



Setting the Standard for Automation™

Standards

Certification

Education & Training

Publishing

Conferences & Exhibits

Emphasis: Power Generation

An aerial photograph of a large industrial power plant facility, featuring several tall smokestacks, complex piping, and large storage tanks, situated near a body of water.

16th Annual Joint **ISA POWID/EPRI**

Controls and Instrumentation Conference
and 49th Annual ISA POWID Symposium

4-9 June 2006

5-7 June Conference Sessions

7-9 June ISA Training Seminars

**Doubletree Hotel
San Jose, CA**

The 16th Annual Joint ISA POWID/EPRI Controls and Instrumentation Conference and ISA POWID Symposium provides two and a half days of technical sessions, along with training courses, a vendor exhibit area, the EPRI I&C Interest Group meeting, and ISA standards meetings. The technical sessions include a variety of topics encompassing safety, security, and reliability for control systems.

Sponsored by:
**The Power Industry Division of ISA
The EPRI I&C Center**

Final Technical Program

Monday–5 June

Morning Sessions (8:00 a.m.–Noon)

Session 1 (8:00 a.m.–9:45 a.m.)

Room: Donner Pass

Welcome and Keynote Address

Ted Marston, EPRI Senior Vice President and Chief Technology Officer, will speak on the future of power systems and the role of automation systems in that vision.

Session 2 (10:00 a.m.–Noon)

Room: Donner Pass

Integration of Reliability, Safety and Security through Automation Systems

Session Developer: James Batug, PP&L Generation

- **Independency Consideration for Burner Management and Boiler Control Systems**
Daniel Lee & James Bostick, ABB Inc.
- **Model Predictive Control for Combined-Cycle Startups**
Fernando D'Amato, GE Global Research; Darrin Kirchoff and Dean Baker, GE Energy
- **Eliminating Coal Burner Pipe Flow Stoppage at Morgantown Generating Station**
Donald Andrasik, Mirant Mid-Atlantic
- **Panel Discussion/Open Mike: Power Plant Automation Systems–Safety System Requirements**

Awards Luncheon (Noon–2:00 p.m.)

Room: Cedar Ballroom

Recognition of Automation System Leadership – Facilities, Organizations, and People & Luncheon Address

Afternoon Sessions (2:00 p.m.–5:00 p.m.)

Session 3A

Room: Donner Pass

Advanced Control Systems in the Power Industry

Session Developer: Jason Makansi, Pearl Street Inc.

- **The Role of On-line, Real-time Coal Analysis in Advanced Process Control and Optimization**
Steve Smith, MS, CoalSmith Consultants
- **Using Real-time Cost of Cycling and Damage to Optimize Plant Performance**
Steve Lefton, Aptech Engineering Services Inc.
- **Advanced Process Control Systems: The New Heart of the Enterprise Management System**
Tim McCreary, HF Controls Corp.
- **Optimizing Turbine Life Cycle Usage and Maximizing Ramp Rate**
David Runkle, LCRA, Sim Gideon Station; Don Labbe, Invensys
- **DCS Integration for Intelligent Sootblowing**
Sandeep Shah, Clyde Bergemann, Inc.

Session 3B

Room: San Jose, Santa Clara

On-Line Equipment Condition Monitoring, Diagnostics, and Prognostics

Session Developer: Brandon Rasmussen, EPRI

- **Integrated Wireless Systems for Power Applications**
Peter Fuhr, RAE Systems; Hesh Kagan, IPS
- **Low Cost Wireless Condition Monitoring**
Lloyd Pentecost, Southern California Edison Co.
- **Early Discovery of Failing Equipment and Sensors in Power Plants Using Advanced Pattern Recognition**
Elmer Hansen, Performance Consultant Services

- **Sensor Fault Detectability Measures for Autoassociative Empirical Models**

Wes Hines, University of Tennessee

- **Performance Improvement for Cooling Water Systems; Corrosion – The New Process Variable**
Dawn C. Eden, David A. Eden and Russell D. Kane, Honeywell InterCorr LLC
- **Finally, Enterprise Management for the Generating Plant**
Dr. Eyai Brill and James Hawkins, P.E.
- **On Analysis of Control-Communication Integration in Distributed Power Grid's Electric, Information & Physical Domains**
Teja Kuruganti, Mallikarjun Shankar, and Glenn Allgood, Oak Ridge National Laboratory; Seddik Djouadi, University of Tennessee, Knoxville

Vendor Exhibits (5:00 p.m.–7:00 p.m.)

