



NEWSLETTER

Analysis Division



Director Editor
 Jerry Clemons Ian Verhappen
 304/647-4358 780/790-4079

A Division of the Instrumentation Systems & Automation Society

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Director's Message

by Jerry Clemons

AD-2001 Symposium

As Ken Konrad mentioned in the last Newsletter, we are planning the 48th Annual Analysis Division Symposium at the Radisson Hobby - Houston, April 22-26, 2001. We already have about 30 papers and three panel discussions scheduled for the Symposium. Dale Merriman is the Program Chairman for the event. Dr. Jimmy Converse and

the event. Dr. Jimmy Converse and Ken Konrad are in charge of the papers and panels for technical sessions. If you need to contact Ken, Dale, or Dr. Converse, the phone and fax numbers are listed on the inside of the back cover of this Newsletter. To register for AD-2001, please go to the ISA Website at www.isa.org and click on Analysis Division. The registration form must be faxed or mailed to Dale Merriman as noted on the form. You cannot electronically submit the form from the Website. We have a great spouses program planned so bring your significant other and join us for the symposium.

Rotation of Division Officers

Contrary to normal events, the change in Executive Officers for the Division happened at the end of the calendar year. As a result Ken Konrad was able to serve an extra three months. I would like to take this opportunity to thank Ken for his great leadership of the Analysis Division for the last two years. Under Ken's leadership the Division continued to be one of the best, if not the best Division in ISA.

Winter Meeting

The ISA Presidents' Winter Meeting was held in Albuquerque, New Mexico from February 3-7. The big buzz during the meeting was the many changes being instituted within the society. Our leadership development workshop was titled "Reinventing ISA - The Beat Goes On." Numerous changes have been made within the society including the logo and the name. Our new name is ISA - The Instrumentation, Systems, and Automation Society. Other changes involve the Governance structure and responsibilities. We even have a task force set up by the ISA

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AD'2001

"Analytical Solutions for a New Millennium"

The annual ISA Analysis Division Symposium is dedicated to providing information for instrumentation and control professionals. In addition to the technical sessions and social activities, there will also be a number of short courses, Standards meetings, and ISA Business meetings at this event. Each technical session, typically 90 minutes, will cover a specific topic relevant to the programming Division and its membership.

From Monday through Wednesday, the symposia program will consist of four technical sessions (papers, panels, and tutorials) per day organized along a consistent theme. To compliment the program.

The Division will also host a limited number of interactive Vendor Suites where you will be able to talk with the engineers supporting various analyzer products on display.

REGISTER TODAY!

Radisson Hotel & Conference Center
 Hobby Airport Houston, TX

Contact for additional information: Dale Merriman Phone: (713) 978-7765, Fax: (713) 978-6230, dmermti@aol.com

CEMS Applications - Ken Konrad

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Editor's Corner

by Ian Verhappen

Here we are, spring again and time for the Annual Symposium. As is usually the case for this issue, the focus is on the program; hence, all the paper abstracts are included inside.

Please make note of the deadlines below so we can get the newsletter out to you our members in a timely fashion. It normally takes me 2-4 weeks from the deadline to 'pull it all together' and get the newsletter to the printer in Houston and then another 2 weeks after that to start arriving at people's door. This is worth considering if you should wish to advertise in the newsletter for a specific event or product announcement. Full details on how to place an advertisement in the newsletter can be found on the newsletter section of the Division web page at www.isa.org/~analysis as a PDF file, with examples. When submitting materials please send them to me in some form of Microsoft office file, such as Word or PowerPoint as that makes it easiest for me to copy in to Publisher. Thanks.

I will also be working with ISA headquarters to arrange for invoices to be sent to all our supporters who purchase announcements in the newsletter. When your notice arrives, please continue to support the Analysis Division and its members.

The dates for the next few issues of the newsletter are:

Volume 22 Number 1 — April 12 deadline for June distribution covering AD'2001 wrap-up

Volume 22 Number 2 — June 9 deadline for

The Analysis Division newsletter is published four times per year as a benefit to members of the ISA Analysis Division. All articles are copyright by the newsletter editor and Division. Subscriptions are available at a rate of \$70.00 US per year.

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changes involve the Governance structure and responsibilities. We even have a task force set up by the ISA President to discuss reinventing Divisions.

Another workshop was held to deal with the budget and business plan for the Division. In other business the AD-2002 Symposium budget was approved. There was also discussion centered around recombining the Analysis and Environmental Divisions. The Executive Board of ISA will consider this issue in the coming months and will act on it at the June meeting in Calgary.

AD Business Meeting

A business meeting of the Analysis Division was held on Monday, February 5. The primary topics discussed included plans for the Spring Symposium in Houston and the Division's participation in the ISA'2001, September 11-13, in Houston, Texas. If you would be willing to present a paper, do a tutorial, or arrange a panel discussion, please contact Ken Konrad. In other business, it was decided that we need to extend the Technical Interest Groups (TIG's) to include up to five members, two of which will act as Chairperson and Vice-Chairperson. We will also be asking the TIG's to contribute at least one article per year to the Newsletter.

Please sign up for the AD Symposium in Houston as soon as possible. We want this meeting to be even better than Charleston's meeting last year.

Thanks. Jerry M. Clemons

for July/August distribution covering Presidents' Summer Meeting in Calgary and ISA'2001 event preview

Volume 22 Number 3 — September 29 deadline for November distribution with ISA'2001 wrap-up

Volume 22 Number 4 — November 10 deadline for December distribution, Year-end wrap-up and ISA'2002 preview.

New Members

by Bill Johnson

A warm welcome to the following new members of the Analysis Division. If there is anything we can do to make your membership better, please let one of the Executive Committee listed inside the back cover know. We hope you will be with us for many years to come.

Sal Abduleziz
 Gary C. Astle
 Abdullahl A. Baba-Manu
 Bruce M. Barton
 Arthur S. Blancaflor
 David B. Borass
 Marcello Burattini
 Fred C. Burks Jr.
 Donald N. Campbell
 Suzanne Castrup
 George K. Chaffee
 Mohammad Asim Chaudry
 Chip Cockerham Jr.
 Larry Cook
 Daniel Corriveau
 Jo Cory
 Andrew G. Costello
 David H. Couch
 Edward L. Critzer
 Thomas C. Cunningham
 Paul Dackerman
 David Davies
 Albert DeBeer
 Paul Deignan
 William G. DePieri
 Jake DeWalt
 Joe Diggs
 Rod Dowden Jr.
 Jerry Dudley
 Rick A. Dubeau
 Mike Elfert
 Ronald E. Eddleman
 Maxwell Essibrah
 Alexandre Ferreira
 Jim Furnash
 Antonio D. Garcia
 Nicholas A. George
 Terrance J. Grace
 Warren J. Gross
 Al Gunnarson

James Harrison
 Gerard H. Hermes
 T. Hightower
 Yves Hinse
 Iman Izadi
 Wesley K. Jones
 Joaquin V. Juarez
 Les Kahalekai
 Michael Kosch
 Darrell W. Kowalyk
 H. Kramer
 Sadanand A. Kukede
 Milind S. Kulkarni
 Brian LaBelle
 Garret G. Larson
 Keith Lewbert
 Richard W. Lewis
 Richard E. Lohnes
 Kosuri Naga Venkata Malleswara Rao
 Mike Martin
 Ruben Dario Leon Martinez
 Bruce McIntosh
 Zohreh Mirfakhraie
 Denis Moran
 Ryan M. Morasse
 James R. Morton
 Govindan V. Murthy
 Sandy W.H. Ngai
 Paul O'Sullivan
 Allen T. Oravetz
 Ozan Ozlu
 Tejas Patel
 Arthur F. Psluk
 Michael E. Rodych
 Ibrahim Saihati
 Mark Schaffer
 K. Byron Schneldeu
 Erik J. Schoepke
 Thomas Schwindack
 Robert K. Sexton
 Andrew Shull
 Curtis Smith
 James M. Sowell
 N. Willem Steal
 Arne Svendsen
 Robert Towne
 Kurt M. Trefiak
 Guy Trudel
 Allreza H. Valizadeh
 David R. Wells
 John Whitechurch

Net News

A reminder that you can manage your own ISA email list subscriptions, like changing your email address or other settings as described below. Of course, staff are always willing to assist as needed.

