Webinar Agenda

Advanced Sensors and Instrumentation (ASI)
FY22 Annual Program Review meeting

Monday, October 24, 2022

Session 1: Introduction ***Moderator: Daniel Nichols (DOE)/Pattrick Calderoni (INL)***

10:30 am	*Welcome and opening remarks / ASI Program Overview*	Daniel Nichols, DOE
10:50 am	*ASI Research Activities Overview*	Pattrick Calderoni, INL
11:10 am	*NRC Perspective on Advance Sensors for Nuclear*	Raj Iyengar, NRC
11:30 am	*Nuclear Energy Sensor Database*	Timothy Downing, PNNL

Session 2: Sensors for Irradiation Experiments ***Moderator: Pattrick Calderoni, INL***

12:00 pm	*Irradiation Test - NRAD, TREAT, OSURR & Retractable System*	Joe Palmer, INL
12:30 pm	*Irradiation Test - Gamma Thermometer*	Tony Birri, ORNL
1:00 pm	---------- ***Break*** ----------	
2:00 pm	*Passive Monitors - Silicon Carbide*	Malwina Wilding, INL
2:30 pm	*Passive Monitors - Melt Wires*	Malwina Wilding, INL
3:00 pm	*LVDT*	Kurt Davis (INL), William Spirnock (University of Pittsburgh), Zhangxian Deng (BSU)
3:30 pm	*Mechanical Properties - Strain Gauges*	Mike McMurtrey, INL
4:00 pm	*Deployment and In-Reactor Test of an Instrument for Real-Time Monitoring Thermal Conductivity Evolution of Nuclear Fuels*[1]	Zilong Hua, INL
4:15 pm	*Boise State University - Supporting Activities*	Brian Jaques, BSU
4:45pm	Moderator-led discussion of "Sensors for Irradiation Experiments"	Pattrick Calderoni, INL
5:00 pm	---------- ***Adjourn*** ----------	

[1] NSUF project

*****All Times are Eastern Daylight Time (UTC - 04:00)

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Tuesday, October 25, 2022

Session 3: Sensors for Advanced Reactors ***Moderator: Chris Petrie, ORNL***

10:30 am	*High temperature embedded/integrated sensors (HiTEIS) for remote monitoring of reactor and fuel cycle systems*	Nicholas Garcia, NCSU
11:00 am	*Development of Microwave Resonant Cavity Transducer for Flow Sensing in Advanced Reactor High Temperature Fluids*	Alexander Heifetz, ANL
11:30 am	*Acousto-optic Smart Multimodal Sensors for Advanced Reactor Monitoring and Control*	Michael Larche, PNNL
12:00 pm	*Acoustic Sensors*	Josh Daw, INL
12:30 pm	*Neutron Flux*	Kevin Tsai, INL
1:00 pm	---------- ***Break*** ----------	
2:00 pm	*Optical Fiber*	Austin Fleming, INL
2:30 pm	*Irradiation of optical components of in-situ laser spectroscopic sensors*[2]	Igor Jovanovic, University of Michigan
2:45 pm	*High Fluence Active Irradiation and Combined Effects Testing of Sapphire Optical Fiber Distributed Temperature Sensors*[2]	Kelly McCary, INL
3:00 pm	*Irradiation Behavior of Piezoelectric Materials for Nuclear Reactor Sensors*[2]	Ryan Chesser, OSU
3:15 pm	*Nuclear Thermocouples*	Richard Skifton (INL)/Scott Riley (BSU)
3:45 pm	*Irradiation of Sensors and Adhesive Couplants for Application in LWR Primary Loop Piping and Components*[2]	James Wall, EPRI
4:00 pm	Moderator-led discussion of "Sensors for Advanced Reactors"	Chris Petrie, ORNL
4:15 pm	---------- ***Adjourn*** ----------	

[2] NSUF Project

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Advanced Sensors and Instrumentation (ASI)
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Wednesday, October 26, 2022

