



Wilmington Section ISA
Box 9254
Newark, DE 19714-9254



Wilmington Section ISA

ISA, the international society for measurement and control, advances the technology and the competence and careers of practitioners for the benefit of industry and humanity.

Check out our web page at <http://www.isa.org/~wilmdel/>

**Wilmington ISA Section Meeting
Joint Meeting with IEEE
Tour - Hewlett Packard
Little Falls Site**

**Tuesday, November 9, 1999
2350 Centreville Road, Wilmington DE
Meet in the lobby at 5:30 pm**

Please RSVP by Friday, November 5 to
Nicholas.P.Sands@usa.dupont.com
or leave a message at 302-761-2324

ISA SENSOR

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WILMINGTON SECTION ISA

PO Box 9254
Newark, DE 19714

1999-2000 Officers

President: Vince Brady
(302) 239-5040
Vice-President: Merlynn Wegter
Rodel (302) 366-0500
Treasurer: Kong Nguyen
E I DuPont (302) 695-6308
Secretary: Lori Diamond
E I DuPont (302) 452-9223

Newsletter Editor - Julie Smith
E I DuPont (302) 774-2230
Web Editor - Greg McCoy
Aspen Technology (302) 774-8112

The Sensor

November 1999

Joint IEEE Meeting in November

The next joint ISA-IEEE meeting is scheduled for November 9, 1999. Wayne Hunter of Hewlett-Packard would like to extend an invitation to the local IEEE and ISA chapters to their plant at Little Falls at 5:30 PM. We would include a tour of the International Regulatory Test Facilities for EMC, Product Safety, Environmental, and Package Certification, as well as a tour of the manufacturing facility for Gas Chromatographs. GC basics (how they work, what you see, etc.) will be described in detail. A lite dinner will be served in the cafeteria at no charge to section members. Come join us for an interesting tour and a chance to catch up with all your IEEE colleagues!

CALENDAR OF EVENTS

November 9, 1999
Joint Meeting with IEEE
HP Tour

November 30, 1999
Executive Committee
Meeting

December 4, 1999
50th Anniversary Dinner

monitoring. Joe defined several metrics which can be used to identify opportunities for improvement and can be used in performance monitoring. These metrics are based upon control limits and either the total standard deviation of the key process variables (special cause/drift variation + common cause/random short-term variation: known as the Process Performance Index or Pp) or just the short-term component of variability (known as Process Capability or Cp).

Joe pointed out that the key task of process control is to minimize the special cause/drift variability. Thus perfect process control would make the process performance (Pp) equal to the process capability (Cp). If $Pp \sim Cp$ and customer needs are not met (Cp too low) then focus must be placed on improving the process instead of control. A $Cp > 2$ is considered "Six Sigma" class; a value > 1.5 is very good, and $Cp = 1$ is just adequate with little room for a shift of the aim. A Ppk (Pp with aim not centered between limits) $< 3/4$ of Cp indicates an opportunity for improved process control.

Cp and Pp are "monitoring metrics". Other monitoring metrics include: conformance (e.g. time outside of limits) and utilization (e.g. time that a key process variable controller is in automatic). These metrics can be trended on-line to detect shifts in performance and variations of the metrics can help determine if inadequate controller tuning is the culprit for degraded performance.

September Section Meeting Review

Dr. Joseph P. Shunta gave an interesting and timely presentation to WISA on "Process Performance Monitoring for Capturing Benefits" on September 28.

Joe is currently a Principal Consultant in DuPont Engineering Technologies' Process Dynamics and Control Group. He is also author of "Achieving World Class Manufacturing through Process Control" (Prentice-Hall 1995), and a member of Wilmington ISA.

Joe began his talk by pointing out that the competitive business

environment drives the need for continuous improvement of manufacturing asset productivity. Application of process control concepts can make a strong contribution in improving asset productivity. He indicated that the mission of process control is to control key process variables and related product properties at aim within limits of variation so that the product is made without further blending, testing or re-work at the desired rate.