Point your web browser to <http://www.isa.org/shellcgi/lyris.pl> and select the list to which you are subscribed. When requested, type in your e-mail address (NOTE: you must be accessing this function from an e-mail address that is registered on the list) - no password is necessary. You can then:

- Read Messages
- Create a New Password
- change Your Settings
- under Status you can elect to change how you receive mail: receive messages as they are contributed
- digest: one daily message with all the contributions for that day
- index: one daily message with only no subject lines for that day
- nomail: receive no mail from this mailing list (do not use this option)
- Leave (unsubscribe)
- Search messages:

To help clarify some list Frequently Asked Questions (FAQs) and policies, we will be sending out the following document about every 3 months for the edification of new and old list members alike. We gathered some of our most frequently asked questions in the hope that the answers will be new and useful to at least part of the list. We'll regularly update the FAQs to the list to keep everybody up to speed on our policies and procedures.

If you want to see the FAQ document at any other time, just head to <http://>

at any other time, just head to <http://www.isa.org/listfaqs/>

ISA Mail List FAQs and Policies

Q. What is a moderated list?

A. Each message sent to a moderated list must first undergo the scrutiny of a human moderator before it is mailed to the list members. This moderation is done to protect you, the list member, from getting dozens of completely irrelevant messages per day. The moderator is also tasked with helping the list grow into a healthy community of professionals, so messages not conducive to that goal (such as personal attacks) will be rejected.

Q. How do I subscribe to an ISA list?

A. If you aren't subscribed to the list and have access to the Web, head to the ISA

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MERTech Inc.
Analytical Instrumentation
713/978-7765 Fax 978-6230
 P.O. Box 571866
 Houston, TX 77257-1866



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 281-498-5855

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 Suite 101-S
 Deerfield Bch., FL 33442

(954) 428-7333 Fax (954) 360-0987
Toll Free 800-423-6464

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the ISA community mailing lists' Web interface at <http://www.isa.org/technicalforums/> and click on the name of the list you would like to join. You will be presented with the option to sign in, read the messages in the list archive, or join the list.

Q. How do I send a message to the list?

A. After becoming a list member, you can post messages to the entire list by sending them to "List-name"@isa-online.org. You can also use the Web interface (<http://www.isa.org/technicalforums/>) to send messages.

Q. I'm getting too much mail. Can I just get all of the e-mails in one message?

A. List messages can be sent to you in three

A. List messages can be sent to you in three different ways: as they come in, once a day as an index of subject lines, or once a day as a digest with the complete messages for that day. You can arrange to receive the digest by changing your options through the Web interface, or you can send a message to lyris@isa-online.org with set intech digest

in the body of the message.

Q. How do I get the index version?

A. You can receive an index of the day's subject lines, along with instructions on how to retrieve individual messages, by changing your options through the Web interface (<http://www.isa.org/technicalfo->

[nicalforums/](http://www.isa.org/technicalforums/)), or

sending a message to lyris@isa-online.org with

set intech index

in the body of the message.

Q. How do I unsubscribe from the list?

A. You can send a message to lyris@isa-online.org with the text unsubscribe "mail list"

in the body of the message. You must be sending the message from the address from which you are subscribed.

You may also unsubscribe from the Web interface at [http://www.isa.org/technicalfo-](http://www.isa.org/technicalforums/)

[rums/](http://www.isa.org/technicalfo-).

Q. How do I change my e-mail address?

A. The best way is to first unsubscribe from the original address before it is disabled, and then re-subscribe from your new address. If you have had to suddenly change e-mail addresses, then you can contact the list moderator to get your address changed.

You may also change your email address from the Web interface at <http://www.isa.org/technicalforums/>.

Q. I'm not getting my e-mail messages any more. What happened?

A. In order to weed out old or bad addresses, our list server automatically puts list members on "hold" if they "bounce" too many messages. In other words, if a message is sent to your address, and for some reason your mail server refuses to pass it on, then that will count as one bounce. After a member's e-mail address has bounced for a certain number of days straight, the member will be put on hold and will not receive any more messages from the list. A reminder will be sent to the member's e-mail address for a period of 10 days with instructions on how to release the hold on your e-mail address.

Q. How do I access past list messages?

A. You can access past messages through the list's Web interface (<http://www.isa.org/>

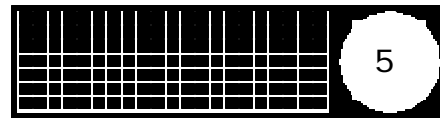
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www.isa.org/technicalforums/).

Q. How do I reply to a message?

A. Simply use the reply functionality of your e-mail client and the message will automatically go back to the list. If you wish to reply directly to the message's author and not to the list, copy and paste the author's e-mail address into the to: field in your message. (Don't forget to take out the mailing list address.)

Q. What is this message about?

A. Conversations tend to wander off the original topic, whether they're held around the water cooler or on an e-mail list. If the message thread (or list of messages based on the same subject) start to wander, please let the list members know by changing the subject line to something more descriptive of the new topic. When replying to the digest version, please copy and paste the subject line of the message you are replying to into the subject of the e-mail. That way it is possible to tell what the message is about by scanning the subject line.

Q. Can I send an attachment to the list?

A. No. We make it a policy to protect our list members from viruses and long download times by keeping attachments off the list. We usually prevent one or two viruses a month due to this policy.

Q. What happened to my formatting (bold, italics, etc.)?

A. Most e-mail programs that offer text formatting, such as making the text bold, do so by either using Rich Text Format (RTF) or HTML coding. Several widely used e-mail programs render either as an illegible mess, so we ask that list members always try to send their postings in plain text format only. (However, we realize that certain mail clients do not give you a choice in the matter.)

Spacing and line break issues also come up every once in a while. Given the fact that e-mail clients format an e-mail in a certain

certain way, then the list server formats it again, and the recipient's e-mail program formats it again, it's amazing it doesn't happen more often. Usually the messages will come through fairly clean, but if it is unreadable, we will let you know before sending it on to the group.

Q. Can I send an off-topic message to the list?

A. In general, messages sent to the list must be within the subject area of the list. However, we realize that your professional lives involve far more than just the subject matter for each list, so limited off-topic postings -- approved on a case-by-case basis -- are allowed. We would ask that you make sure there isn't another ISA list that would be more appropriate for the question, and -- if there isn't -- that you include some technical info appropriate to the list with your message, in the form of a short tip or recommended resource.

Q. Can I send press releases, help wanted ads, resumes, etc., through this list?

A. No, the list is for technical discussions among professionals, not commercial purposes. Since we live and work with products, some mention of the commercial aspects of the industry is impossible to avoid, but actually "conducting business" through the list is outside its purpose.

Q. Why can't I call [insert name here] a [insert epithet here] on the list?

A. One of the keys to building a healthy e-mail list community is respect for each other and for the list's diversity of opinions. Argument and debate are fine. Personal attacks are not. Remember that posting to the list is like talking to thousands of people at once, not just the person to which you are replying. You are responsible for what you write. Those who cannot be civil will be removed from the list of subscribers. Ask your moderator if you need clarification.

Q. Can we contact each other offlist?

A. Of course. If you are concerned about

A. Of course. If you are concerned about the appropriateness or private nature of your message, or you just don't feel like sharing the message with the list, feel free to contact each other offlist.

Q. Why can't I register my opinion about ISA policy on the list?

A. Occasionally list members who are also ISA members want to express their opinion about an ISA policy to the entire list. The messages are usually turned down. Why? The best answer is that it goes against the purpose of the list, which is technical discussion. Also to the point is that the lists are not for ISA members only, and why would a non-ISA member want to read a twenty-message thread of what went on at the last President's Meeting? We ask that ISA members contact the Society at info@isa.org or go through their local governance structure with their policy concerns. The ISA member newspaper, *ISA News & Views*, also has a letters to the editor section. (Members can see the online version of *ISA News & Views* at

<http://www.isa.org/newsandviews/> Each message is reviewed on a case-by-case basis, however, so messages that stay within the subject area of the list and offer useful information to the list members, but mention ISA policy in context, may be allowed. Ask the moderator if you have any questions.

Q. How can I get help on list issues?

A. Since each message is moderated; you can write to the list and put the word ADMIN in the subject. The moderator will contact you. You can also send a message to "List name"-owner@isa-online.org.

For help on e-mail commands, send a message to lyris@isa-online.org with the word "help" in the body.

Q. Is there more of this wonderful information?

A. Check out <http://www.isa.org/lawyer/> for all you could possibly want to know about ISA's list and Web site policies.

Student Competition

ISA International Student Competition, 9-10 September 2001 - Houston, Texas
You Can Help!

