12th Nuclear Plant Instrumentation, Control and Human-Machine Interface Technologies

June 14-17, 2021 | Virtual Meeting

CALL FOR PAPERS

In cooperation with

IAEA International Atomic Energy Agency

EXECUTIVE CHAIRS

General Chair
Pradeep Ramuhalli, ORNL

Technical Program Chair
Jamie Coble, UTK

Technical Chair (I&C)
Hyun Gook Kang, RPI

Technical Co-Chairs (HF)
Jeffrey Joe, INL
Paula Savioja-Kangasluoma, STUK

ABSTRACT DEADLINE: WEDNESDAY, JANUARY 6, 2021

- **JANUARY** → ABSTRACTS DUE: **Wednesday, January 6, 2021** (fewer than 1000 words)
- **JANUARY** → REVIEW NOTIFICATION: **Friday, January 15, 2021**
- **MARCH** → FULL PAPERS DUE: **Monday, March 1, 2021**
- **MARCH** → REVIEW NOTIFICATION: **Monday, March 15, 2021**
- **APRIL** → FINAL PAPERS DUE: **Thursday, April 15, 2021**

ABOUT THE MEETING

This topical meeting is the 12th in a series organized by ANS's Human Factors, Instrumentation & Controls Division (HFICD). Authors are invited to participate in the International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human-Machine Interface Technologies (NPIC & HMIT).

Sponsored by the American Nuclear Society (ANS), NPIC & HMIT builds upon the successes of previous meetings. The meeting welcomes the submission of full-length technical papers, which will be peer reviewed and published as conference proceedings. Submitted papers must be presented during the meeting. Detailed information and announcements regarding the conference will be posted on ans.org/meetings/view-310/.

ABSTRACT GUIDELINES

Maximum of one page identifying title, authors, affiliations, and three paragraphs (total fewer than 1000 words) describing the key concepts of the paper. A wide range of topic areas are highlighted on the second page of this call. Authors are encouraged to submit papers on these proposed topics as well as others. Authors of accepted abstracts will be notified by **January 15, 2021.**

FULL PAPER SUBMISSION

Full papers must describe work that is new, significant, and relevant to the nuclear industry and the subject of the conference. Authors of accepted papers must agree to register and attend the conference and present their papers. Papers that are not presented in person at the conference will not appear in the final conference publication. Authors of accepted full papers will be notified by **March 15, 2021**.

SUBMIT AN ABSTRACT

https://epsr.ans.org/meeting/?m=329

PROGRAM SPECIALIST

Janet Davis
708-579-8253
jdavis@ans.org

12th Nuclear Plant Instrumentation, Control and Human-Machine Interface Technologies

June 14-17, 2021 | Virtual Meeting

SUGGESTED TOPICS

INSTRUMENTATION AND CONTROLS (I&C)

Data Analytics, Machine Learning, and Artificial Intelligence
Autonomous Control and Operation
Digital Twins
Latest Trends in Digital I&C
Management of I&C Aging and Obsolescence
Electromagnetic Compatibility (EMC) and EMI/RFI Issues
Nuclear Energy R&D in I&C Area
Next Generation I&C Systems
Safety Critical Software Development, Qualification, and V&V
I&C and OLM Considerations for Life Beyond 60 Years
Wireless Technologies for Nuclear Facilities
Education and Training of I&C Professionals
Diversity and Defense in Depth (D3)
Modeling Digital I&C Systems in PRA/PSA
Advanced Surveillance, Diagnostics, and Prognostics
Field Programmable Gate Array (FPGA)
I&C Modernization Experience
SMR Instrumentation and Control
I&C for Advanced Reactors
On-line Monitoring for Maintenance Optimization
Hazard and Failure Mode Analysis for Digital Systems
I&C Regulations, Standards, and Guidelines
Digital System Reliability
Light Water Reactor Sustainability (LWRS)
On-Line Monitoring of Rod Control Systems
Cyber Security in Digital I&C
Managing and Preserving I&C Knowledge and Competence
Advanced Sensors and Measurement Technologies
Cable Aging and Cable Condition Monitoring
Research Reactor I&C
In-Pile Instrumentation
I&C Lessons Learned from Fukushima
Productivity/Efficiency Improvement
Digital Control System Applications
General Sessions in I&C

HUMAN FACTORS (HF)

Human Factors Aspects of Cyber Security
HFE Approaches in New Build Projects
Current Concepts in Advanced Control Rooms
Experience with Control Room Modernization
Lessons Learned from the Design and Operation of Generation III and III+ Reactors
Nuclear Energy R&D in HMI Areas
Applications of Technology to Enhance O&M
Design and Development of Group-View, Wall-Panel Displays
Visualization Techniques to Improve Human Decision Making
Computerized Procedure Systems
Use of Virtual Reality to Support Design and O&M
Use of Simulation for Design, Engineering, Maintenance and Verification Activities
Emerging Concepts of Operations for Advanced Reactors
Innovative Human Interface Technologies
HFE Use of PRA/PSA Insights and Results for Design and Operations
Computerized Operator Decision and Support Systems
Innovative Solutions to Alarm Overload
HFE Verification and Validation: Approaches and Methods
Designing Control Rooms for Small Modular Reactors
HFE Education and Training
Lessons Learned from Soft Controls in Plant Operations
Human Factor Lessons from Fukushima
HFE Contributions to Productivity and Efficiency
Human Factors Aspects of SMRs
HFE Standards and Guidelines Update
Workstation and Control Room Layout Design for Computer-Based Control Rooms
Use of Work-Domain and Cognitive Task Analysis for Human-System Interface Design
Human Reliability Issues in Digital Systems and Computer-Based Control Rooms
Operation of Hybrid Control Room
General Sessions in Human Factors
Advances in HFE Design and Analysis Tools
Advances in Human-Automation and Human Performance Assessment

Note: The topics listed above are not session titles; they are provided just as a guide for paper topics. The technical program committee will be happy to expand the areas and include additional topics into the program. Please contact the Technical Program Chairs with suggestions.