The limits of variability should not be set casually; but through a good understanding of customer needs translated first to business metrics/drivers (e.g. quality, yield, uptime), then to process targets (flows, temperatures, etc) and finally to the process control system which measures and adjusts the process to meet the objectives.

Once performance improvements are achieved they must be sustained which is a key driver for the current (and growing) interest in the field of control performance

Typical diagnostic metrics include: power spectral analysis, bi-variate distribution (aka "scatter plot"), and auto-correlation. These diagnostics are currently typically done off-line and can detect problems with controller tuning, valves, and shifts in process equipment performance. It was pointed out that reasonably frequent (relative to loop dynamics), uncompressed data is required to give meaningful diagnostic results. Joe and Frank Rottier of Honeywell described a Honeywell product called "Loop Scout"® which performs the diagnostic analysis on customer data supplied via the internet. Wilmington Section's Nick Sands is currently working with this product at DuPont's Edgemoor plant and will be benchmarking the automated analysis against more traditional and time consuming troubleshooting techniques. Thanks to Joe for a great presentation on this topic that represents a key next horizon in the practice of process control.

-George Bentinck

Join the 50th Anniversary Celebration!

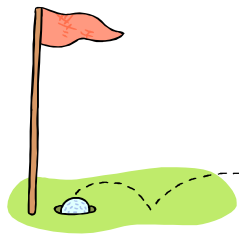
The Wilmington ISA would like to invite members and spouses to participate in celebrating the 50th anniversary of our section on December 4, 1999. This dinner event will be held at the Caffe Bellissimo located at 3421 Kirkwood Highway with a cash bar. Your section will be offering the reduced cost of \$25.00 per couple / \$12.50 single, and festivities will begin promptly at 7:00 PM. Our speaker, Tom Lagana, will inspire and entertain us as we take a step back 50 years, on to the present, and into

the future. Tom is a professional engineer and solutions provider. He presents his inspirational management skills seminars and keynotes internationally to groups who want to become their best. Many of you will remember his insightful and fabulously entertaining presentation at the shrimp boil in April.

Interested ISA members and spouses should make reservations in advance with John Wood at 609-540-3949 or e-mail john-w.w.wood@usa.dupont.com. See the enclosed insert for further details. Please don't wait for the 75th anniversary, make your reservations now!

Did You Know??

Tom Lagana, one of WISA 's favorite speakers, is co-authoring an upcoming book of heartwarming stories with Jack Canfield and Mark Canfield Hansen in the #1 Best-selling series of "Chicken Soup for the Soul." Please see Tom's WebSite at www.angelfire.com/de/lagana.



Golf Outing Fun for All

The rain went away in the morning and while we had to keep the carts on the path, we had a great time. We started with lunch outside under a tent, and with 106 golfers signed up we played a Calloway event with prizes for closest to the pin, longest drive and straightest

drive. All in all it was a great day with great people. Chantilly Manor did a wonderful job and our outing is booked again for Thursday, September 14, 2000.

The section would like to thank the companies below who donated prizes for this event:

MULTI-MEASUREMENTS
F.S. WELSFORD COMPANY
SHELBY JONES
MC PAC
DAVIS INSTRUMENT
HERRON VALVE
APPLIED CONTROLS
ENGINEERING
WILMINGTON VALVE & FITTING
SAMSON VALVES
ROSE ENCLOSURES
TRI-STATE TECHNICAL SALES
ROYAL INSTRUMENT
M.J. SEGAL

And a special thanks to the committee: Doug Berg, Blake Doney, Tom Finn, and Howard Holloway

- Jay Kelly

The Sensor is Now Available Online!