Since 1993, ISA has held the International Student Competition in conjunction with the fall event. The competition attracts students from Mexico, Canada, Russia, Italy and across the USA. Student teams compete in a question/answer, quick-draw Bowl and a hands-on, problem-solving Practical.

A major challenge each year is to develop clear, concise questions for the Bowl. Once developed, ISA Fellows review the questions, but the initial challenge is to get the questions! This is where you can help. In addition, without attending a committee meeting or accepting any on-site responsibility! You can submit questions!! Here are the guidelines for question developers:

1. Write the question. Cannot be yes/no or multiple choice. Cannot be copied out of one of ISA's study guides. Include all facts needed to determine the answer.
2. Provide the answer.
3. Put the question in one of these categories: (If your question does not fit into any of these categories, please specify a category.)
 - Basic Electricity/Electronics
 - Chemistry
 - Systems
 - Data Communications
 - General Instrumentation
 - Mechanical Devices
 - Physics
 - Process Measurement
4. Identify the level of difficulty. On a scale of 1 to 3 with 3 being hardest, identify the difficulty level of your question. A lot of 1 level questions are needed!
5. Submit your question(s) to:

ISA
International Student Competition Committee
ATTN: LGC
67 Alexander Drive
Research Triangle Park, NC 27709
Fax: 919/549-8288
E-mail: lcrumpler@isa.org

If you have read this far, you're hooked! Get those questions rolling. ISA needs you!! And thank you from the students who will participate in the Bowl in Houston.

Section Liaison

by L.M. "Dutch" Keen

Section/Division Report January 2001

When the first really cold front moves into this part of the country, in Texas we call them "**Blue Northers**," where will you be and what will you be doing for the good of your Society? Maybe we need to institute a Division in ISA called the Weather Division. That, of course, should not be mistaken for a group of "whether" men, the talking heads on television who constantly hedge their predictions of tomorrow's weather with the words, "maybe", "if", "could" and "possibly." Why isn't there a way to really predict what is going to happen? Really, weather forecasting is really not a new science, since records of weather patterns have been well kept for more than a hundred years. And, you would think that with today's powerful computers and predictive software, weather prognosticators would be able to pinpoint just what the weather should be. Or maybe it has to be, might be, maybe, possibly - translated - your guess is as good as mine is.

There should be a reason for all of that drivel about the weather shouldn't there? And, there is. One of the newest Divisions of the Society, the **Environmental Division**, an offspring of the Analysis Division,

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International Corner

by Francisco (Paco) Palacio

Just two quick items to report this time.

From 30th January through the 1st of February, the 14th Salon de l'Analyse Industrielle took place in Paris.

There were about 50 exhibitors at this year's event. Some of the equipment and services on display included: analyzer vendors, analyzer system integrators and manufacturers of ancillary analytical equipment. Visitors to the exhibit came primarily from France.

Further information on this annual event can be obtained from MCI, tel: +33-1-44-53-7220, fax: +33-1-44-53-7222, e-mail: salons@mci-salons.fr

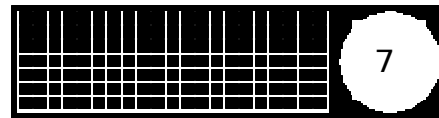
The Swiss company Schmidlin Labor & Service AG has recently introduced its new series of zero air generators.

These generators produce purified air for zero checking of vehicle emissions analysers and for burner air of flame ionization detectors (FID's). They remove moisture, particulates, carbon monoxide, hydrocarbons and nitrogen oxides down to < 1 ppm. Models capable of processing up to 30 liters/min are available.

Schmidlin claims that its zero air generators are a cost-effective replacement for conventional gas cylinders.

Send e-mail to sales@schmidlin-lab.ch to get product literature and pricing information. The request can be also made by fax: +41-41-757-51-59.

Advertise Here
next Issue!



Technical Interest Groups

by Ken Konrad

01. CHEMICAL ANALYZERS

Eric Mooney

Tytronics/Matrisa Co.
25 Wiggins Ave.
Bedford, MA. 01730-2323
T- 781/275-9660
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a- Efmoooney@aol.com

02. PHYSICAL PROPERTIES

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Port Arthur, TX 77641
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T- 925/842-0359
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e- ENET@chevron.com

03. SPECTROSCOPY

Bob Saltzman

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6 Sorrel Dr.
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T- 302/477-0261
F- 302/477-9810
e- RSALTZBSAI@aol.com

04. CHROMATOGRAPHY

Jerry Clemons

ABB Analytical
POB 831
Lewisburg, WV 24901
T- 304/647-1771
F- 304/645-4236
e- jerry.m.clemons@us.abb.com

05. SAMPLE SYSTEMS

Bob Sherman

Petrolab Company
874 Albany-Shaker Road
Latham, NY 12110
T- 518/783-5133
F- 518/783-1066
e- res@petrolab.com

06. VALIDATION

Jim McKinley

Kin-Tek Laboratories
504 Laurel St.
La Marque, TX 77568
T- 409/938-3627
F- 409/938-3710
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07. SYSTEMS INTEGRATION

John Burkland

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2000 NASA Rd. One
Seabrook, TX 77586
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F- 281/474-3211
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08. MAINTENANCE

John Sablatura, CSAT

Americas Regional Engineering Office,
ExxonMobil Research and Engineering
T- 281-834-7998
Pager 888-523-6389
F- 281-834-4898
e- jlsabla@fpe.erenj.com

09. STANDARDS

Jim Tatera

2038 Ridgewood Dr.
Madison, IN 47250
T- 812 265 2301
e- jtatera@seidata.com

10. GAS DETECTORS

Vacant

11. EMERGING TECHNOLOGY

John Everhart

Fisher Rosemont
12603 Southwest Freeway
Stafford, TX 77477-3818
T- 281/374-0749
F- 281/433-3096
e- john.everhart@frcro

12. ENVIRONMENTAL

Vacant

Volunteers Needed!

If you would like to participate in one of the Technical Interest Groups, please contact the appropriate chair or Division Director Jerry Clemons

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policies.

Well, that's about it. If you have any other questions, or any questions about the FAQ, please ask your moderator. We'll be more than happy to help. Thanks to everybody for your participation and helping to make the ISA Mail Lists the informative, lively place that it is.

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Analytical News Developments

If you have something that you think may interest our readers please send it along we will do our best to include it when we can.

People

Two people are due some congratulations this issue. Our own Division Director **Jerry Clemons** has been promoted to Vice President, General Manager for **ABB Automation Inc. — Analytical Division**. In this new expanded role, Jerry will be responsible for all site activities and will assume full operational responsibility for the Process Analytical Instrumentation product line.

The other announcement is that **Robert E. (Bob) Sherman** has left Chicago! Bob is the new President at Petrolab company of Latham New York. Bob's new contact information can be found in the Technical Interest Group listings of the newsletter.

Acquisitions

SensIR Technologies, Danbury Connecticut and **Perkin Elmer Instruments**, Norwalk, Connecticut have formed a strategic partnership to market a portable spectroscopic analyzer that can be used at the sample site instead of the lab.

Problem Solvers

Students at **Penn State** have developed a web site www.freequality.org that provides free of charge a host of charts, selectors, diagram generators and other tools for quality improvement professionals. All the tools on the site are free so if you need help with your SQC problem it may be worth a look.

QNX Software Systems of San Jose California is making its real time QNX platform available as a free download from its web site www.qnx.com The download includes

from its web site www.qnx.com The download includes the Real Time Operating System (RTOS), Graphical User Interface (GUI), toolchain, browser and multimedia technology for any non-commercial use at no charge. **IBM** is also giving away related real-time Java technology at www.ibm.com/software/ad/embedded to get version 1.2 of VisualAge Micro Edition, which contains a collection of Java support tools to access relational databases on any X86 processor. VisualAge requires the Neutrino operating system contained in QNX to operate.

If you would like to learn more about x-ray elemental spectroscopy, contact **ThermoNORAN**, Marketing Communications Dept. at 2551 W. Beltline Hwy, Middleton, WI 53562-9767 and ask for one or all of the following items: Page sized or wall chart Periodic table, "Energy Dispersive X-ray Fluorescence Spectrometry – An Introduction" booklet, or another booklet "Introduction to X-Ray Microanalysis (for electron microscopy)".

If you use XML, you may want to run it through the 'XML Conformance Test Suite' from NIST. Both the XML test suite and a companion suite for document object models contain more than 4000 test files. Go to www.nist.gov/xml/ to download the files you need.

