



Setting the Standard for Automation™

53rd International Instrumentation Symposium

30 April - 3 May 2007
Doubletree Hotel at Warren Place
Tulsa, OK

Program Addendum

Standards
Certification
Education & Training
Publishing
Conferences & Exhibits

Presented by:

- **ISA Aerospace Industries Division**
- **ISA Process Measurement and Control Division**
- **ISA Test Measurement Division**

Conference Program

30 April

Training Courses

See Schedule-at-a-glance

1 May

Wireless

Developer: Wayne Manges

Salon A

9:00 a.m.

On Performance Metrics for Guaranteed QoS in Industrial Networked Embedded Sensing & Control Systems

Author: Wayne Manges

9:30 a.m.

SCADALESS SCADA with Mesh Radios

Author: Lou De Silvio

10:00 a.m.

Wireless Instrumentation

Author: Gene Yon

10:30 a.m.

Break

10:45 a.m.

Wireless for a Nuclear Facility

Author: Davis Shull

11:15 a.m.

Integrated Wireless Systems – Modeling Tools for Harsh Environments

Author: Ian McPherson

11:45 a.m.

Exhibits Open/Sandwich Lunch

4:30 p.m.

New Products and Services Vendor Technical Session

5:00 p.m. - 6:00 p.m.

Symposium Reception

Data Validation & Simulation

Developer: Lannie Burger

Salon A

1:45 p.m.

Taylor Series Derivation of the Uncertainty Analysis of the Derived Parameters Grouped as Available Energy (AE) and Available Power (AP)

Author: John Morrison

2:15 p.m.

Bit Checking to Detect Measurement Anomalies in High-Speed Aerodynamic Test Data

Author: Edward Dorrell

2:45 p.m.

Enhanced High Speed Digital Interface between Control Systems and Simulated Facility Models

Author: Michael Thelen

3:15 p.m.

Break

3:30 p.m.

FTIR Gas Analysis Calibration Choices

Author: Kent Wilcher, Vincent Zaccardi, Ron H. Dieck

4:00 p.m.

Real World Experiences Using Intelligent Algorithms for Monitoring Water Security and Quality

Author: Dan Kroll

Measurements & Sensors (Part I)

Developer: John Henshaw

Salon C

9:00 a.m.

Characterization and Elimination of 5th Harmonics

Author: Hank Javan

9:30 a.m.

Radar Level Measurement in High Temperature and Pressure Applications

Author: Rob Vermeulen

10:00 a.m.

Acoustic Viscosity Measurement

Author: Scott Graham

10:30 a.m.

Break

10:45 a.m.

High Accuracy Miniature Absolute Pressure Transducer

Author: Joseph Carter

11:45 a.m.

Exhibits Open/Sandwich Lunch

Measurements & Sensors (Part II)

Developer: John Henshaw

Salon C

1:45 p.m.

Measurement Systems

Author: Bill Schuh

2:15 p.m.

New Radar Based Technology for Direct Contact, Yet Wireless Temperature Measurement Moving Parts

Author: Edward Gemdjan

2:45 p.m.

Instrumentation Spurious Trips Due to Piping Radiography

Author: Peter Mondello

3:15 p.m.

Break

3:30 p.m.

A Dynamic Roadway Marking System for Linking Vehicle Performance to Roadway Evidence

Author: Jeremy Daily

4:00 p.m.

Implementation of Ultrasonic Flow Measurements on Virtual Instrumentation Platforms

Author: Randy Buchanan

Exhibitors

- Dewetron Inc.
- FreeWave Technologies
- Kongsberg Maritime
- Maxon Corporation
- National Instruments
- Open Control Systems

Graduate Student Session

Developer: Aubri Buchanan

Salon E

9:00 a.m.

Opening Comments -- Aubri Buchanan

9:25 a.m.

Using a FPGA Interface to Emulate an Ultrasonic Flow Meter

Author: Jonathan Oliver

9:45 a.m.

Flow Measurement on a PXI Platform

Author: Thomas Avery

10:05 a.m.

Laboratory Automation of Fluid Measurement Instrumentation

Author: Paul Mealey

10:25 a.m.

