



**Wilmington Delaware  
Section**

# The Sensor

## March 2010

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### Upcoming Events

March 24	Applications in Automation Technical Conference
April 27	Shrimp Boil
May 25	Meeting: Advanced Control
June 22	WISA Picnic

### Register Now!

### Mid-Atlantic ISA Applications in Automation Technical Conference

**Wednesday, March 24th**

**DuPont Barley Mill Conference Center**

**Wilmington, DE <http://isatechcon.eventbrite.com/>**

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## ISA Applications in Automation Conference

**Wednesday, March 24 (8 AM—5 PM)**

**Local ISA Technical Conference with Product and Solutions Showcase**  
presentations on today's hottest automation topics organized into the following sessions:

Maximizing Controller Performance  
Process Optimization  
Control System Upgrades  
Safety and Security

with a presentation by our Keynote Speaker:  
Robert Lowe, Executive Director, [CSIA](#)

Register and view the program at:  
[www.isatechcon.eventbrite.com](http://www.isatechcon.eventbrite.com)  
\$60 for ISA members, \$160 for non-members

Address: 4417 Lancaster Pike—BMP 20  
Wilmington, DE 19805

**Evening Networking Event (5:30—7:30 PM)  
@ Twin Lakes Brewery (\$20/person)**

Visit Wilmington ISA on the Web!

<http://www.isa.org/community/wilmi>

## President's Message

By Shawn Coughlan, P.E, FSE

This month marks a new event for the Wilmington ISA Section. In place of our normal monthly meeting, we have teamed up with the other sections in District 2 to host a local conference which we have called "Applications in Automation". This is a departure from our typical fare and provides an opportunity for members and non-members alike to attend a local technical conference. We are hoping to hold this event annually or bi-annually depending on the success of this inaugural session.

Compared to traveling to Houston for a technical conference, the cost of this conference is surprising low. Since it will be held at DuPont's Barley Mill Plaza in Wilmington, no air fare, car rental and or hotel costs will be incurred by you or your employer. The conference fee is only \$60 for members and \$160 for non-members. For non-members, an added benefit is that the fee includes a one-year membership in ISA.

The conference will last one day. We have broken the day into four sessions covering Process Optimization, Control System Upgrade, Safety and Security and Maximizing Controller Performance. During each session, we have three speakers presenting papers followed by a question and answer period. Our keynote address will be: Realizing the Benefits of Automation and How to Get There with Qualified Control System Integrators Robert Lowe, Executive Director, Control System Integrators Association (CSIA). We will end the day with a networking opportunity at the nearby Twin Lakes Brewery.

So leave your computer at work, sign up, and come out for a day of technical discussion and real social networking. To register for the conference, visit the website at [www.isatechcon.eventbrite.com](http://www.isatechcon.eventbrite.com).

Hope to see you there.

Join us for the Famous

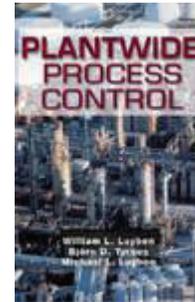
**WISA Shrimp Boil**

Tuesday, April 27, 2010

Reach Automation Professionals by  
sponsoring this popular social event

Contact Ken Lawrence ([lawrencekr@verizon.net](mailto:lawrencekr@verizon.net))  
(See back page for more information)

## Controlling the Forest Not Just the Trees



### Controlling the Forest Not Just the Trees BBBB (Buy)

*Plantwide Process Control* by William Luyben, Bjorn

Tyreus, Michael Luyben

Reviewed by Nicholas Sands

There are many books on advanced control and distillation control strategies, but very few on plantwide control strategy design. *Plantwide Process Control*, by William Luyben, Bjorn Tyreus, and Michael Luyben, may be the only book to address this topic. William Luyben has been a professor of chemical engineering at Lehigh University for 40 years. He received his PhD from the University of Delaware and his B.S. Pennsylvania State University, working at Exxon and DuPont in between. He has written several control books and was recognized in for his contribution to the field of automation by induction into the Control Magazine's Process Control Hall of Fame. Bjorn Tyreus, who received his BS from the Royal Institute of Technology in Sweden and his PhD from Lehigh, is a research fellow at DuPont, and contributing or co-author on several control books. Michael Luyben, son of William, is a consultant at DuPont and co-author of another control book with his father. He has a PhD from Princeton and a BS from Lehigh.

The first chapters layout the premise and the basic concepts of plantwide control design. The traditional approach to control strategy design has been to develop the control for each unit operation and then combine the units. Page Buckley proposed a method that first established inventory and mass balance control and then established quality control. The authors propose a different approach that may better control quality and energy. Material and energy recycles can have important economic benefits and introduce significant control challenges. An example is given of the snowball effect possible when a recycle loop is controlled only by level.