Check out an extensive online calendar at: <http://www.automationmag.com/cale/> courtesy of Heather Angus, Editor Manufacturing AUTOMATION

Press Releases

If you have a Press Release you would like to share with the members of the Analysis Division, please forward it to the Newsletter editor care of the address printed inside the back cover.

KIN-TEK Laboratories, Inc., has put in place a new corporate management team.

Michael McKinley - has been appointed General Manager of the La Marque, Texas facility, which manufactures Gas Analyzer Calibration Systems, Gas Standards Generators and Standards. Michael started at the Texas facility in 1986. As General Manager,

(Continued from page 6)

Analysis Division, is in need of a little help and I know that there are folks out there who need an additional task to fulfill their membership goals. You know who you are, the members only who have been languishing in their respective Sections just waiting for an opportunity to contribute. "Now", you are asking yourself "what would I like to do to support that Division?" Certainly, you could have an interest in the environment, but you don't have to be a weather person. You could work in the **Water and Wastewater Industry** or the **Chemical Industry** or the **Power Industry** and be more concerned with the environment than other parts of your industry. And with that interest, you could be a big part of helping the Division over the "hump" so to speak.

Maybe the following that I gleaned from a newspaper cartoon is a good statement.

Life is a lot like golf. Even when it's going badly, you don't want it to end.

Now, that's the way I feel about the Environmental Division. It took a lot of work by a lot of people in the Society and in the Analysis Division especially to start this most important Division of the **Automation and Technology Department** and I would hate to see it fail. So, if you are at all interested in a new role in what could be a dynamic part of the Society, think about what you could do to help. You could write a technical paper for ISA'2001. You could be a part of a panel of experts to speak about environmental issues. Or finally, you could join the Executive Board of the Environmental Division by contacting **David Lewko** at his e-mail address

LewkoD@Bantrel.com or you could call him at (403) 716-8411. Or for more information about any of the more than twenty Divisions of the ISA, you could contact me at dutch.keen@worldnet.att.net.

Till next month

L.M. "Dutch" Keen, P.E.
Section/Division Liaison

(Continued on page 16)



(Continued from page 1)

CEMS Applications - Ken Konrad
(Intek Corporation)

Advances in the design of CEMS for low NO_x

Mike Hammond, KVB-Energetic

New regulations are driving down the NO_x emission levels from conventional power plants, combustion turbines, petro-chemical plants, and other industrial sources. These low levels pose several new challenges for CFMS designers and regulatory authorities as the bar is raised. The paper will discuss the work of standards makers, equipped suppliers, CBMS integrators, and certification stack testers working to meet these challenges.

Chemical Analyzers - Eric Mooney
Volatile Organic Carbon (VOC) Analyzer for Cooling Tower Water

Charles Kimbell

Volatile Organic Carbon (VOC) in cooling water and in wastewater can be measured and controlled at below 10-PPB weight levels. Continuous on-line monitoring is accomplished by using membrane sampling technology and solid state sensor read-out. A case study of continuous operation in an operating plant for a four (4) year period shows low maintenance and low down time. Heat exchanger leaks were detected at the time they occur and correlative measures rectify immediately the loss of product and release of emissions. The analyzer can be used to monitor effluent from a stream stripper when used to remove VOC from water or run off water. Control of stripper stream input to the level needed to meet requirements will save energy.

Biological pond control using an on-line analyzer to measure VOC in influent and effluent water simplifies management of the

ment of the operation. Deterioration of grab samples is not a problem when automatic on-line analysis is used. The incorporation of an automatic permeation tube calibration system with 4 to 20 mA output to the control room allows the plant operator to verify daily that the equipment is operating properly.

Reducing the Detection Limits for a Process Moisture Analyzer

Robert Bear

Self-Depleting Amperometric Sensor for PPB Level Dissolved Oxygen

Chang-Dong Feng

In order to achieve the ppb level accuracy with an amperometric dissolved oxygen sensor; the reduction of background current is necessary. It is well accepted that the source of the background current is the dissolved oxygen in the sensor electrolyte and other electrochemically active species introduced by the reference electrode. Currently, the way to achieve this goal is to add an extra electrode at the vicinity of the sensing electrode. The role of the extra electrode can be easily comprehended through its entitled names such as scavenging or guard-ring electrode. This approach increases the complexity of the sensor and electronic design, consequently, increase the cost of the sensor and the difficulties of sensor maintenance.

In this paper, a sensing model has been established through the analysis of both sensing and background current. The model reveals that the oxygen flux contributing to the background current can be limited significantly through the introduction of a diffusion channel. A Self-Depleting sensor design has been developed based on the model, eliminating the use of the extra electrode. The sensor exhibits 0.5ppb accuracy and less than 30 second for 99% response time. In addition, the simple design leads to low sensor maintenance.

Chromatography - Jerry Clemons

Chromatography - Jerry Clemons
An Order of Magnitude Improvement in Repeatability for an On-line Natural Gas Analysis

Teresa Lechner-Fish

An on-line gas chromatograph is designed to be installed in remote locations and to run continuously with minimal attendance in the field. Most commercial GCs for natural gas analysis are advertised as repeating ± 0.5 to 1.0 Btu per 1000 (± 0.05 to 0.1 %). This specification is typically derived from a single mid-range (i.e. room) temperature, and frequently verified by testing a single unit over a specified temperature range.

This specification can be improved to ± 0.25 Btu per 1000 if the GC is installed in a temperature-controlled zone (i.e. shelter) and calibrated weekly. The GC discussed in this presentation is evaluated dynamically over an ambient temperature range of 0 to 130 F (-18 to 55 C).

The increased thermal mass and improved insulation of the patent-pending GC design minimize the impact of environmental temperature changes. By integrating the valves and the detectors into a single structure, the lengths of the interconnecting tubing and the volume in the flow path can be greatly reduced. With this arrangement, the dead volume of the system has been reduced by approximately 60%. In addition, the maintenance process has been greatly simplified. In this presentation, system design, operating characteristics, durability and performance of an integrated on-line GC system will be discussed. The system performance (i.e. repeatability) data for two light hydrocarbon (C₁-C₁₀) applications will be presented. In addition, durability (i.e. long-term testing) data for the valve system will be included.

Chromatograph Maintenance: Simple vs. Complex Applications

Steve Smith

The intent of this paper is to provide the audience with results of a survey that we intend on conducting, which will measure Analyzer Engineers and Maintenance Tech-

Maintenance Technicians understanding (and desire) of both simple and complex process chromatograph applications. This survey will not be aimed at any particular model of chromatograph, but will measure the understanding (and solicit comments) from the everyday users of this equipment. **The Containment and Transfer of Low Level Trace Sulfur Gases for Gas Chromatographic Analysis**

G.A. Barone

The analysis of reduced sulfur-containing compounds such as H₂S and methylmercaptan has become more important because of odor complaints and new regulations for gasoline and diesel. Analysis of reduced sulfurs in the low part-per billion (ppb) range remains problematic. Because sulfur compounds can react with stainless steel surfaces surface treatments must be used to create a barrier protecting the sulfur compounds from reacting with any stainless steel transfer or storage equipment.

This presentation focuses on a new passivation technique, Sulfinert, for the treatment of transfer and storage vessels. This coating renders the stainless steel unreactive to low ppb levels of reactive sulfur species. Data and chromatograms will be presented to demonstrate the inertness of the coating. The information will contain stability and repeatability data of reduced sulfurs at 1 to 20 ppb concentrations.

Decentralizing Process Gas Chromatographs - Would there be any Benefit

Ulrich Gokeler

Due to their complexity, performance requirements and maintenance, on line Process Analyzers are typically installed in controlled environments. In order to reduce the number of analyzer shelters as well as the costs associated with them, centrally located analyzer shelters throughout plants are used to accommodate a number of analyzers each analyzing multiple sample streams in sequence. This centralized analyzer densification demands that the samples to be analyzed are transported from the individual sampling points to the analyzers and back without changing sample integrity

individual sampling points to the analyzers and back without changing sample integrity which frequently requires pumps and heat tracing. Consequently, the costs of analyzer shelters as well as the associated costs such as sample lines are frequently exceeding the costs of the analyzers installed.

On-line Monitoring of Total Sulfur in Combustion Fuel Using Process Gas Chromatography

Ulrich Gokeler

Based on the 1990 amendment to the Clean Air Act, increasingly stringent environmental regulations require the reduction of total sulfur in various fuels used in combustion engines in order to reduce sulfur emission. Consequently, it is desirable to monitor the sulfur content automatically to improve manufacturing and blending processes.