Smart Dust (Mica motes) as Better Temperature Pressure Sensors

Author: Santhosh Banala

11:45 a.m.

Judge Deliberation for Graduate Session

Undergraduate Student Session

Developer: Aubri Buchanan

Salon E

1:45 p.m.

Sandman: Intelligent Protocol Identification

Author: Collin McMillan

2:00 p.m.

Characterization of Ultrasonic Transducers

Author: Christopher Frazier

2:15 p.m.

Automated Atmosphere Simulation Chamber

Author: Randall Dannemann

2:30 p.m.

Instrumentation of a High-speed, Low-resistance Exercise Device

Using Transducer Load Cells

Author: Adam Leeper

2:45 p.m.

Implementation and Testing of Cryogenic Transducers for Ambient

Temperature Flow Measurement

Author: Brandon Wright

3:00 p.m.

Judge Deliberation for Undergrad Session

4:00 p.m. or following vendor session

Student Session Awards

4:30 p.m.

New Products and Services Vendor Technical Session

6:00 p.m. - 7:00 p.m.

Symposium Reception

2 May

Nanotechnology (Part I)

Developer: Dale Teeters

Salon A

9:00 a.m.

The Use of Scanning Probe A. C. Impedance Spectroscopy

Author: Dale Teeters

9:30 a.m.

Adhesion, Friction and Hardness Characterization on the Nanoscale

Author: Matthew Johnson

10:00 a.m.

The Use of Small-Angle X-ray Scattering to Characterize Nanoparticles

Author: Brian Grady

10:30 a.m.

Break

10:45 a.m.

A Single-Step Route to Nanowire Growth and Low Resistance Interconnecting

Author: Bret Flanders

11:15 a.m.

Characterizations in Semiconductor Nanocrystal Sensors

Author: Kenneth Roberts

Electro-optics

Developer: Chris Winstead

Salon C

9:00 a.m.

LED Excited Phosphor Thermometry in Excess of 1000° C

Author: Shawn Goedeke

9:30 a.m.

Analysis of Transient Heating of Phosphor Coatings

Author: Steve Allison

10:00 a.m.

Detecting Minor Defects, Measurements – Sensors

Author: Zhao-fei Zhou

10:30 a.m.

Break

12:30 p.m.

Vendor Drawing

1:00 p.m.

Tulsa Area Tour to NORDAM and Gilcrease (includes dinner)

Process Measurement & Control, Networks

Developer: Rick Williams

Salon E

9:00 a.m.

Converting Serial Networks to Ethernet Communications

Author: Jim Gardner

9:30 a.m.

Wireless WiFi... Why Now? Exploring New Technologies for Industrial Applications

Author: Pat McCurdy

10:00 a.m.

Economics & ROI for Justifying Wireless

Author: Andrew Neeb

10:30 a.m.

Break

10:45 a.m.

How Microsoft.net Has Altered the SCADA/HMI Outlook for Legacy Solutions

Author: Verma Rakesh

11:15 a.m.

Steering Diodes Allow for Signal Injection as Part of a Non-Invasive Testing Methodology

Author: Jon Hawkins

12:30 p.m.

Vendor Drawing

1:00 p.m.

Tulsa Area Tour to NORDAM and Gilcrease (includes dinner)

Enjoy Tulsa!!

On 2 May 2007 join us for the Tulsa Area Tour. Cost is \$50.00 and includes dinner.

The tour will begin with a visit to NORDAM, a worldwide firm headquartered in Tulsa that makes component parts for aircraft of many types—business, commercial and military jets. We will tour their nacelle and thrust reverser plant, where they make most components from advanced composite materials. The bus will then take us to the Oklahoma Jazz Hall of Fame for a brief tour. See memorabilia of such greats as Charlie Christian—the young man who first amplified a guitar, allowing him to hold his own in Benny Goodman's Orchestra, Chet Baker, and many more. This is also the site of the memorial to the 1921 Tulsa Race Riot—the bloodiest in the history of the United States—that left as many as 300 dead and burned down 36 square blocks of "Sweet Greenwood" which after WW I had been known as the Black Wall Street. We will then proceed to the Thomas



