

**Advanced Sensors  
and Instrumentation**

## **Meeting Agenda**

### **Advanced Sensors and Instrumentation (ASI) FY24 Annual Program Review meeting**

**Monday, November 4, 2024**

**Session 1: Introduction**

***Moderators: Daniel Nichols (DOE)/Patrick Calderoni (INL)***

10:00 am	Welcome, Opening Remarks, and ASI Program Overview	Suibel Schuppner, DOE
10:10 am	ASI Program Overview	Daniel Nichols, DOE
10:30 am	ASI FY25 Plan	Patrick Calderoni, INL
10:50 am	Final Report on AI/ML Research	Sergiu Basturescu, NRC

**Session 2: Sensors for Advanced Reactors**

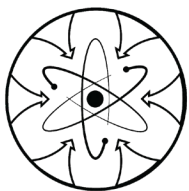
***Moderator: Chris Petrie, ORNL***

11:10 am	Reactor Power Monitoring - INL	Kevin Tsai/Tommy Holschuh, INL
11:40 am	Reactor Power Monitoring - ORNL	Callie Goetz/Tony Birri, ORNL
12:10 pm	----- <b>Break</b> -----	
12:40 pm	Material Properties (Strain Gauges)	Amey Khanolkar, INL
1:00 pm	An Innovative Monitoring Technology for the Reactor Vessel of Micro-HTGR	Lesley Wright, Texas A&M
1:20 pm	Radiation-Hardened Electronics - ORNL	Dianne Ezell, ORNL
1:40 pm	Communication	Vivek Agarwal/Imtiaz Nasim, INL
2:00 pm	Secure Wireless Mesh Networking for Nuclear Sensing	Roger Jungerman, Operant Networks
2:20 pm	Gallium Nitride-based 100-Mrad Electronics Technology for Advanced Nuclear Reactor Wireless Communications	Kyle Reed, ORNL
2:40 pm	----- <b>Lunch</b> -----	
3:10 pm	Structural Health Monitoring - INL	Josh Daw/Dan Deng, INL/BSU
3:40 pm	Structural Health Monitoring - PNNL	Bill Glass/Vineet Joshi, PNNL
4:10 pm	Ultrasonic Multipoint Temperature Sensor for Nuclear Reactor Application	Dan Xiang, X-Wave
4:30 pm	----- <b>Wrap Up</b> -----	

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

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## **Meeting Agenda**

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FY24 Annual Program Review meeting**

**Wednesday, November 6, 2024**

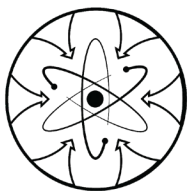
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**Session 3: Sensors for Advanced Reactors**

***Moderator: Chris Petrie, ORNL***

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|----------|--|--|
| 10:00 am | Optical Fiber - INL  | Austin Fleming, INL                    |
| 10:30 am | Optical Fiber - ORNL   | Chris Petrie, ORNL                     |
| 11:00 am | Non-Contact Strain and Displacement Monitoring via Single Crystal Sapphire Based Interferometry<br>Gary Pickrell/Dan Homa, Virginia Tech     |  |
| 11:20 am | Fiber-Optic Sensor System for Multi-Point Pressure and Temperature Measurement<br>Qiwen Sheng, Nusenics, LLC                                 |  |
| 11:40 am | Scaled Reduced Mode Sapphire Fiber Production Towards High Temperature Radiation Resilient Sensors<br>Derek Rountree, Luna Innovations, Inc. |  |
| 12:10 pm | ----- <b>Break</b> -----   |  |
| 12:40 pm | Fiber-Embedded Wireless Sensors  | Joseph Pegna, Free Form Fibers         |
| 1:00 pm  | Optical Fiber Based Distributed Radiation Detection  | Derek Rountree, Luna Innovations, Inc. |
| 1:20 pm  | Integrated Stand-Off Optical Sensors for Molten Salt Reactor Monitoring<br>Kevin Chen, University of Pittsburgh                              |  |
| 1:40 pm  | Development of Microwave Resonant Cavity Transducer for Flow Sensing in Advanced Reactor High Temperature Fluids<br>Alexander Heifetz, ANL   |  |
| 2:00 pm  | Radiation Tolerant Liquid Level Instrumentation  | Sacit Cetiner/Bibo Zhong, INL          |
| 2:20 pm  | ----- <b>Lunch</b> -----   |  |
| 2:50 pm  | Thermometry - INL  | Richard Skifton/Brian Jaques, INL/BSU  |
| 3:10 pm  | METL Sensor Test - ANL   | Rick Vilim, ANL                        |
| 3:30 pm  | Optical Sensors for Impurity Measurement in Liquid Metal-Cooled Fast Reactors<br>Milos Burger, University of Michigan                        |  |
| 3:50 pm  | ----- <b>Wrap Up</b> -----   |  |

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## **Meeting Agenda**

**Advanced Sensors and Instrumentation (ASI)  
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**Thursday, November 7, 2024**

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**Session 4: Sensors for Irradiation Experiments**

***Moderator: Austin Fleming, INL***

10:00 am	LVDT	Kurt Davis, INL
10:20 am	Passive Monitors – INL	Malwina Wilding, INL
10:40 am	Passive Monitors – ORNL	Padhraic Mulligan, ORNL
11:00 am	Sensor Qualification Device – INL	Austin Fleming/Kevin Tsai, INL
11:30 am	-----Break-----	

**Session 5: Sensors Integration**

***Moderator: Ahmad Al Rashdan, INL***

12:00 pm	Advanced Controls - ANL	Haoyu Wang, ANL
12:20 pm	Advanced Controls – INL	Marcio De Queiroz, INL
12:50 pm	Design and Prototyping of Advanced Reactor Operating in the Future Electric Grid	Roberto Ponciroli, ANL
1:10 pm	Sparse Sensing Project	Mohammad Abdo, INL
1:30 pm	Video Camera for Harsh Environments in Nuclear	Esko Mikkola/Greg Poston, Alphacore Inc.
1:50 pm	Development of Cable Insulation Materials for Small Modular Reactors	Patrick Ward, AMS Corp.
2:10 pm	-----Wrap-Up-----	

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