Out of the office a lot but don't want to miss the next section meeting or other hot section news? Its the Internet age to the rescue! You can now access and download a copy of *The Sensor* from the ISA website! Simply point your web browser to www.isa.org, then go to "sections", "Wilmington section". The current issue plus back issues are available for viewing or downloading. Adobe Acrobat Reader is required, and can be installed for free by visiting www.adobe.com. Now you never have an excuse for missing an important event! Give it a try today!



TECH/1999 Keynote

Kicking off ISA TECH/1999, the man responsible for manufacturing strategy at industry giant Rohm and Haas Co. gave conference attendees some tips on "how to acquire companies, rather than be acquired" in today's hotly competitive business environment.

Thomas L. Archibald, vice president and director of global operations and manufacturing for the \$6.5 billion specialty chemical giant, said his company stayed on the acquiring end by integrating major business units under a single manager; standardizing and institutionalizing processes worldwide; and keeping abreast of technology. A fully integrated organization – with technology linking all parts of the business – "can move to the new plateau – the concept of moving from reactive to predictive, proactive systems," the 27-year veteran of Rohm and Haas told a capacity audience hearing his keynote address.

"Three trends are affecting business worldwide – globalization, consolidation, and specialization," he observed. With the consolidation trend, "we are fighting for our corporate lives," said Archibald. "Three years ago, who would have thought a company the size of Sprint (in recent news as an MCI/Worldcom takeover candidate) could be acquired," he said. "Or a company the size of Morton International," the salt giant which Rohm and Haas acquired just this summer.

Rohm and Haas began a major business integration program five years ago, he said. Today, even potentially competitive units internally, such as manufacturing and information technology (IT) – report to a single manager, speeding decision-making and improving productivity, he said. The company's prime business areas include coatings, salt, plastics additives, electronic materials, and specialty chemicals.

Archibald envisioned out to the year 2005. By institutionalizing and taking advantage of current technology trends, "I see zero process safety incidents," he said. "I also see injuries approaching zero, and reliable, predictable process equipment with 10% higher utilization." Continuing his vision, "I see 100% perfect orders," he said, "and first-pass yield greater than 99%" – a feat many chemical engineers would argue is impossible", Archibald observed. He also foresees, by 2005, "supply chains with one-half the time and one-half the inventory" required by current systems integrating manufacturing, planning, and sales functions. "I see the ability to make product the first time, every time," he predicted.

Archibald used heat exchangers as an example of moving from reactive to predictive, proactive systems. Five years ago, if a heat exchanger fouled, "we knew how to fix (react to) it," he said. Today, maintenance personnel monitor temperature processes and flows, and can see a heat exchanger problem coming, he observed. In the future, accurately measuring critical elements could eliminate failures altogether, or enable manufacturing to be "recalculated" without any loss in product or time.

-Jim Strothman, *InTech* reporter

Adaptive Resources Named Top 'Innovator'

Adaptive Resources, a developer of adaptive process control, took top honors at ISA TECH/1999 Innovators Center, receiving the 1999 ISA President's Award for the most innovative technology. Three companies received Honorable Mention Awards – Integraph Corp.; a collaboration involving Solutia, Hyprotech Ltd., and Fisher-Rosemount Systems; and the Fieldbus Foundation for its high-speed Ethernet technology, still in development. Altogether, products and technologies from 22 companies were honored by an independent panel of users for participation in the Innovators Center. The same panel of users chose the ultimate winners.

Adaptive Resources received top honors for its expansion of that company's QuickStudy Control System Software with the introduction of Q-MAST and QuickStudy Adaptive Process Controller. The software helps users understand and diagnose dynamic processes and automatically optimize process performance.

"We are so excited to receive this award because it reaffirms our commitment to our goal of providing an economical, practical product for a broader market," said Dennis Tobias, Adaptive president. Q-MAST is a noninvasive analysis and process modeling tool designed to model complex processes with highly interactive variables, long dead times, integrating characteristics and inverse responses – all without any plant disruptions or response testing. QuickStudy APC, version 2, was developed to expand the range of plant application and ease use.