Room: Sierra, Cascade, Siskiyou

Tuesday–6 June

Morning Session (8:00 a.m.–Noon)

Session 4A

Room: Donner Pass

Experience with Advanced Control Strategies in the Power Industry

Session Developer: Joseph Bentsman, University of Illinois

- **Dynamic NOx/Heat Rate Optimization**
Don Labbe and Bill Hocking, Invensys
- **Advanced Control of Drum Level and Bypass Pressure on a Combined Cycle Heat Recovery Steam Generator**
John Sorge, Southern Company; Pascale Bendotti, EDF; Joe Baas, Alabama Power Company; and Cyrus Taft, EPRI I&C Center
- **Robust Hybrid Control Strategy for the Boiler/Turbine Unit Full Operating Range in a Coal-Fired Power Plant**
Kai Zheng & Joseph Bentsman, University of Illinois; Cyrus Taft, EPRI I&C Center
- **New Advanced Coordinated Controller for Boiler and Turbine of Coal Fired Power Plant**
Luc Deprugney; A. Girand; S. Maurin; H. Jestin, Electricite De France
- **Intelligent Sootblowing (ISB) in the Coal Fueled Electric Power Industry – EPRI Perspective**
Jeff Stallings & Rabon Johnson, EPRI I&C Center
- **Optimization Systems – Out of Control?**
Jeff Williams, Emerson Process Controls, Inc.

Session 4B

Room: San Jose, Santa Clara

Nuclear Plant Automation Keynote:

Regulatory Issues and the Digital Era of Nuclear Power Plants, Jerry Mauck

Session 4C

Room: San Jose, Santa Clara

Nuclear Plant Control Systems-Future Directions

Session Developer: Tim McCreary, HF Controls

- **Use of Advanced Digital Controls in NPP Applications: A Case Study in Application to U.S. NPP Retrofits**
John Stevens, HF Controls; Chung Yangmook, Korea Hydro and Nuclear Power, Ltd.
- **The Bottom Line Benefits of Digital Field Devices in Nuclear Power Plants**
Bill Fitzgerald, Fisher Controls

Vendor Exhibits & Lunch (Noon–1:00 p.m.)

Room: Sierra, Cascade, Siskiyou

Afternoon Sessions (1:00 p.m.–5:00 p.m.)

Session 5A

Room: Donner Pass

Power Plant Control Systems

Session Developer: Bill Hocking, Invensys

- **Intelligent Process for On-line Optimal Load Distribution Between Units in a Hydro Power Plant**
Edson Bortoni, Unifei-Federal University of Itajuba
- **Virtual Instrumentation in Monitoring and Control Interface of a Wind Turbines Park**
Luis Lopez-Manrique, MS Universidad Juares
- **Control Room Design - Lessons Learned**
Richard Marshall, Kansas City Power and Light; Jon Shaddock, AmerenUE
- **Automated Power Management Systems for Power Consumers with On-Site Generation**
Scott Manson and Shah Saurabh, Schweitzer Engineering Laboratories
- **Control Strategies and Implementation for NH₃ Vaporization**
Mac Buzanowski, Peerless Manufacturing Co.
- **Draft Control Enhancement on TAEAN Thermal Power Plant Units 1-4**
In-young Jeong, Korea Western Power Co.
- **Muskogee 4 Bottom Ash, Fly Ash and Pyrites Removal Controls Replacement and Consolidation**
Paul D. Lucy and Randall L. Miller, OG&E
- **Simultaneous Pressure and Level Control of a Combined Cycle Power Plant Deareator**
Miguel Delgadillo, Maria A. Hernancex, Instituto de Investigaciones Eléctricas

