Loughborough University
15:15 – 15:35	3.3 Architectural Systems Modelling for Nuclear Facility Resilience: The Layered Compartmentalized Defensive Environments (LCDE) Framework** K. Cooper Kayla Cooper Design
15:35 – 15:55	3.4 Automatic Diagnosis of Fission Source Convergence in MONK® G. Bradshaw Amentum
15:55 – 16:10	BREAK
SESSION 4 Chair: Prof. Christopher Pain – Imperial College London	
16:10 – 16:35	Keynote 3: Dr. Davide Mancusi Nuclear Scientist, OECD/Nuclear Energy Agency (NEA) <i>Harnessing the Power of Artificial Intelligence for Nuclear Science, Engineering, and Education</i>
16:35 – 16:55	4.1 HYDRA: An Innovative Modular Framework for Integrated Monte Carlo Transport and Activation Modelling E. Ramoisiaux, W. Uyttenhove, D. Van Dyck, E. Forton, E. Gnacadja, L. Engelen, F. Stichelbaut The Binding Energy, IBA
16:55 – 17:15	4.2 Initial Adoption of AI for ODIN Reactor Design S. Boddington Cambridge AtomWorks
17:15 – 17:35	4.3 Meteor: A Monte Carlo Criticality Code F. Fleurot Nuclear Transport Solutions
17:35 – 17:55	4.4 PWR Reactor Core – A History of Design Optimisation J. Jones & A. Tehrani Fairlie Associates & ONR
17:55 – 18:00	DAY 1 CLOSING REMARKS

DAY 2 – FRIDAY 6th November	
08:00 – 08:30	COFFEE and NETWORKING
SESSION 5 Chair: Dr Andrew Buchan – Queen Mary University of London	
08:30 – 08:55	Keynote 4: Prof. Panagiota Angeli Department of Chemical Engineering, UCL <i>Digitalisation of Separations Related to Nuclear Industry</i>
08:55 – 09:15	5.1 Numerical Insights of the Two-Phase Cross-Flow Inside an In-Line 5x5 Tube Bundle Configuration and Data Driven Modelling C. Katsamis, B. Kakimpa, F. De Freitas, E. Iyamabo EDF UK R & D, OneEpsilon, EDF R & D
09:15 – 09:35	5.2 Optimisation of the Cogeneration of Electricity and Heat from the Power Cycles of Generation-IV Nuclear Reactors for HTSE and SAF Production C. Connolly United Kingdom National Nuclear Laboratory
09:35 – 09:55	5.3 Probabilistic Modelling of Potential Cracking Pathways in AGR Graphite Cores A. Farrokhnia, A. N. Jones, G. N. Hall University of Manchester
09:55 – 10:15	5.4 Multi-Physics Modelling of Tritium Generation and Transport in Molten-Salt Breeder Systems L. Sharp, D. Foster, H. Brooks UK Atomic Energy Authority
10:15 – 10:30	BREAK
SESSION 6 Chair: Prof. Panagiota Angeli – Department of Chemical Engineering, UCL	
10:30 – 11:50	6.1 Radiation Transport Modelling at Rolls-Royce SMR L. Armson Rolls-Royce SMR
10:50 – 11:10	6.2 Review of the University of Manchester Research on Flow-Induced Vibrations for Nuclear Reactor Applications H. Iacovides, M.R.A. Nabawy, A. Cioncolini, L. Hao, T. Craft University of Manchester, Guangdong Technion - Israel Institute of Technology (GTIIT)
11:10 – 11:30	6.3 Simulation Supported Design and Development for Radiation Imaging Systems M. A. Macleod Innovative Physics Ltd
11:30 – 11:50	6.4 Surrogate-Based Inverse Design of Porosity-Graded TPMS Cooling Channels for Small Modular Reactors S. Mirfasihi, A. Sadat Madani, A. Keshmiri Mansim
SESSION 7: Poster Walking Presentations	
11:50 – 12:20	Walking Posters (2 mins each)
12:20 – 13:30	LUNCH, POSTER SESSION, and NETWORKING
SESSION 8: Early Careers Session 2 Chair: Dr Amir Nourian – University of Salford	
13:30 – 13:55	Keynote 5: Prof. Mike Smith Professor of Welding Technology at the University of Manchester <i>Multi-scale Modelling of Structural Components: Vital Tool or Plausible Rubbish?</i>
13:55 – 14:15	8.1 Bottom-Up Techno-Economic Modelling of the ACP100 Small Modular Reactor M. Yan, P.S. Lee, T.L Chng National University of Singapore