Whereas in the laboratory it is of interest to determine individual sulfur constituents in a matrix of high number of hydrocarbons, it is neither analytically necessary nor practical to do the same for online monitoring. The desired information from an on line analyzer is high sensitivity towards sulfur, independence of the sulfur species present and hydrocarbons matrix, long term stability as well as minimum of maintenance involved.

The described analytical system is an automatic on line total sulfur analyzer based on proven process gas chromatographic technique utilizing a new and unique system to vaporize small amounts of sample continuously. The vaporized sample is continuously burned in a FID flame to SO₂, Water and Carbon Dioxide. SO₂, representing the entire sulfur contents in the sample, is then separated using conventional gas chromatography and detected utilizing a Flame Photometer detector.

Optical Spectroscopy - Bob

Optical Spectroscopy - Bob Saltzman

Process Installation of a Near Infrared Spectrometer - A Case Study Approach

Jon Goode

Fourier Transform near infrared Spectroscopy (FT-NIR) has become a very powerful and versatile tool for Quality Control and Process Analysis in various industries. As a fast, accurate and nondestructive method of analysis, if-NIR spectrometers have rapidly moved into the plant floor of various factories for on-line, in-line or at-line process monitoring and control. This paper describes the long road from the laboratory to the plant floor using a case-study approach. The cases that will be examined in this paper will be discussed in terms of the following steps: 1. Assessing the feasibility of the NIR method on laboratory samples, 2) Modification of the laboratory setup for real time process samples, 3) Installation of the spectrometer in the factory, 4) Properties of the process in terms of variables like temperature, pressure, accessibility, safety issues, 5) Modification of the spectrometer and other hardware like the probe, fibers 6) Data Acquisition, processing, analysis and results 7) Communication of the results to the main computer of the factory 8) Noise in the data at various stages (0 Laboratory Verification, reference method and accuracy 10) Automation of the process for spectral collection, analysis and archiving.

In-Situ N113 Monitoring by TDL

Man Cowie

Lower NO_x emission limits are creating demand for Selective Catalytic Reduction (SCR) and Selective Non-Catalytic Reduction (SNCR) systems. These systems utilize ammonia injection for reaction with the NO_x and catalyst thereby significantly reducing the NO_x emissions. However, until recently there has been no accurate or reliable analytical method available for monitor-



method available for monitoring the unreacted NH_3 (ammonia slip). This paper discusses the technical merits of measuring the ammonia directly in the outlet duct of an SCR/SNCR with a Tunable Diode Laser (TDL) analyzer. Significant benefits exist with an in-situ TDL, especially by elimination of the traditionally problematic extractive sample conditioning systems.

Teaching An Old Dog New Tricks: New Applications of UV Spectroscopy in Refinery and Petrochemical Applications

Phil Harris

Ultraviolet absorption spectroscopy has been used for decades in the refining and petrochemical industry. Online spectroscopic methods allow for rapid compositional analysis of process streams, and provide the capability for real-time monitoring and control. Common applications have been the measurement of SO_2 and H_2S in sulfur recovery unit tail gas, H_2S in acid gas feed, continuous emissions monitoring for SO_2 , and measurement of chlorine in numerous petrochemical processes. Improvements to the technology, both in terms of the spectrometers themselves and the sample systems, have made it possible to use spectrometers in new applications, or to increase the measuring capabilities of existing spectrometers in conventional applications. Specific examples are reviewed, including the measurement of COS and CS_2 in sulfur plant tail gas, measurement of H_2S and COS in SCOT contactor overheads, simultaneous determination of 802 and NO_x in catalytic cracking units, analysis of sour water stripper gases for ammonia and H_2S , as well as the simultaneous determination of H_2S , COS and Methyl Mercaptan in synthesis gas, amine contactor overhead and sales gas streams. The use of spectrometers in these applications have enabled real-time control of processes previously monitored by batch sampling, thereby reducing emissions and improving plant operations through better control.

New Developments for Chemical Analysis using Process Photometry

Don Goldman

Confusion exists when selecting between process spectrophotometers and photometers for chemical analysis. Often, this is a choice between the extra cost and expense of the spectrophotometer system, the perceived need to have full spectrum data, and the stability, but more limited scope of the photometer. New developments in process photometry will be covered that help bridge this gap, including simultaneous UV/VIS and NIR analysis, multi-point measurements, and chemical outlier detection using chemometric methods.

Faster, Lower Cost Process Monitoring with Laser Based Gas Detectors

Hamish Adam

Laser based gas detectors using room temperature tunable diode lasers (TLD) are gaining growing acceptance for highly critical ambient and safety monitoring applications. However, this technology also has significant advantages for critical process monitoring applications. Laser gas detection is highly specific (no interference's) and fast (1 second response). By using multiple pass measurement cells, laser analysis can also be made very amenable to use with fiber optics. Therefore, a single analyzer can monitor a multiple number of analysis points in a process, leading to significantly lower cost per measurement. A new multiple point/path TLD analyzer configuration is described. This system can monitor up to 8 points or paths simultaneously. Measurement can be open path, in-situ or extractive, or any mixture of these. Recent experience with multiple open path and in-situ HF monitoring installations are presented. A system under development for monitoring low concentrations of trace contaminants in manufacturing processes is introduced. This system takes advantage of a new design of close-coupled extractive probe in which reduced pressure measurements enable greater sensitivity and faster response. Target applications are discussed.

From Single Component to Multi

sitivity and faster response. Target applications are discussed.

From Single Component to Multi Component UV Analyzers for the Sulfur Recovery Industry

Yoav Barshad

For a sulfur recovery process to work in an optimized manner various types of on-line analyses are required. The application include process control, end product quality assurance and safe storage. Where the components to be measured, single vs. multi components, concentration range and sampling conditions differ. Basically, two types of analyzers were employed. Both utilize diode array detection and are in-situ. For the more demanding applications where the components to be measured are at minute quantities or when overlapping spectral features need to be resolved a high end spectrophotometer was used with extremely high sensitivity and low signal to noise ratio. Whereas a lower cost spectrophotometer was used in single component applications.

When using diode array detection a full spectrum is taken, allowing for flexibility in choosing the wavelengths to monitor and hence, moving from one component to another require only a modification of a user-defined parameter.

Each application will be described and an analyzer suggested. A detailed description of an in-situ tail gas analyzer and the monitoring of low levels of H_2S by a cost-effective approach will be given.

On-Line Photometer for Caustic Monitoring

Thomas Cardis

An important measurement to ensure the safe operation of acid gas scrubbers is the analysis of caustic in aqueous streams. Hydrochloric acid (HCl) and chlorine (Cl_2) are examples of acidic gases that are removed in acid gas scrubbers. Aqueous solutions of sodium hydroxide are normally used in acid gas scrubbers. The use of an On-line Photometer to monitor caustic concentration will be presented. The fast response time of the Photometer allows for quick remedial action when

Photometer allows for quick remedial action when upsets occur in the scrubber. The multiwavelength Photometer has the capability to compensate for multiple interfering salts that can be present in the scrubber stream. Reliable monitoring of the caustic concentration with a Photometer provides the following benefits in the operation of the acid gas scrubber. (1) Protection from environmental problems by preventing the release of acid gases, (2) Reduced consumption of caustic by allowing operation at lower caustic concentrations, (3) Minimize corrosion of equipment in surrounding plant areas.

A New Advanced Infrared-Based Analyzer for Fast Analysis of Ultra Trace Gas Impurities

Mary Lou Markowski

MEECO, Inc. in collaboration with Princeton University, has developed a new advanced infrared-based analyzer to perform fast and reliable analysis of ultra trace gas impurities. The complete analytical system, the MTO-1000, is capable of measuring moisture to 0.5 PPB and other ultra trace gas impurities such as NH₃, CO, HCl, HF and CH₄ to PPB or sub-PPB concentrations. The analyzer is capable of performing trace gas impurity measurements in both inert and corrosive sample gases. The speed of response is fast, in microseconds, due to the infrared light being detected by a time constant instead of light intensity. The analyzer operates by charging a sample cell cavity with infrared light from an inexpensive diode laser. The time it takes for the residual infrared light to leak out from the cell cavity is the cavity ring-down spectroscopic (CRDS) signal. The analyzer follows Beer's Law to quantitate the amount of trace gas impurity adsorbing the infrared light, but avoids the background noise of measuring the light that is found in conventional infrared-based analyzers. The analyzer is highly selective and specific because each trace gas impurity has its own IR fingerprint or set of spectral wavelength lines that can be measured. Calibration data will be presented to demonstrate the speed of response, sensitivity and accuracy of the CRDS signal.