Gilcrease Museum—perhaps the finest collection of Native American and American Western Art in the country. See extensive collections of the works of Thomas Moran, Charles Russell and Fredrick Remington, including the only complete set of his bronze sculptures. See collections of pre-Columbian art, enormous displays of Native American crafts, and art by leading Indian sculptors and painters like Willard Stone or Woody Crumbo. A fascinating display on tour that will be showing during the 53rd IIS is the work of the designer Manuel Arturo Jose Cuevas Martinez, known as Manuel. He has designed the signature costumes of many notable performers since the 1950's. He put Elvis in a jump suit, Johnny Cash in black, and provided the look for Aerosmith, Lynard Skynard, ZZ Top and even for the Beatles. His costumes will be on display during our visit. Following will be cocktails and dinner in the Vista Room where we can watch the sun set over the unspoiled Osage Hills, and enjoy live jazz after dinner.



Schedule-at-a-glance

Conference Schedule: Monday, 30 April through Thursday, 3 May

Program subject to change.

Monday, 30 April

| | |
|-----------------------|-------------------------------|
| 8:00 a.m. - 5:00 p.m. | Registration |
| 9:00 a.m. - 5:00 p.m. | Meetings and Training Courses |
| 2:00 noon - 5:00 p.m. | Exhibit Set-up |
| 6:00 p.m. - 8:00 p.m. | Exhibits Open |

Tuesday, 1 May

| | |
|-------------------------|--|
| 7:30 a.m. - 8:30 a.m. | Speakers' Breakfast |
| 7:30 a.m. - 9:00 a.m. | Exhibits Open |
| 9:00 a.m. - 5:00 p.m. | Registration |
| 9:00 a.m. - 11:45 p.m. | Tutorials |
| 9:00 a.m. - 4:00 p.m. | Conference Sessions |
| 10:30 a.m. - 10:45 a.m. | Break |
| 11:45 a.m. - 1:15 p.m. | Exhibits Open/Sandwich Lunch |
| 1:45 p.m. - 4:00 p.m. | Afternoon Sessions |
| 3:00 p.m. - 3:15 p.m. | Break/Exhibits Open |
| 4:00 p.m. - 5:30 p.m. | New Products and Services Technical Session |
| 4:00 p.m. - 7:00 p.m. | Exhibits/Commercial Session |
| 5:00 p.m. - 6:00 p.m. | Reception in Exhibit Hall |

Wednesday, 2 May

| | |
|-------------------------|---------------------------------------|
| 7:30 a.m. - 8:30 a.m. | Speaker's Breakfast |
| 7:30 a.m. - 9:00 a.m. | Exhibits Open |
| 9:00 a.m. - 5:00 p.m. | Registration |
| 9:00 a.m. - 10:30 a.m. | Conference Sessions |
| 9:00 a.m. - 11:45 p.m. | Tutorials |
| 10:30 a.m. - 10:45 a.m. | Break |
| 10:45 a.m. - 11:45 a.m. | Conference Sessions |
| 11:45 a.m. - 1:15 p.m. | Sandwich Lunch |
| 1:00 p.m. - 9:00 p.m. | Tulsa Area Tour (bus departs at 1:00) |

Thursday, 3 May

| | |
|-------------------------|------------------------------|
| 7:30 a.m. - 8:30 a.m. | Speakers' Breakfast |
| 9:00 a.m. - 5:00 p.m. | Registration |
| 9:00 a.m. - 10:30 a.m. | Conference Sessions |
| 9:00 a.m. - 11:45 p.m. | Tutorials |
| 10:30 a.m. - 10:45 a.m. | Break |
| 10:45 a.m. - 11:45 a.m. | Conference Sessions |
| 12:00 p.m. - 2:00 p.m. | Keynote/Awards Banquet |
| 2:00 p.m. - 5:00 p.m. | Meetings/Conference Sessions |
| 2:00 p.m. - 5:00 p.m. | PWIG Session Meeting |
| 3:00 p.m. - 3:15 p.m. | Break/Prize Drawing |
| 4:00 p.m. - 6:00 p.m. | 54th IIS Planning |

Scheduled Training Courses:

- Overview of Wireless
- Intro to Measurement Uncertainty
- Selection and Application of Process Measurement Sensors
- Introduction to LabVIEW

Tutorials:

- Dynamic Flow Measurement
- Computer Security
- MEMS

Tour and Shop in Tulsa!