Session 5B

Room: San Jose, Santa Clara

Nuclear Plant I&C Issues in an Evolving Technical and Regulatory Environment

Session Developer: Ray Torok, EPRI

- **Addressing I&C Issues for New Nuclear Plant Deployment**
Layla Sandell and Ray Torok, EPRI
- **Risk-Informed Evaluations of Nuclear Power Plant Digital Upgrades and Technical Regulatory Issues**
David Blanchard, Applied Reliability
- **The Functionality of Instrument Loops and How That Can Be Determined**
Robert Fredricksen, EXELON Nuclear
- **Control Room and Human-System Interface Guidelines for Nuclear Power Plant Modernization Programs**
Joseph Naser, EPRI
- **Human-Machine Interface Evaluation**
Rachel Vail, Washington Safety Management Solutions
- **NRC: Perspective on the Evolving Technical and Regulatory Environment**
Allen Howe, I&C Branch Chief, NRR, Nuclear Regulatory Commission

Vendor Exhibits (5:00 p.m.–7:00 p.m.)

Room: Sierra, Cascade, Siskiyou

Wednesday–7 June

Morning Session (8:00 a.m.– Noon)

Session 6A

Room: Donner Pass

Power Plant Automation Systems Security

Session Developer: Donald Dudenhoeffer, Idaho National Labs

- **Control Systems Security**
Allen Hsu and Timothy McCreary, HF Controls

- **Top 10 Process Control System Cyber Vulnerabilities**
Bob Webb, Consultant, Joe Weiss, KEMA
- **Control Systems Security**
Ron Derynck, Verano
- **Mitigations for Security Problems Found in Control Systems Networks**
May Permann, John Hammer, and Kathy Lee, Idaho National Labs
- **Survivable Wireless Ad Hoc Networks for the Power Industry**
William Miller, Maximum Control Technologies

Session 6B

Room: San Jose, Santa Clara

Power Plant Instrumentation

Session Developer: Jeff Schleis, Wood Group

- **Experiences with Ultrasound Flow Measurement in Small Hydro Power Plants**
Edson Bortoni, Unifei Federal
- **Use of Multiple-Path Ultrasonic Transit-Time Flowmeter System to Optimize Thermal Power Plant Performance**
Harvey Klaer and Terry Burch, Accusonic
- **Accurate Pressure Measurement for Steam Turbine Performance Testing**
Blair Chalpin, Scanivalve Corp.
- **Continuous Emissions Monitoring Systems and the USEPA CFR Part 60 and CFR Part 75 Emissions Monitoring and Reporting Requirements**
Robert Sherman, Circor
- **Dissolved Oxygen Measurement Using Luminescent Technology**
Scott Crosier, Hach Company

Vendor Exhibits (Noon–1:00 p.m.)

Room: Sierra, Cascade, Siskiyou

Post Conference Activities

Wednesday–7 June

ISA NO_x Emissions Training

Room: San Carlos

(8:00 a.m.–4:00 p.m.)

Training Seminars (8:00 a.m.–4:00 p.m.)

See Training schedule on page 4

EPRI Interest Group Meeting

Room: Donner Pass

(2:30 p.m.–7:00 p.m.)

Tour-Calpine's Metcalf Energy Center, San Jose

(3:00 p.m.–7:00 p.m.)

Thursday–8 June

ISA NO_x Emissions and Source Monitoring Conference

Room: Donner Pass

(8:00 a.m.–4:00 p.m.)

Training Seminars (8:00 a.m.–4:00 p.m.)

See Training schedule on page 4

Friday–9 June

ISA Training Seminars (8:00 a.m.–4:00 p.m.)

