

Advanced Manufacturing for Nuclear Workshop & Advanced Methods for Manufacturing Annual Program Review

Oak Ridge National Laboratory
 Manufacturing Demonstration Facility
 2360 Cherahala Blvd,
 Knoxville, TN 37932

December 4-6, 2018



AGENDA

Day 1 – Tuesday, December 4, 2018

Time	Topic	Chair /Presenter
The Vision For Advanced Manufacturing In Nuclear		GAIN - Chair
8:00 AM	➤ Arrival and Badging	
8:30 AM	➤ Objective of Workshop	A. Worrall, GAIN
8:40 AM	➤ AMM Program Direction	A. Caponiti, DOE-NE
9:00 AM	➤ GAIN Initiative Direction	R. Baranwal, GAIN
9:20 AM	➤ Where Is Advanced Manufacturing Heading?	S. Babu, UT/ORNL
9:50 AM	➤ Welcome and Overview	A. Icenhour, ORNL
10:00 AM Break/Networking		
10:30 AM	➤ Advanced Manufacturing of Materials for Extreme Environments	R. Dehoff, ORNL
10:50 AM	➤ NRC Perspectives on Advanced Manufacturing	J. Christensen, NRC
11:10 AM	➤ Commercial Application of Additive Manufacturing for Aerospace	B. Thompson, GE
11:30 AM	➤ Advanced Manufacturing in Defense	J. Wolk, SeaNav
11:50 AM Working Lunch “Food for Thought”		
	➤ Advanced Manufacturing at ORNL including MDF Business and Operating Model	C. Blue, ORNL
Tours		
1:20 PM	➤ Manufacturing Demonstration Facility 2 & 3 Tours	
Advanced Manufacturing And The Supply Chain		NIC - Chair
2:20 PM	➤ Industry Vision for Advanced Manufacturing in Nuclear	D. Blee, NIC / M. Nichol, NEI
2:50 PM	➤ SMR Supply Chain Readiness	S. Wolbert, NuScale
3:10 PM	➤ Non-LWR SMR Supply Chain Readiness	R. Rickman, Terrestrial
3:30 PM Break/Networking		
4:00 PM	➤ PANEL: Manufacturers Interest In Advanced Manufacturing	NIC - Chair
5:00 PM	➤ Summarize Day	A. Worrall, GAIN
5:15 PM Adjourn		
6:00 PM	Reception – Drinks and Light Hors D’oeuvres	Hosted by NIC
8:00 PM		

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AGENDA

Day 2 – Wednesday, December 5, 2018

Time	Topic	Chair /Presenter
Advanced Manufacturing – AMM Project Reviews		
		Bruce Landrey, AMM - Chair
8:00 AM	➤ SMR RPV Manufacturing & Fabrication Technology Development	D. Gandy, EPRI
8:40 AM	➤ Development of Low-Temperature Powder Spray for Fuel Cladding	K. Sridharan, University of WI
9:10 AM	➤ Additive Manufacturing of Fuel Assembly Components	G. Pabis / C. Gramlich, NovaTech
9:40 AM	➤ Pulsed Thermal Tomography Non-Destructive Evaluation	A. Heifetz, ANL
10:10 AM	➤ Irradiation Testing of Materials Produced by Additive Mfg.	J. King, Colorado School of Mines
10:40 AM Break/Networking		
11:10 AM	➤ Enhancing Irradiation Tolerance of Steels via Nano-Structuring	H. Wen, ISU/MUST
11:40 AM	➤ Establish an Integrated Advanced Manufacturing Data Science Driven Paradigm for Advanced Reactors	J. Miller / S. Shargots, BWXT
12:10 PM Working Lunch “Food for Thought”		
	➤ Transformational Challenge Reactor (TCR)	J. Cirtain / K. Terrani, ORNL
Tours		
1:40 PM	➤ Manufacturing Demonstration Facility 2 & 3 Tours	
Additive Manufacturing – Other Activities		
		EPRI - Chair
2:40 PM	➤ Data Analytics and Computing for Advanced Manufacturing	Paquit / Plotowski, ORNL
3:10 PM	➤ Feedstock Supply for Additive Manufacturing	D. Novatnak, Carpenter
3:40 PM Break/Networking		
4:10 PM	➤ PANEL - Challenges for Development and Deployment of Advanced Manufacturing	NIC – Chair
5:10 PM	➤ Summarize Day	A. Worrall, GAIN
5:25 PM Adjourn		

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AGENDA

Day 3 – Thursday, December 6, 2018

Time	Topic	Chair /Presenter
	Welding / Joining / Cladding – AMM Project Reviews	Bruce Landrey, AMM – Chair
8:00 AM	➤ Advanced Surface Plasma Nitriding for ATF Cladding	L. Shao, Texas A & M University
8:40 AM	➤ Improving Weld Productivity and Quality Through Real-Time Monitoring	J. Chen, ORNL
9:10 AM	➤ All Position Cladding by Friction Stir Additive Manufacturing	Z. Feng, ORNL
9:40 AM	Break/Networking	
	Qualifying & Certifying Advanced Manufacturing Nuclear Components	Bruce Landrey, AMM – Chair
10:10 AM	➤ ICME and In-Situ Monitoring for Rapid Qualification of Components	D. Gandy, EPRI
10:40 AM	➤ Pre-Fabricated High Strength Rebar and Concrete for Accelerated Construction	Y. Kurama, Notre Dame
11:20 AM	➤ PANEL - Qualifying & Certifying Advanced Manufacturing Nuclear Components	NEI – Chair
12:20 PM	Working Lunch “Food for Thought”	
	➤ Private Public Partnership In Advanced Manufacturing	TBD, Volunteer Aerospace
1:20 PM	➤ Summarize and Close Workshop	A. Worrall / L. Braase, GAIN
1:50 PM	Adjourn	

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ACRONYMS

AMM	Advanced Methods for Manufacturing
ANL	Argonne National Laboratory
ATF	Accident Tolerant Fuel
BWXT	BWX Technologies, Inc.
DOE-NE	Department of Energy-Nuclear Energy
EPRI	Electric Power Research Institute
GAIN	Gateway for Accelerated Innovation in Nuclear
GE	General Electric
ICME	Integrated Computational Materials Engineering
ISU	Idaho State University
LWR	Light Water Reactor
MDF	Manufacturing Demonstration Facility
MUST	Missouri University of Science & Technology
NEI	Nuclear Energy Institute
NIC	Nuclear Industry Council
NRC	Nuclear Regulatory Commission
ORNL	Oak Ridge National Laboratory
RPV	Reactor Pressure Vessel
SMR	Small Modular Reactor
TCR	Transformational Challenge Reactor
UT	University of Tennessee