



**NPIC & HMIT
2012**

8th International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human-Machine Interface Technologies

ENABLING THE FUTURE OF NUCLEAR ENERGY

CALL FOR PAPERS

Authors are invited to participate in the International Meeting on **Nuclear Power Plant Instrumentation and Control, and Human-Machine Interface Technologies (NPIC & HMIT)**.

NPIC & HMIT is a *de facto* forum for nuclear I&C and Human Factors Engineering professionals to meet with the leaders in industry and academia, gauge the state of the technology, exchange information, and discuss future directions.

Sponsored by 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 on a CD-ROM. Submitted papers must be presented. Each presenter is allotted 20-min time slot followed by a 5-min questions and answers.



**JULY 22 — 26, 2012
THE WESTIN SAN DIEGO
SAN DIEGO, CALIFORNIA, USA**



<http://npic-hmit.ans.org/>



npic-hmit@ans.org

ABSTRACT SUBMISSION

Authors should submit a 500-word abstract that adequately describes the original work to ANS' "Electronic Paper Submission and Review" system. Proper links to the review site will be posted under

<http://npic-hmit.ans.org/>

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CONFERENCE DEADLINES

Abstract Submission

~~October 15~~

November 30 (Extended!)

Full Paper Submission

March 15, 2012





TECHNICAL TRACKS AND SESSIONS

Nuclear Power Instrumentation and Controls (NPIC)

Plant Modernization

Aging and Obsolescence Issues with I&C Systems
Experience with I&C System Modernization
I&C Technologies Available for Immediate Application
FPGA Technologies for I&C Applications
Digital I&C Systems for New Reactors
Digital I&C System Upgrades in Research Reactors

Plant Operations

Common Issues with Digital I&C Systems
Maintenance of Digital I&C Systems
I&C Systems for Physical and Cyber Security
Cyber Security Vulnerabilities with Digital I&C Systems
EMI/RFI Issues with Digital I&C Systems

Future I&C Systems

Nuclear Energy Research and Development in I&C
Wireless Technology Applications in Nuclear Power Plants
Advanced Sensors and Measurement Technologies
Next-Generation I&C Systems
I&C Needs for Small Modular Reactor

Regulatory Issues

Regulatory Aspects of I&C in the U.S. and Other Countries
I&C Standards and Guidelines
Qualification Issues in an Evolving Regulatory Environment
Licensing and Implementation Issues with Setpoints
Software Verification and Validation (V&V) Issues
Diversity and Defense in Depth (D3) for Digital I&C Systems
Failure and Fault Analysis of Digital I&C Systems
Modeling Digital I&C Systems in PRA/PSA

Knowledge Management and Workforce Development

Managing and Preserving I&C Knowledge and Competence
Education and Training of I&C Professionals

Plant Condition Monitoring

Surveillance, Diagnostic and Prognostic Technologies
Condition Monitoring of Equipment and Processes

General I&C Topics

In-Pile Instrumentation
General Topics in Nuclear Plant Instrumentation
General Topics in Nuclear Plant Controls

Human-Machine Interface Technologies (HMIT)

Human Factors Techniques

Use of Human Performance Modeling and Simulation
Approaches to HFE Verification and Validation
Root Cause, Corrective Actions and Lessons Learned
HF Aspect of Knowledge Elicitation/Management
HFE Techniques Applied to Maintenance and Areas Outside the MCR

Control Room and Operator Interface Design

Control Station Design and Analysis Tools
Virtual Reality: Human Factors Applications and Issues
Computerized Procedure Systems and Operator Decision Support Systems
Information Presentation Techniques to Improve Decision Making
Human Interaction with Automation/Crediting Operator Actions in lieu of Automation

Advances in Technology

HFE Challenges Posed by Multi-Modular Reactors
Current Concepts in Advanced Control Stations
Applications of Technology to Enhance Maintenance and Operations
Advances in HMI Technology

Human Performance Issues

HFE Issues in LWR Sustainability and Control Room Simulation
Beyond Design Basis/Severe Accident Management
Organization Factors/Safety Culture
Human Performance Measurement Methods and Tools/Performance Indicators
PRA/PSA—HRA Applications in HFE

Licensing and International Collaboration

Operator Training and Licensing
HFE Education and Training for Nuclear Applications
Fitness for Duty
International Collaboration
HFE Issues from Other Countries