14:15 – 14:35	8.2 Engineering, Physical and Thermohydraulic STAR-PLUS(M) SMR Core Modelling, using Ducted Assembly Steady-State Heat Transfer Software (DASSH) S. Hammachi, P. Petkov Aalto University, Sofia University
14:35 – 14:55	8.3 Simulation Based Investigation of Novel Shielding Materials for Fusion E. Wilkinson, G. Moore, P. Sherlock, O. Goodwin, S. Daudia, S. Thornley-Hayes, A. Harrison, H. Staley-Wiggins Amentum
14:55 – 15:15	8.4 The Use of Machine Learning Models for the Automation of Microreactor Process Control S. Srikumar Cavendish Nuclear
15:15 – 15:30	BREAK
SESSION 9 Chair: Prof. Ali Tehrani – Office for Nuclear Regulation	
15:30 – 15:50	9.1 The Development of the Reactor Operation Simulation Environment (ROSE), a Whole Plant Transient Analysis Capability S. Lee, M. Kallo Rolls-Royce SMR
15:50 – 16:10	9.2 Theoretical Characterisation of Zirconolite's Vibrational Spectra J. Flitcroft, L. Blackburn, J. Skelton, L. Kiltinavicius, L. Haigh University of Manchester, University of Sheffield
16:10 – 16:30	9.3 Validation of EDF UK neutronics modelling using the NEA LW-SMR benchmark T. Taylor, J. Brotherton, R. Aldred, K. Lessnoff, P. Bryce EDF UK
16:30 – 16:50	9.4 High-fidelity CFD of Flow and Heat Transfer in an Idealised Pebble-Bed HTGR Geometry D. Wilson, H. Iacovides, E. Iyamabo, C. Katsamis University of Manchester, EDF R &D UK
16:50 – 17:00	CLOSING REMARKS and FEEDBACK

POSTERS	
Poster 1	Consideration of Cavitation in CFD Modelling and Optimisation of Pump Inducers for Cooling-System Applications A. Keshmiri, P. Talebizadeh Sadari, A. Deyranlou Mansim
Poster 2	Engineering-Scale Modelling of High-Temperature Creep and Crack Growth at ASTM A297 Reformer Tubes Using MOOSE J. Kchrezne Bang As, University of New Mexico
Poster 3	ERT Validated CFD Prediction of High Viscosity Contrast Mixing: A Transferable Framework for Nuclear Processing and Waste Facilities S. Mirfasihi, A. Keshmiri Mansim
Poster 4	Exploring Source Term Uncertainty for Nuclear Power Plant Accidents I.Jadav, A. Little Met Office, ONR
Poster 5	Extending the Calibrations of a Cf-shuffler Aystem Using Monte Carlo Modelling of Outlier Waste Types C. Binnersley, G. White Mirion Technologies
Poster 6	First Principles Modelling of a Complex Unit Operation for Nuclear Reprocessing Design Using gPROMS E. McCann, E. Charakleias, A Siddiqi DBD International, Siemens Industry Software Ltd
Poster 7	Modelling Coated Particulate Fuels M. Thomson, F. Fleurot Nuclear Transport Solutions
Poster 8	Overview of Modelling Requirements and Applications in the STEP Fuel Cycle S. Oyenuga UK Atomic Energy Authority
Poster 9	Trustworthy AI for Nuclear Modelling: Uncertainty-Aware Surrogates Across the Life Cycle K. Basra, C, Cowley, D. Greenhouse, N. Papadimas, A. Corbett digiLab
Poster 10	Using Artificial Intelligence to Automate Fault Tree and Event Tree Development K. Smith Assystem
Poster 11	Value of Discrete Event Simulation in Spent Fuel Management O. Boardman, J. South UKNNL