Process Spectroscopy of Liquids -

be presented to demonstrate the speed of response, sensitivity and accuracy of the CRDS signal.

Process Spectroscopy of Liquids - Big Bubbles? No Trouble!

Patrick Wiegand

Process Spectroscopy, such as near-infrared, ultraviolet, visible and Raman, have enjoyed great success in recent years. However, as any practitioner of this art will tell you, occasionally there are streams that are difficult to analyze due to their physical nature. One problem, which is often experienced, is ensuring that the light from the analyzer travels through a continuous, homogeneous liquid. Inhomogeneity can be due to particulates, bubbles, or a poorly positioned probe. This talk will focus primarily on probe placement and strategies for dealing with bubbles in liquid streams. An easy modification of a process NIR probe will be presented, along with results showing the effectiveness of this modification.

Non-Optical Spectroscopy - James Tatera

Optimizing Catalytic Reformer Processes with Ion Mobility Spectrometry

Tad Brown

Guided Microwave Spectroscopy: A Unique Analytical Method for In-Line Process Analysis

Joe Rettinger

Guided Microwave Spectroscopy (GMS) is a unique analytical method capable of accurate and precise multi-component analysis of process materials. This technique is designed to be unaffected by many of the factors that can influence in-line analysis including temperature, density, color, flow rate and particle size. The GMS performs rapid at-line, in-line or in situ composition analysis of liquids, slurries, and granular solids flowing through a pipe or duct on a full-tube basis. The use of microwaves allows the GMS to perform a continuous cross-sectional analysis of a flowing sample while minimizing the error associated with large particles. GMS analysis is performed

error associated with large particles. GMS analysis is performed by passing low intensity microwaves in the 0.2 to 3.2 GHz region through a static or flowing sample, causing the sample molecules to rotate. Energy is absorbed at each monitored frequency based upon the dielectric properties of the material. The dielectric loss caused by combinations of various chemical functional groups creates a unique spectral signature capable of identifying changes in chemical composition. Spectral responses are used to calibrate the instrument based upon a reliable reference analysis method. Once the instrument has collected data from the various conditions of the process, it can operate in a stand-alone configuration with real-time outputs.

Physical Properties - Don Nettles/Pete Wiseski

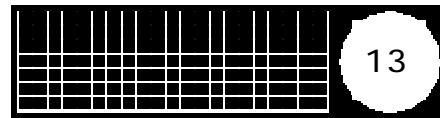
Use Refractive Index Measurements to Improve Fibers Production

John Groetsch

The refractive index principle has been used to measure a liquid concentration for over 100 years. The introduction of CCD scanner technology combined with advanced imaging techniques has created a true digital process refractometer. This new digital refractometer eliminates the problems with prior instrumentation based on analog technology. Due to the true digital measuring principle, there is no influence by entrained air bubbles, suspended particles, or the fluid's color. This in-line measurement device has been successfully used in the production of fiberglass insulation, nylon fibers, coated fibers and polyethylene terephthalate (PET). The ability to make this measurement has eliminated sampling, improved product consistency, reduced product waste and has helped to optimize the process.

On-Line Sulfur Monitoring in LPG Products

(Continued on page 13)



On-Line Sulfur Monitoring in LPG Products

Ken Hearn

The discussion will be centered around an on-line instrument developed and designed by a major global petroleum company based on the standard test method for copper strip corrosion by liquefied petroleum gases, ASTM D 1838-89. The simplified design, installation and greatly reduced maintenance requirements will be heavily stressed as well as other potential applications.

FTNIR Calibration Transport for Refinery Product Measurements

Fred Baudais

Gasoline Blending is a complex Refining process, as operating personnel are required to meet fuel quality and legislative targets while operating at the lowest possible cost. To meet these operating targets typical properties that are measured include RON, MON, RVP, Aromatics, Benzene, Olefins, D86 Distillation Points, and Oxygenates. Traditionally, these measurements have been obtained by periodically stopping the blend process to obtain laboratory validations or have utilized slower response on-line analytical techniques. The financial incentive to blend continuously and faster is very significant, and so rapid on-line analysis of the key product properties is highly desired. FTNIR has proved to be a reliable and cost efficient technique for this purpose. A further development in the use of this technique is analyzer technology that allows seamless calibration transport between analyzers. This is particularly useful for a Refinery that operates parallel blenders and also wishes to use FTNIR in the laboratory as an off-line check or to provide redundant analyses.

This paper will describe a successful Refinery implementation of transporting the same calibration on Lab and multiple Process analyzers.

Advanced Paramagnetic Analysis for the Chemical, petrochemical and Refinery Industries

Mark Gibson

Panametrics introduces a new Oxygen Analyzer (Model APX) to the Chemical, Petro-Chemical, and the Refinery industries. This advanced paramagnetic analyzer has the ability to self-compensate for varying changes to the background composition in a gas stream. These variations can be in the form of pressure fluctuations or in actual hydrocarbon background composition changes. The heart of this analysis system is a solid state thermo-paramagnetic sensor operated at 45C. Oxygen ranges are from 0-1% with x-proof and weatherproof enclosures available.

Economics of Process Analyzer Applications

Stefanie Koch

National and international product standards, more recently also the ISO 9000 quality standards, define the value determining and application specific properties of hydrocarbon products. Conformity with these standards has traditionally been monitored at the end of the production process by means of analysis in a laboratory. Modern measurement methods, i.e. the application of automated testing procedures - termed process analyzers - together with real time measurement of other scalar process parameters, make an earlier degree of quality control or quality assurance possible during the production phase. This offers the advantage of monitoring, regulation, and control intervention during the production run. This paper reports the criteria and quantifiable factors that can serve for deciding the economy of an investment in process analysis. These indicators may be useful in preparing an upcoming decision for investment by means of a realistic economic appraisal.

Proposal for the SP76 Modular Sampling Standard Concept - Jim Tatera

Developments in Surface Mount Sampling Conditioning, Stream Switching & Vent Recovery System Technologies

Steve Doe

Over the last 20 years, little has changed in the world of analyzer sample conditioning systems. Current system technology includes the limitations of pipe threads, costly and skill demanding tube fabrication techniques, large cabinets or enclosures, and a host of other shortcomings. In order to reduce the cost of ownership and provide lower maintenance, leak free systems with smaller space requirements, a technological leap is on the horizon for system integrators and end users. Surface mount technology reminiscent of what is currently used in the Semiconductor Industry provides that technological quantum leap. This discussion will outline the background of surface mount technology, how and where it is used in the Semiconductor Industry and which attributes parallel and deviate from the needs of the Petro-Chemical Industry. An overview of sealing and fastening technologies will be also be presented, as well as actual device design profiles. Several real-world sample-conditioning systems utilizing surface mont technology will be compared with traditional technologies as well.

More information: <http://www.isa.org/analysis/paperpresent.html>

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Stenberg Tutorial / Keyote

Real time measurement of Ammonia (NH₃) and Oxides of Nitrogen (NO, NO₂) for process and environmental applications

Paul Stenberg, President, OPSIS

Recent regulations have implemented requirements for measurement of low concentrations of NO/NO₂(NO_x). In addition, the use of NH₃ for NO_x control/reduction has increased the demand for reliable NH₃ measurements. In either case, traditional indirect measurement technology can be overly complicated and in some cases, erroneous. Traditional extractive measurements of gas concentrations have required complicated system approaches using multiple analyzers and sample conditioning systems. Often, measurements require heated sample lines, moisture drop out systems and complicated dilution systems to prepare a gas stream for measurement. To further complicate the measurement, thermal/catalytic converters are required when using chemiluminescent technology.

In situ measurements greatly simplify the measurement of NO_x and NH₃. In addition, the measurements are direct and eliminate any chance of measurement corruption resulting from sample conditioning and component conversion. Differential Absorption Optical Spectroscopy (DOAS) and Tunable Diode Laser Spectroscopy (TDLS) are two such in situ technologies.

The use of DOAS using Ultraviolet (UV) or Infra red (IR) energy sources greatly simplifies the measurement of multiple gases found in the environment or process gas streams. In addition, TDLS technology can also fit these applications very well. This presentation will review the science and analytical process of DOAS and TDL as applied to the in situ measurement of NH₃ and NO_x.

Gilmer Thomason Fowler Award

This award is presented annually by the Analysis Division (AD) of ISA to the author of the best paper in the AD Spring Symposium.