Tuesday, 1 May

Take a Tulsa Trolley to antique shops, the Oklahoma Aquarium and Tulsa's Back Street Bistro for lunch, and then enjoy Philbrook Art Museum and Gardens.

| | |
|------------|---|
| 9:30 a.m. | Trolley to Jenks for antique shopping and Oklahoma Aquarium |
| 12:00 p.m. | Lunch at the Back Street Bistro |
| 1:30 p.m. | Philbrook Art Museum and Gardens |
| Price: | \$30.00 |

3 May

Nanotechnology (Part II)

Developer: Dale Teeters

Salon A

9:00 a.m.

Nanostep and Film-coatings Thickness Traceability

Author: Yakov Tseytlin

9:30 a.m.

Remote Sensing Applications for Pipelines Flow Measurements Using Nano Technology

Author: Youssef Basrawi

10:00 a.m.

Nanoscale Power and Memory Unit Design for Nanoscale Sensor Systems

Author: Theodore Manikas

10:30 a.m.

Break

10:45 a.m.

Growth of Nanodiamond and Other Novel Materials by Chemical Vapor Deposition

Author: Saibal Mitra

11:15 a.m.

Experimental Methods for Characterizing Nano Iron and Magnetite Particles Used in Remediation Studies

Author: Parameswar Hari

Process Measurement & Control, Part II

Developer: Rick Williams

Salon C

9:00 a.m.

Conversion of Relay based Logic Solver System by TMR Based Safety Instrumented System

Author: Keyur Vora

9:30 a.m.

A Journey of 1st Generation Pneumatic PLC to Cutting Edge Technology of PLC's Networking

Author: Jatin Takale

10:00 a.m.

Interface Level Measurement Utilizing Buoyancy Technology

Author: Thomas Kimer

10:30 a.m.

Break

10:45 a.m.

Designing, Prototyping and Deploying Advanced Measurement Systems with Configurable Hardware

Author: Igor Alvarado

11:15 a.m.

Choking Problem in Gas Purge-based Measurement Systems and Choke Removal Methods

Author: Reuben Daniel

PIWG, Morning Session

Developer: Gustave Fralick

Salon B

9:00 a.m.

Opening Announcements

9:30 a.m.

Thin Film Ceramic Strain Sensor Development for Harsh Environments

Author: Gustave Fralick

10:00 a.m.

How Fiber Optic Sensors Systems Work

Author: Tom Graver

10:30 a.m.

Break

10:45 a.m.

Strain Induced Diffusivity Effects in Indium-Tin-Oxide Stain Gages

Author: Otto Gregory

11:15 a.m.

Advances in Variable Inductive Digital Sensor Technology

Author: Derek Weber

PIWG, Afternoon Session

Developer: Gustave Fralick

Salon B

12:00 p.m.

Symposium Banquet and Awards Ceremony

2:00 p.m.

High Temperature Sensor System Development at Orbital Research, Inc.

Author: Greg Shaw

2:30 p.m.

Instrumentation Needs to Reduce Turbine Engine Related Class A Mishaps within USAF

Author: Bill Stange

Don't miss the
Symposium Banquet and Awards Ceremony:
3 May at 11:45 a.m.

Awards Luncheon Speaker Donald Hamilton from the Memorial Institute for the Prevention of Terrorism (MIPT) in Oklahoma City, the site of the April 1995 bombing of the Murrah Federal Building, will address the attendees before our awards ceremony.

About The Speaker



Donald R. Hamilton joined MIPT 1 April 2000 after extended service in Washington and abroad as a senior member of the United States Foreign Service. In July 2003 Hamilton took a one-year leave of absence from MIPT to serve as a senior counselor to Coalition Provisional Authority Administrator L. Paul Bremer.