

MOLTEN SALT REACTOR PROGRAM - ANNUAL REVIEW

APRIL 21-24 , 2026

ALL TIMES ARE MOUNTAIN DAYLIGHT TIME (MDT)



Tuesday, APRIL 21, 2026			
7:00 AM	9:00 AM	Breakfast/ Badge and logistics	Samantha Gregory/Antoinette
8:00 AM	8:10 AM	Welcome - Opening Remarks from NE-5	Janelle Eddins
8:10 AM	8:20 AM	Welcome from SNL representative	David Luxat/SNL
8:20 AM	8:45 AM	Overview of MSR Program	Patricia Paviet/PNNL
Roadmaps - Panel			
8:45 AM	9:45 AM	Overview of the roadmaps Update of the Chemistry Roadmap Off gas Roadmap General Roadmap – short and long-term	Patricia Ted/Tony/Melissa Hunter/Joanna/Praveen Kevin/Melissa
THERMAL PROPERTIES OF MOLTEN SALTS			
09:45 AM	10:15 AM	Measurements of uranium-bearing salt properties.	Tony Birri/ORNL
10:15 AM	10:30 AM	BREAK	
10:30 AM	11:00 AM	Modeling of uranium-bearing salt properties using Ab Initio Molecular Dynamics	Vanda Glezakou/ORNL
11:00 AM	11:30 AM	Thermophysical Properties of Americium Chloride Salt	AJ Swift/LLNL
11:30 AM	12:00 PM	Thermophysical Properties of AmCl ₃ – CaCl ₂ Systems determined via Molecular Dynamics	Manh Thuong Nguyen/PNNL
12:00 PM	1:00PM	WORKING LUNCH BREAK ADVANCED FUEL CAMPAIGN Molten Salt Fuel Focus Area	Toni Karlsson/INL
1:00 PM	1:30 PM	Development Measurement Uncertainty and the Effect of Impurities on Molten Salt Properties	Melissa Rose ANL
1:30 PM	2:00 PM	Update on fluid inclusion characterization, thermophysical property measurements, and U-salt synthesis at PNNL	Kyle Makovsky & Michaela Harris/PNNL
2:00 PM	2:30 PM	Experimental Support to MSTDB Development	Marisa Monreal/Hannah Patenaude/LANL
2:30 PM	3:00 PM	Generation of Molten Salt Thermochemical Properties at USC	Juliano Schorne Pinto & Ted Besmann /USC-ORNL
3:00PM	3:15 PM	BREAK	
3:15 PM	3:45 pm	Reckoning of Salt Precursors, Volatility and Vapor Pressure on Engineered Salt Design its Operational and Reprocessing Moti	Bruce McNamara/PNNL
3:45 AM	4:15 PM	Synthesis and Examination of NaCl-PuCl ₃ -Am Cl ₃ Salt	Toni Karlsson/INL
4:15 PM	4:45 PM	Update on the Databases	Tony Birri and Ted Besmann

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ADJOURN			
4:45 PM	6:30 PM	Closed Session – Preparation of FY 2027	Staff funded by MSR campaign
6:30 PM		No Host Dinner	Suggestions will be given during the workshop

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WEDNESDAY, APRIL 22, 2026			
7:00 AM	8:00 AM	Breakfast and Networking	All
8:00 AM	8:05 AM	Welcome Back	Patricia Paviet/PNNL
OFF GAS MANAGEMENT			
8:05 AM	8:20 AM	Overview of the Technology Development and Demonstration	Joanna McFarlane/ORNL
8:20 AM	8: 50 AM	Salt Loop and Capability for Testing Sensors and Off Gas Components	Kevin Robb/ORNL
8:50 AM	9:20 AM	Bubble behavior in molten salts relevant to MSRs	Daniel Orea/ORNL
9:20 AM	9:50 AM	Actinide Salt Loop and Sensors Development at ANL	Nora Shaheen /ANL
9:50 AM	10:20 AM	On-line Monitoring for MSR Off-Gas Treatment: Molecular approach	Heather Felmy/PNNL
10:20 AM	10:30 AM	BREAK	
10:30 AM	11:00 AM	Laser Induced Breakdown Spectroscopy (LIBS) for elemental monitoring of MSR off-gas streams	Hunter Andrews/ORNL
11:00 AM	11:30 AM	Update on Radiation Exposure Measurements of Metal Organic Framework at PNNL	Praveen Thallapally & Mark Murphy/PNNL
11:30 AM	12:00 PM	Development of fission gas and species transport capabilities in SAM	Bob Salko/ORNL
12:00 PM	12:30 PM	Tritium Transport	Anthony Bowers/INL
12:30 PM	1:30 PM	WORKING LUNCH – Update and Overview of the Energy Frontier Research Center on Molten Salt in Extreme Environments	Jim Wishart/BNL
1:30 PM	2:00 PM	MRTI Irradiation Results	Toni Karlsson/INL
MSR/NEAMS Campaign			
2:00 PM	2:05 PM	Overview	David Andersson, NTD/LANL
NEAMs – MSR Material and Chemistry			
2:05 PM	2:10 PM	NEAMS Structural Materials & Chemistry Overview	Ben Spencer/INL
2:10 PM	2:25 PM	Atomistic simulations for thermophysical properties of molten salts	Gaoxue Wang/LANL
2:25 PM	2:40 PM	Reactive Multiphase Flow Modeling with MOSCATO	Nathaniel Hoyt/ANL
2:40 PM	2:55 PM	Phase-field modeling of corrosion in alloys	Chaitanya Bhavne/INL
2:55 PM	3:10 PM	BREAK	