Award and Presentation: This award carries an honorarium of \$400.00 and a plaque or certificate. It is presented at the ISA Fall Symposium during the A&T/I&S Department Honors and Awards Banquet. It was initiated in 1976. The award is sponsored by the AD as a memorial to three of its past directors who are deceased. Fred Gilmer of the DuPont Co., Wilmington, Delaware served as Director in 1967. Edward L. Thomason of the Monsanto Co., Texas City, Texas and the Beckman Instrument Co., Fullerton, California served as Director in 1971. Dr. Lewis Fowler of the Monsanto Co., St. Louis, Missouri was the AD Director in 1965 and 1966.

Qualifications: This award is open to any person of any nation. Its purpose is to recognize the author or authors who prepare and present the best technical paper at the annual AD Spring Symposium. It was originated to encourage technical quality and originality in the paper and in clear logical presentation. The paper must be published in the Symposium Proceedings. This also requires the author(s) to submit the paper in the accepted ISA format to ISA Headquarters prior to the established manuscript deadline.

Administration and Judging: This award is administered by the AD Honors and Awards Chairman. the current AD Director appoints a GTF Award Chairman who in turn appoints a judging committee of three AD members. This committee then selects the four best papers prior to the symposium. the final decision is based upon the written Technical Content (70%) and (30%) on the Presentation at the symposium. The following is included in the technical review: Originality (20%), Useful-

Spousal Program

S...P...O...U...S...E...S

Welcome to AD'2001 in Houston

For Planned Activities Contact:

Laura Konrad at intelksk@aol.com or Tommie Merriman at TMerr1836@aol.com

Monday April 23

Kemah's Gas Light District & The Kemah Boardwalk A Waterfront entertainment complex with shopping & restaurants
Lunch at The Crab House (Dutch Treat)
Depart: 9:30 a.m.

Return: 3:00 p.m.

Tuesday April 24

Galveston Island Tour Moody Garden Rain Forest (Tour \$7.50) Lunch at The Fisherman's Wharf (Dutch Treat) Tour Moody Mansion (Tour \$6.00)

Depart: 9 :00 a.m.

Return: 4:00 p.m.

Wednesday April 25

Relax and Visit Lunch at Gringo's (Dutch Treat) (A Mexican Restaurant)

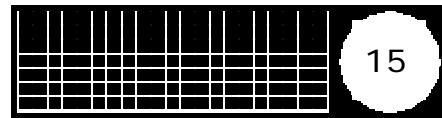
Depart: 11:15 a.m.

From the Radisson Hotel Lobby

A lounge for spouses will be provided for relaxation, refreshments, and visiting.

Please plan to meet between 8:00 and 9:00 each morning; it's an opportunity to renew acquaintances and greet new friends. Let us know at registration if you plan to participate in the planned activities.

the technical review: Originality (20%), Usefulness (20%), Completeness (10%), Clarity (10%), and Accuracy (10%). The Presentation portion, which is judged by the audience, includes Organization (10%), Illustrations (10%), and Viewer Impact (10%). It is important for the Session Developers to allow the Final Four authors to have a question and answer session at the end of the presentation so that the Viewer Impact may be properly judged.



Who, What Where, When

If you would like to have your analytical or environmental meeting included in this column, please send information to the newsletter editor (address inside back cover) with as much lead-time as possible. Remember that we only publish quarterly and need about 2 months additional lead-time on top of this as well.

ISA Sponsored Meetings

April 22 - 26, 2001

AD/2001, Analysis Division 46th Annual Spring Symposium, with Houston Area Committee, Houston, Texas. See complete write-up and program elsewhere in the newsletter.

April 22 - 26, 2001

Houston Analysis Subsection Meeting dates, April 18, June 20, September 7 (26th Annual Shrimp Boil), October 17, December 19.

June 2 - 6, 2001

Presidents' Summer Meeting, Calgary, Alberta.

July 7 - 13, 2001

44th Annual POWID Conference, Orlando, Florida

September 8 - 9, 2001

Presidents' Fall Meeting, Houston, Texas

September 10 - 13, 2001

ISA'2001 Conference and Exhibit + 1st Annual Emerging Technologies Conference + IMEKO Special Millennium Sessions, Houston, Texas.

February, 2001

Presidents' Winter Meeting, Florida

April 14 - 18, 2002

AD/2002, Analysis Division 47th Annual Spring Symposium, Denver, Colorado

May 5 - 9, 2002

Aerospace Industries/ Test Measurement Division 48th International In-

strumentation Symposium, San Diego, California

June, 2002

Presidents' Summer Meeting, Research Triangle Park, North Carolina.

October 21 - 24, 2002

ISA'2002 Conference and Exhibit, Chicago, Illinois.

April 6 - 10, 2003

AD/2003, Analysis Division 48th Annual Spring Symposium, Calgary, Alberta Canada

May 4 - 8, 2003

Aerospace Industries/ Test Measurement Division 49th International Instrumentation Symposium, Orlando, Florida

October 20 - 23, 2003

ISA'2003 Conference and Exhibit, Houston, Texas.

April 18 - 22, 2004

AD/2004, Analysis Division 49th Annual Spring Symposium, Cincinnati/Lexington, Ohio

May 2 - 6, 2004

Aerospace Industries/ Test Measurement Division 50th International Instrumentation Symposium, Dallas, Texas

September 20 - 23, 2004

ISA'2004 Conference and Exhibit, New Orleans, Louisiana.

April 10 - 14, 2005

AD/2005, Analysis Division 50th Annual Spring Symposium, Research Triangle Park, North Carolina

May 1 - 5, 2005

Aerospace Industries/ Test Measurement Division 51st International Instrumentation Symposium, Las Vegas, Nevada

October, 2005

ISA'2005 Con-

ference and Exhibit, Chicago, Illinois.

April 2 - 6, 2006

AD/2006, Analysis Division 51st Annual Spring Symposium, New Orleans, Louisiana

October 9 - 12, 2006

ISA'2006 Conference and Exhibit, Houston, Texas

April 15 - 20, 2007

AD/2007, Analysis Division 52nd Annual Spring Symposium, Houston, Texas.

2007

ISA'2007 Conference and Exhibit, Chicago, Illinois.

April, 2008

AD/2008, Analysis Division 53rd Annual Spring Symposium, Newark, Delaware

October 20 - 23, 2008

ISA'2008 Conference and Exhibit, Houston, Texas.

April, 2009

AD/2009, Analysis Division 54th Annual Spring Symposium, Baton Rouge, Louisiana

2009

ISA'2009 Conference and Exhibit, Chicago, Illinois.

April, 2010

AD/2010, Analysis Division 55th Annual Spring Symposium, San Antonio, Texas.

October 11 - 14, 2010

ISA'2010 Conference and Exhibit, New Orleans, Louisiana.

Non-ISA Meetings

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May 7 - 11, 2001

AchemAsia, 5th International Exhibition-Congress on Chemical Engineering and Biotechnology, Beijing, China. Telephone 49-(0)69 / 7564-201, or e-mail achema@dechema.de or www.dechema.de

May 16 - 20, 2001

5th International Exhibition of Industrial Instrument, Measurement, Analytical and Control Engineering and Technology, Bangkok International Trade and Exhibition Centre, Thailand. Telephone 662 642-6911-8 ext. 24, fax 663 642-6919-20 or URL www.thai-exhibition.com

May 21 - 23, 2001

IMTC/2001, Budapest Congress Center, Budapest, Hungary. Contact Professor Gábor Péceli at telephone +31 1 463-2057, fax +36 1 463 4112 e-mail peceli@mit.bme.hu or at <http://www.mit.bme.hu/events/imtc2001/>

June 11 - 13, 2001

Foundation Fieldbus – Jumping Ahead, Perth, Australia. Phone 780 790-4079 (North America), nnnn (Australia) or send an e-mail to ...

June 13 - 14, 2001

4th Annual Chemical Engineering Exposition, Donald E. Stephens Convention Center, Rosemount, Illinois. Phone 212 621-4959, or at www.che.com

June 17 - 22, 2001

HPLC-2001, Maastricht, Netherlands. Telephone +31 24 323 4471 to find out more.

June 25 - 27, 2001

20th American Control Conference, Crystal Gateway Marriott Arlington, Virginia. For further information, please consult the conference web site at <http://acc2001.che.ufl.edu>.