See Training schedule on page 4

ISA Training Seminars

Introduction to Boiler Control Systems (ES15C)

Date: 8 June, 8:00 a.m. – 4:00 p.m.
Room: San Carlos
Instructor: Jerry Gilman
Price: \$395 ISA Members, \$445 List

When working with boilers, you must control five basic functions—furnace draft, drum level, feed water, fuel air, and steam temperature. You'll learn what must be controlled and how the control systems operate.

Ethernet and TCP/IP on the Plant Floor (FG21C)

Date: 8 June, 8:00 a.m. – 4:00 p.m.
Room: San Juan
Instructor: Vic Wegelin
Price: \$395 ISA Members, \$445 List

Explains both Ethernet and TCP/IP as they apply to the plant floor. Topics included: various types of Ethernet, how to design cabling systems, and principles of network security. Real life examples and case histories will help you understand the truth about Ethernet and TCP/IP and how to use both effectively in your plant.

Boiler Burner Management Systems-Meeting NFPA Standards (ES16C)

Date: 9 June, 8:00 a.m. – 4:00 p.m.
Room: San Carlos
Instructor: Jerry Gilman
Price: \$395 ISA Members, \$445 List
Provides an understanding of the boiler burner standards and why they are so critical to this industry.

OPC: The Windows to the World are Open (IC50C)

Date: 9 June, 8:00 a.m. – 4:00 p.m.
Room: San Juan
Instructor: Vic Wegelin
Price: \$395 ISA Members, \$445 List

Using case studies and an OPC client/server demonstration, this seminar shows you the benefits and drawbacks of using OPC in your plant, how to link diverse industrial equipment into an effective plant-wide communications network, securely share plant data on the Internet, and how to justify the economics to move to OPC.

Overview of Measurement and Control Fundamentals (FG05C)

Date: 9 June, 8:00 a.m. – 4:00 p.m.
Room: San Martin
Instructor: Gerald Wilbanks
Price: \$395 ISA Members, \$445 List

This overview of industrial measurement and control uses a generally non-mathematical approach to give you a basis for communicating with control system professionals.

Other Seminars

Cyber Security for Control Systems

Date: 7 June, 1:00 p.m. – 5:00 p.m.
Room: San Jose
Instructor: Joe Weiss and Bob Webb
Price: FREE to all attendees

Addresses the cyber vulnerabilities of plant control systems and presents various practical suggestions about how the security of these control systems can be enhanced today. Identify the major threats, then discuss the reasons that control systems are vulnerable, and review industry's experience with various electronic breaches of security.

ISA NORCAL: Control Valve (CV) Fundamentals (Part 1)

Date: 8 June, 8:00 a.m. – Noon
Room: Santa Clara
Instructor: Terry Molloy
Price: \$95 ISA Members, \$125 List

This course will cover the following: Why do we need Control Valves? What do they do? How do they control flow? What types of Control Valves are there and how does one decide which one to use? Control Valve Sizing, Liquid, Gas, & Steam.

ISA NORCAL: Severe Service CV Applications and Fluid Flow Considerations

Date: 8 June, 1:00 p.m. – 5:00 p.m.
Room: Santa Clara
Instructor: Terry Molloy
Price: \$95 ISA Members, \$125 List
Control Valve Basics is a prerequisite to this course.

- Practice Sizing Problems – Liquid, Gas & Steam
- Identifying Potential Problem Applications
- Alternative Solutions – It is all about the money
- Flashing, Two-phase Flow, & Cavitation
- Velocity Control & Noise

Introduction to Measurement Uncertainty

Date: 9 June, 8:00 a.m. – 4:00 p.m.
Room: San Simeon
Instructor: Ron Dieck
Price: \$395 ISA Member/\$445 List

Improve the applicability of business decisions based on accurate development/testing data leading to more profitability. Intended for those interested in improving the applicability of business decisions through a better understanding of the impact of measurement uncertainty. It is in complete harmony with the principles of the ISO and other international standards on measurement uncertainty. Included are the basics of the measurement uncertainty model and its application to improving the accuracy of business decisions based on development/test data.