Session 4: Sensor Integration ***Moderator: Craig Primer, INL***

10:30 am	*Process Constrained Data Analytics for Sensor Assignment and Calibration*	Rick Vilim, ANL
11:00 am	*Design of Risk-informed Autonomous Operation for Advanced Reactors*	Michael Golay, MIT
11:30 am	*Cost-Benefit Analysis through Integrated Online Monitoring and Diagnostics*	Dave Grabaskas, ANL
12:00 pm	*Development of a Radiation-Tolerant Front-End Digitizer*	Callie Goetz, ORNL
12:30 pm	*Advanced Online Monitoring and Diagnostic Technologies for Nuclear Plant Management, Operation, and Maintenance*	Daniel Cole, University of Pittsburgh
1:00 pm	---------- ***Break*** ----------	
2:00 pm	*Context-Aware Safety Information Display for Nuclear Field Workers*	Pingbo Tang, Carnegie Mellon University
2:30 pm	*Gallium Nitride-based 100-Mrad Electronics Technology for Advanced Nuclear Reactor Wireless Communications*	Kyle Reed, ORNL
3:00 pm	*Understanding Irradiation Behaviors of Ultrawide Bandgap Ga_2O_3 High Temperature Sensor Materials for Advanced Nuclear Reactor Systems*[3]	Ge Yang, NCSU
3:15pm	*Research plan for advanced controls development as part of ASI*	Jake Farber, INL
3:45 pm	*Design and Prototyping of Advanced Control Systems for Advanced Reactors Operating in the Future Electric Grid*	Roberto Ponciroli, ANL
4:15 pm	*Analytics-at-scale of Sensor Data for Digital Monitoring in Nuclear Plants*	Vivek Agarwal, INL
4:45 pm	Moderator-led discussion of "Sensors Integration"	Craig Primer, INL
5:00 pm	---------- ***Adjourn*** ----------	

[3] NSUF Project

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Advanced Sensors and Instrumentation

Webinar Agenda

Advanced Sensors and Instrumentation (ASI)
FY22 Annual Program Review meeting

Thursday, October 27, 2022

Session 5: Small Business Innovation Research (SBIR) & Industry - FOA ***Moderator: Daniel Nichols, DOE***

10:30 am	*Metamaterial Void Sensor for Fast Transient Testing*	Mark Roberson, Goldfinch Sensor Technologies & Analytics LLC
11:00 am	*High Penetration Wireless Networking for Nuclear Power Plant Sensing*	Randall King, Operant Networks Corporation
11:30 am	*Integration of Wireless Sensor Networks and Battery-free RFID for Advanced Reactors*	Faranak Nekoogar, Dirac Solutions
11:45 am	---------- ***Break*** ----------	
12:00 pm	*Advanced Laser Ultrasonic Sensors for Nuclear Diagnostics*	Bradley Bobbs, Intelligent Optical Systems, Inc
12:30 pm	*Machine Learning Enhancement of BWR Neutron Flux Measurement and Calibration*	Tom Gruenwald/Jonathan Nistor, Blue Wave AI Labs
1:00 pm	---------- ***Break*** ----------	
2:00 pm	*Development of Radiation Endurance Ultrasonic Transducer for Nuclear Reactors*	Dan Xiang, X-wave Innovations, Inc.
2:30 pm	*Health Monitoring of Digital I&C Systems using Online Electromagnetic Measurements; Fault Detection of Digital Instrumentation and Control Systems using Integrated Electromagnetic Compatibility and Automated Functional Testing*	Chad Kiger/Greg Morton, Analysis & Measurement Services Corp
3:00 pm	*High Temperature Operable, Harsh Environment Tolerant Flow Sensors for Nuclear Reactor Applications*	Evan Pilant, Sporian Microsystems Inc.
3:30 pm	Moderator-led discussion of "SBIR and Industry FOA"	Daniel Nichols, DOE
3:45 pm	---------- ***Adjourn*** ----------	

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