

**Webinar Agenda**  
**Advanced Sensors and Instrumentation**  
**2017 NE I&C Review**  
**(All Times are Eastern Daylight Time)**

**Wednesday, October 18, 2017**

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- 10:00 am Welcome and Overview of Webinar Protocol (Bruce Hallbert, INL)  
10:15 am NE I&C and NEET-ASI Overview (Suibel Schuppner, DOE)  
10:30 am LWRs Advanced I&C R&D Overview (Ken Thomas, INL)  
11:00 am Materials and Chemical Technologies Overview (Samuel Bryan, PNNL)  
11:30 am In-Pile Sensors Research and Development (Bruce Hallbert, INL)

**12:00 pm Lunch Break**

- 12:30 pm Advanced Fuels Program Overview (Jon Carmack, INL)  
1:00 pm Advanced Reactor Technologies Overview (David Holcomb, ORNL)  
1:30 pm Transient Testing Instrumentation Needs (TREAT) (Dan Wachs, INL)  
2:00 pm Nuclear Science User Facilities Instrumentation (NSUF) (Brenden Heidrich, INL)

**Sensors:**

- 2:30 pm Ultrasonic Monitoring of Alkali-Silica Reaction (ASR) affected concrete structures (Jinying Zhu, Nebraska-Lincoln University)  
3:00 pm Robust Online Monitoring Technology for Recalibration Assessment of Transmitters and Instrumentation (Pradeep Ramuhalli, PNNL)  
3:30 pm Advanced Instrumentation for Transient Reactor Testing (Mark Anderson, University of Wisconsin)  
4:00 pm High Spatial Resolution Distributed Fiber-Optic Sensor Networks for Reactors and Fuel Cycle Systems (Kevin P. Chen, University of Pittsburgh)  
4:30 pm Enhanced Micro-Pocket Fission Detector (MPFD) for High Temperature Reactors (Troy Unruh, INL)  
5:00 pm High Temperature Operable, Harsh Environment Tolerant Flow Sensors For Nuclear Reactor Applications (Jon Lubbers, Sporian Microsystems, Inc.)  
5:30 pm Feedback/Discussion (Bruce Hallbert, INL)

**6:00pm Adjourn**

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**Thursday, October 19, 2017**

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- 10:00 am Welcome and Overview of Webinar Protocol (Bruce Hallbert, INL)
- Digital Monitoring and Control:**
- 10:15 am Embedded Instrumentation and Controls for Extreme Environments (Roger Kisner, ORNL)
- 10:45 am Development of Model Based Assessment Process for Qualification of Embedded Digital Devices in NPP Applications (Carol Smidts, Ohio State University)
- 11:15 am Measurement technologies for prognostic indicators for advanced reactor passive components (Pradeep Ramuhalli, PNNL)
- 11:45 am Self-Powered Wireless Through-Wall Data Communication for Nuclear Environments (Lei Zuo, Virginia Tech)
- 12:15 pm Lunch Break**
- 12:45 pm Operator Support Technologies for Fault Tolerance and Resilience (Rick Vilim, ANL)
- Nuclear Plant Communication:**
- 1:15 pm Nanostructured Bulk Thermoelectric Generator for Efficient Power Harvesting for Self-powered Sensor Networks (Yanliang Zhang, University of Notre Dame)
- 1:45 pm Wireless Reactor Power Distribution Measurement System Utilizing an In-Core Radiation and Temperature Tolerant Wireless Transmitter and a Gamma-Harvesting Power Supply (Jorge Carvajal, Westinghouse Electric Company)
- 2:15 pm Transmission of Information by Acoustic Communication along Metal Pathways in Nuclear Facilities (Rick Vilim, Argonne National Laboratory)
- 2:45 pm Nuclear Qualification Demonstration of a Cost Effective Common Cause Failure Mitigation in Embedded Digital Devices (Carl Elks, Virginia Commonwealth University)
- 3:15 pm A Robust Wireless Communication System for Harsh Environments Including Nuclear Facilities (Faranak Nekoogar, Dirac Solutions)
- Advanced Concepts of Operation:**
- 3:45 pm Control Room Modernization for Light Water Reactor Sustainability (Kenneth Thomas, INL)
- 4:15 pm Development and Testing of Work Package Automation for Plant Modernization (Ahmad Al Rashdan, INL)
- 4:45 pm Feedback/Discussion (Bruce Hallbert, INL)
- 5:15 pm Concluding Remarks (Suibel Schuppner, DOE)
- 5:30 pm Adjourn**