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NEAMS- Thermal Fluids			
3:10 PM	3:15 PM	NEAMS - Thermal Fluids Overview	Elia Merzari/PSU&ANL
3:15 PM	3:35 PM	Recent SAM enhancements for MSR applications	Travis Mui/ANL
3:35 PM	3:55 PM	Pronghorn enhancements for MSR applications	Mauricio Tano/INL
NEAMS- Multiphysics Application			
3:55 PM	4:00 PM	NEAMS Multiphysics Application Overview	Mauricio Tano/INL
4:00 PM	4:20 PM	Comprehensive modeling of the L-MSR exercising current capabilities	Rodrigo de Oliveira/INL
4:20 PM	4:45 PM	Multidomain multiphysics analysis of transients in the Molten Salt Reactor Experiment: Saline, Pronghorn, SAM, and Griffin	Ramiro Freile/INL
4:45 PM	5:00 PM	Xenon Transport Simulation and Validation with MSRE Data	Ting Fei/ANL
5:00 PM	5:15 PM	Noble metal transport in an MSR heat exchanger with Nek/MOSCATO	Kirk Yuan/ANL
ADJOURN			
5:15PM	5:45 PM	Closing Session – Discussion on FY26/FY27 collaborations between ART MSR & NEAMS	Mauricio Tano/INL
6:00 PM		No Host Dinner	Suggestions will be given during the workshop

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THURSDAY, APRIL 23, 2026			
7:00 AM	8:00 AM	Breakfast and Networking	All
8:00 AM	8:05 AM	Welcome Back	Patricia Paviet
ART MSR- LICENSING AND SAFETY - MODELING & EXPERIMENT			
8:05 AM	8:35 AM	Technology-Based Licensing -MSR Safety	Mauricio Tano Retamales/INL
8:35 AM	9:05 AM	Technology Based Licensing - Mechanistic Source Term Development	Matt Christian /SNL
9:05 AM	9:35 AM	Overview of MSR Accident Testing Activities at Argonne	Sara Thomas/ANL
MSR /ARSS Campaign and MPACT Campaign			
9:35 AM	9:50 AM	Spectroscopy for actinide accountancy	Shirmir Branch/PNNL
9:50 AM	10:05 AM	Voltammetry for actinide accountancy	Nathan Hoyt/ANL
10:05 AM	10:20 AM	MSR Safeguards Approach	Karen Hogue/ORNL
10:20 AM	10:35 AM	Break	
10:35 AM	10:50 AM	Physical Security of MSR	Alan Evans/SNL
10:50 AM	11:05 AM	MSR fuel fabrication facilities MC&A	Francisco Parada/ORNL
11:05 AM	12:00 PM	MSR Off gas - Discussion	Hunter Andrews/ORNL
12:00 PM	1:00 PM	WORKING LUNCH Introduction to High Temperature System Design	Dan Barth/President& and Brian Barth/VP Arbor Halide and High Temp Systems Design
1:00 PM	1:30 PM	Graphite/Salt Interaction	Nidia Gallego/ORNL
MSR/AMMT Campaign			
1:30 PM	1:35 PM	Introductory Remarks	Patricia Paviet
1:35 PM	2:15 PM	AMMT program overview	Meimei Li/ANL
2:15 PM	2:45 PM	The critical role of alloy chemistry and microstructure on the corrosion behavior and mechanical properties of structural alloys in molten halide salts	Rishi Pillai/ORNL
2:45 PM	3:05 PM	Challenges of additively manufactured materials under molten salt corrosion	Jahangir Lodhi/INL
3:05 PM	3:25 PM	Corrosion kinetics of structural materials in molten chloride environments	Thomas Hartmann/PNNL

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3:25 PM	3:40 PM	BREAK	
3:40 PM	4:10 PM	Chloride salt flow loop and corrosion studies	Ruchi Gakhar/INL
4:10 PM	4:30 PM	Surveillance testing program for advanced reactors	Xinchang Zhang/INL
4:30 PM	4:50 PM	Materials surveillance technology development	Bipul Barua/ANL
4:50 PM	5:10 PM	Ni-based alloys for molten salt applications	Sebastien Dryepondt/ORNL
5:10 PM	5:25 PM	Discussion and Wrap Up	All
5:25 PM	5:30 PM	Concluding Remarks	Janelle Eddins & Patricia Paviet
ADJOURN			

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FRIDAY. APRIL 24			
6:00 AM	6:45 AM	Breakfast	
7:00 AM	1:00 PM	Tours of Sandia Facilities and Kairos Power Departure from the hotel	Matt Christian/SNL
THANK YOU			