



EMUG

15th Meeting of the European MELCOR and MACCS User Group (EMUG)

15th - 18th April 2024

Sapienza University of Rome, Italy

Meeting Location: Palazzo Baleani, C.so Vittorio Emanuele II, 244, Rome, 00186, Italy

Day 1: Monday, 15th of April – MELCOR meeting

Time	Title	Speaker
8:30 – 9:00	Registrations	
9:00 – 9:05	Institutional greetings from Sapienza Deputy Rector for Research	Maria Sabrina Sarto, Sapienza Univ. Of Rome
9:05 – 9:20	The Sapienza University Nuclear Engineering Research Group and current perspectives of nuclear energy in Italy	Prof. Gianfranco Caruso, Sapienza Univ. Of Rome
9:20 – 9:30	US-NRC Codes in Italy: National Overview	Nadia Cipriani, ISIN

Session 1: Overview of activities		Chairperson: Mateusz Malicki
9:30 – 10:05	ENEA Activities in the Field of Severe Accidents by Using MELCOR Code	Fulvio Mascari, ENEA
10:05 – 10:35	EDF MAAP activities	Jeremy Bittan, EDF
10:35 – 10:50	Latest Experiences with MELCOR 2.2: An Overview of Applications, Issues and Challenges	Monica Garcia, CIEMAT
10:50 – 11:20	Coffee Break	

Session 2: MELCOR-fusion applications		Chairperson: Matteo D'Onorio
11:20 – 11:35	Overview of MELCOR activities in the frame of the EUROfusion consortium	Matteo D'Onorio
11:35 – 11:55	Deterministic analyses in support of nuclear fusion system/facilities design	Danilo Nicola Dongiovanni, ENEA



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11:55 – 12:15	Development of a model for analyzing LOCA scenarios involving lithium spills in fusion applications	Manuel Perez, CIEMAT
12:15 – 14:00	Lunch	
14:00 – 14:20	MELCOR application for accidental analysis in Fusion (online)	Samad Khani Moghanaki, UKAEA

Session 3: MELCOR Users' Workshop 1/4		
14:20 – 15:20	USNRC/SNL Introductions and MELCOR Overview	
15:20 – 15:50	Coffee Break	
15:50 – 16:50	Recent SNAP development	
16:50	Adjourn	



Day 2: Tuesday, 16th of April – MELCOR meeting

Time	Title	Speaker
8:30 – 9:00	Registrations	

Session 4: MELCOR Users' Workshop 2/4

09:00 – 10:00	Advanced Control Function Topics	
10:00 – 10:30	MELCOR Materials I	
10:30 – 11:00	Coffee Break	
11:00 – 11:30	MELCOR Materials II	
11:30 – 12:30	Radionuclide Release Modeling	
12:30 – 14:00	Lunch	

Session 5: MELCOR Users' Workshop 3/4

14:00 – 15:00	Radiant Heat Transfer Modeling (1/2)	
15:00 – 15:30	Coffee Break	
15:30 – 16:30	Containment Modeling	
16:30 – 17:00	CAV/LHC Modernization	
17:00	Adjourn	

19:00	Social Dinner	
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Day 3: Wednesday, 17th of April – MELCOR meeting

Session 6: MELCOR Users' Workshop 4/4		
9:00 – 10:00	HTGR Development and Benchmarking/Validation	
10:00 – 10:30	MELCOR/ORIGEN Integration	
10:30 – 11:00	Coffee Break	
11:00 – 11:30	MELCOR Distribution and Bug Reporting	
11:30 – 12:00	Wrap Up	

Session 7: iPWR and integral analysis		Chairperson: David Luxat
12:00 – 12:20	Analysis of the MELCOR capability to Simulate Passive Systems in Integral PWR	Fabio Giannetti, Sapienza Univ. of Rome
12:20 – 14:00	Lunch	

14:00 – 14:30	Core Modelling, Collapse, and Slumping in an EPR Reactor	Matthias Braun, Framatome GmbH
14:30 – 14:50	Analyses of Severe Accident sequences in an integral PWR with passive systems	Marcello Principato, Sapienza Univ. of Rome
14:50 – 15:25	Comparison of a DBA sequence in a generic iPWR between MELCOR and ASTEC codes	Gianmarco Grippo, ENEA
15:25 – 15:35	Photo session	
15:35 – 16:10	Coffee Break	
16:10 – 16:40	Validation of MELCOR natural circulation and condensation based on PANDA experiments – preliminary results	Malicki Mateusz, PSI
16:40 - 17:05	Experience with the recent release of MELCOR at UJV Rez for VVER-1000 analyses with focus on iodine forms in the containment	Miroslav Kotouc, UJV Rez
17:05 – 17:30	Analysis of the DVI-LOCA in the AP1000-like reactor with MELCOR2.1 code (online)	Piotr Darnowski, WUT - Institute of Heat Engineering
17:30	Adjourn	

Day 4: Thursday, 18th of April – MELCOR and MACCS meeting

Session 8: AI and UQ analysis		Chairperson: Leskovar Matjaž
9:00 – 9:25	A Machine Learning approach for Core Damage Frequency estimation with MELCOR and RAVEN	Tommaso Glingler, Sapienza Univ. of Rome
9:25 – 9:50	Uncertainty Analysis of Severe Accident in Krško NPP	Leskovar Matjaž, JSI Ljubljana
9:50 – 10:20	MELCOR code use for uncertainty and sensitivity analysis of severe accident with operator actions (online)	Vorobyov Yuriy, SSTC NRS
10:20 – 11:00	Coffee Break	

Session 9: MACCS Workshop		
11:00 – 12:30	MACCS Overview	Nosek AJ, US-NRC
12:30 – 14:00	Lunch	

14:00 – 15:00	Nearfield Model Updates	Clayton Daniel, SNL
15:00 – 15:30	MACCS-UI	Clayton Daniel, SNL
15:30 – 16:00	Coffee Break	
16:00 – 17:00	MACCS-HYSPLIT Coupling and Benchmark	Clayton Daniel, SNL
17:00 – 17:20	MACCS Questions & Demos	Nosek AJ/ Clayton Daniel

17:20 – 17:30	16th EMUG 2025 announcement	
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17:30	Adjourn/ Final discussion and conclusions/ Closure of the meeting	
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