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# Controlling the Forest Not Just the Trees

(continued from page 2)

The proposed design procedure is: establish the control objectives, determine the degrees of freedom, establish energy management, set production rate, control quality, safety, and environmental constraints, fix a flow in every recycle loop and control inventories, check component balances, control unit operations, and optimize economics or performance. This procedure is applied in several cases later in the book.

Before the examples, the authors examine in detail the control of several unit operations including reactors, heat exchangers, distillation columns, and more. Each operation is modeled and control consideration discussed. These chapters are an excellent review of unit operations.

The authors apply the design procedure to several examples of increasing complexity. The examples illustrate the value of each step. The first example is the Eastman process, a simulation offered as a control challenge by Eastman Chemicals in the mid 1990s, with 12 degrees of freedom. The last example, a vinyl acetate process, has 26 degrees of freedom. Two sets of control objectives are used for each example, like on-demand production or rate controlled production, to demonstrate how the control strategy for the plant changes.

The Luybens and Tryeus have put together a very useful procedure for the design of plantwide control strategies, making Plantwide Process Control a buy (BBBB) for process control engineers. With three PhD chemical engineers as authors, the book assumes some familiarity with that discipline and may be very difficult for non-chemical engineers to follow, though the design procedure is not. Unfortunately the book is out of print and very difficult to find.

## Encourage colleagues to join ISA!

Benefits include:

- Membership in Local Section
- Membership in 2 Divisions
- Free access to ISA Standards
- Free access to ISA Technical papers
- Free access to ISA Webinars

## January 2010 WISA-IEEE Joint Meeting Solar Power Technology

By Jeff Arbogast

On January 26, 2010, the Wilmington Section ISA and [IEEE Delaware Bay Section](#) held a joint meeting on "Solar Power Technology" at the Stanton Campus of Delaware Tech.

WISA past-president Bill Balascio of [Carew Associates, Inc.](#) organized the meeting. He opened the with a presentation on "Design Basics of Renewable Energy Systems." Bill introduced the [PVWatts](#) tool offered by the US DOE National Renewable Energy Laboratory (NREL) for site evaluation. Using PVWatts, he provided examples of estimated return on investment (ROI) - in Sussex County, DE and Chester County, PA. These examples helped to illustrate the impact of varying incentives between the states.

Michael Howell of [United Electric Supply](#) presented an overview of "Solar System Performance." Average solar radiation is high throughout the continental US. Between 1961 and 1990, the annual irradiance Wilmington, DE varied by 6.5%. Significant power can even be produced on overcast days. As the temperature of the solar panel increases, it produces decreased voltage. Shading of solar panels must be avoided. It is not essential to orient solar panels due south—other directions may perform nearly as well.

Sechu Tatikola of [Solectria Renewables](#) presented on "Applications of Solar Grid-tie Inverters." These inverters convert the DC power produced by the solar panel into AC power for the grid.

All three speakers provided a very useful and introducing introduction to solar power technology applications.

(Slide presentations may be found on the WISA website.)

## WISA Trivia Question?

Between 1961 and 1990, how much did annual irradiance vary in Sacramento, CA?

Email your answer to  
WISA newsletter editor by April 15, 2010  
at [jeffrey.arbogast@airliquide.com](mailto:jeffrey.arbogast@airliquide.com)

**Win an ISA shirt.**

Join us for the Famous

## WISA Shrimp Boil

Tuesday, April 27, 2010  
@ Applied Control Engineering (ACE)  
Newark, DE

We invite sponsors to participate as a  
**Friend of the Shrimp or Boil Buddy**

**For \$125, a Friend of the Shrimp receives**

Recognition in April and May 2010 Newsletters  
Recognition at the Shrimp Boil  
Option for a **Table Top Display** at the Shrimp Boil

**For \$50, a Boil Buddy receives**

Recognition in April and May 2010 Newsletters  
Recognition at the Shrimp Boil

To join us in sponsoring this popular event  
contact Ken Lawrence ([lawrencekr@verizon.net](mailto:lawrencekr@verizon.net))

## 2010 Ralph L. Moore Scholarship

By George C. Bentinck

Each year the Wilmington Section ISA extends a \$1,000 scholarship to a high school senior who is planning to attend a 4-year college, university or technical training school. An ISA member of our section must sponsor the candidate and applicants pursuing a technical or science degree will be given higher preference.

The scholarship committee will select the successful candidate. **The application deadline is May 10, 2010.** The check written to the college of the candidate's choosing will be presented at the Wilmington ISA annual picnic in June. The application may be found on the Wilmington Section ISA website ([www.isa.org/community/wilmi](http://www.isa.org/community/wilmi)).

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Contribute to  
**ISA Automation Week 2010**

October 4-7, 2010, Houston, TX

Abstracts and Bios due April 16, 2010

Visit: [www.isaautomationweek.org](http://www.isaautomationweek.org)

Coming to Wilmington ...

### Mid-Atlantic ISA Applications in Automation Technical Conference

Wednesday, March 24th

(see front page for more information)