July 3 - 6, 2001

CHEMTEC China 2001, Intex Shanghai Level 1, Shanghai, China. Sponsors may be reached at 65 534 3588, fax 65 534 2330 or e-mail hqlink@singnet.com.sg

August 6 - 8, 2001

26th International Thermal Conductiv-

ity Conference & 14th International Thermal Expansion Symposium, Cambridge, Massachusetts. For further information, please send an e-mail to nancy@MathisInstruments.com

September 10 - 11, 2001

8th Annual India Oil & Gas Review Symposium, Leela Kempinski, Mumbai, India. For further information, please contact S.M Singh Gandhi (oilasia@vsnl.com), phone 91-022-6325787, -6327177, -6332324 or fax -6367676 more information at www.oilasia.com.

September 23 - 27, 2001

6th World Congress of Chemical Engineering (ACHEMA), Melbourne, Australia. Call 61 3 9819 3700 or send an e-mail to chemeng@meetingplanners.com.au or look at URL www.chemengcongress.com to find out more.

October 13 - 17, 2001

Water Environment Federation (WEFTEC) 74th Annual Conference & Exhibition, Georgia World Congress Center, Atlanta, Georgia. For further information, please call 800 666-0206 consult the conference web site at www.wef.org

May 6 - 9, 2002

Offshore Technology Conference, Houston, Texas

Call for Papers

Over 500 delegates from over 15 countries are expected to participate in the **8th Annual India Oil & Gas Review Symposium** with Technical sessions during the 2-Day event of over 50 presentations.

We are organising special sessions on Transportation of Oil & Gas, Pipeline Industry, Natural Gas - LNG, IT solutions for oil sector, Environment, Management, Safety and latest technology to save costs. Top experts from India and abroad have been invited. The entire gamut of Petroleum - Trade & Commerce, Technology and Infrastructure, Policies and Perspec-

Policies and Perspectives, Economic Issues & Financing, Projects & Implementation and related topics covering the overall Petroleum, Energy and Power will be discussed. The Technical Committee of IORS-2001 invites presentations from forward looking industry professionals who are able to address the business and technology prospects of this expansion with a specific outlook for the 21st Century.

(Continued from page 8)

Gas Standards Generators and Standards. Michael started at the Texas facility in 1986. As General Manager, he will be responsible for management of manufacturing, R&D and P & L.

Troy Robertson - has been appointed Sales & Business Development Manager for the La Marque, Texas facility. Troy will set and direct global Sales and business development strategies for the company.

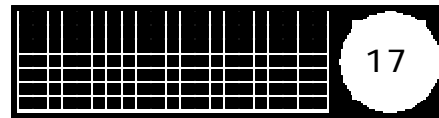
Jim McKinley - has been named Chief Technical Advisor . Jim will serve as technical resource for the company's R&D, Sales and Manufacturing teams. He brings more than 30 years of analytical instrument design and calibration gas experience to the industry.

Jane Jolly - has been named Director of Marketing. She has worked in sales and marketing for more than 20 years. In this new role, Jane will set and direct global market strategies for the company.

ABB Process Analytics, announced the following in their most recent issue of "Factory Fax."

The Vista II Model 2009 Fast Temperature Programmed Gas Chromatograph (TPGC) approach does not complicate the analyzer in any way. There is no requirement for a complex 'oven-in-oven' to house the columns.

Instead, the approach is to decrease the measurement cycle in temperature programmed applications by reducing total mass of the temperature programmed



grammed section of the analyzer. This is accomplished by applying electrical current directly to conductive column materials, thereby heating the column.

Injection Valve, Directly Heated Separation Column, Detector. About as simple as it gets. ABB Analytical has focused its initial application work towards a few measurements that are of key importance to the refining industry. To date, traditional temperature programmed gas chromatographs have provided Simulated Distillation results using ASTM D3710 for Gasoline and D2887 for other Distillates. These applications resulted in analysis cycle times of about 16 minutes.

The Vista II Model 2009 cycle time for these applications is approximately 3 minutes.

Product introduction was at PITTCON 2001 in March for the NEC version with the Simulated Distillation application. The first production units should be available in late June for the NEC version. Sales release to additional world markets is to be coordinated with safety certifications for CSA and CENELEC, anticipated for the Fourth Quarter 2001.

(Continued from page 18)

Problem

G. Approaches to Procuring Analytical Services

Module II. Sample Extraction, Conditioning, and Preparation for On-Line Analysis

CONTINUOUS PROCESS SAMPLING

- A. Definition
- B. System Functions
- C. Importance of Good System Design
- D. Principles of Sample Handling
 - a 1. Extracting a Representative Sample
 - 2. Isokinetic Sampling
 - b 3. Averaging Multiple Samples

ISA — The Value Added

When we look at ISA, those of us who have been involved in leadership positions

by Walt Boyes,
Reprinted from
District 8 Newsletter

often forget that what matters to most people is what value there is for them in belonging to ISA. We have seen the value, and are engaged in giving back to ISA for what we have received.

But how do we communicate that to new members, or potential members? We know from our studies that if we can keep a member for five years, we have a good chance of keeping the member until retirement. Why is that? Because after five years, the member has realized what value there is in belonging to ISA.

So, what value is there? It isn't INTECH because you can get INTECH without being a member. You can qualify to receive INTECH, and we send out quite a few copies to non-members every year. You don't even have to be a member to work on a Standards Committee. It isn't the ISA Directory, because you can now get the Directory at <http://www.isamarketplace.org> without being a member.

It isn't the member benefits like discounts on rental cars, and insurance plans. Most of our membership can't use those plans anyway.

So, what value is there in belonging to ISA?

- c 4. Quenching Reactions
- d 5. Contaminant Removal
- E. Sample Transfer
 - 1. Sizing Liquid Lines
 - 2. Sizing Vapor Lines
 - 3. Phase Preservation
 - 4. Adsorption
 - e 5. Diffusion

ISA?

ISA is the community of the automation and controls profession. It is the place where those of us who ended up as an "instrument person" after starting out to do something entirely different can come to get professional recognition, professional training, share our experiences, get mentoring, be a mentor, learn policies and procedures, and network with other professionals who understand that automation and control is different from IT and MIS, and isn't a subdiscipline of Operations. ISA is the one place where all of the different things we do as control professionals, whether we are in sales, marketing, operations, engineering or management, come together.

Sure, you can get all of this stuff outside of ISA. You can get some of the community from the Automation List. You can get some of the training elsewhere. You can get some of the professional recognition elsewhere. You can get mentoring, and network with controls professionals outside of ISA. But ISA is the one place where you can get **ALL OF THOSE THINGS**. ISA is a one-stop-shop for automation and controls professionals.

But the lesson that is the hardest to convey is that you get out of ISA what you put into it. The more you demand from your ISA experience the more you will gain. That's what people who have been members for five years or more understand.

F. Basic Conditioning Elements

- 1. Cleaning
- 2. Condensing
- f 3. Vaporization
- g 4. Pressure Reduction & Flow Control
- h 5. Motive Force
- G. Fundamentals of Sample Preparation
 - 1. Component Isolation
 - i 2. Chemical Reaction

(Continued on page 18)

AD Course Proposal

by Jimmy Converse

AUTOMATED CHEMICAL CONCENTRATION ANALYZER SYSTEMS FOR ON-SITE REAL TIME SAMPLE PREPARATION & ANALYTE MEASUREMENT APPLICATIONS

Module I. Introduction

- A. Changing Times and Technology
- B. Separating Sample Preparation from Concentration Measurement
- C. What Should the Analyzer Customer Demand from the Contractor?
- D. Practical Considerations
- E. Trends in Analytical Instrumentation
- F. Opposing Approaches to A Similar

(Continued on page 17)

(Continued from page 17)

DISCRETE PROCESS SAMPLING

- H. Advantages
- I. Remote / Flow Injection / Multidimensional Preparation
- J. Chronography Fundamentals
 1. Linear Column Operating Parameters
- A. Multidimensional Manipulation Techniques
 1. Single Dimension
 1. Several Dimensions
 2. Temperature
 3. Pressure / Flow Rate
 4. Carrier Fluids
 5. Isolation Devices
 6. Measurement Devices
 7. Valves for Directing Path [Cut vs. Trap & Transfer]
 8. Valve / Device Configuration

Module III. Measurement Devices

- A. Mechanical
- B. Thermal
- C. Electrical

- sults
6. Manual vs. Automatic
- A. Calibration Based on Statistical Evaluation
 1. Statistical Quality Control Methods
 2. Control Chart Preparation Methods
 3. Decisions and Actions
- A. Techniques of Validation
 1. Method vs. Data Validation
 2. Automatic External Standard
 3. Automatic Internal Standard [Real Time]

Module V. System Control and Signal Manipulation

- A. Sample System and Analyzer Control
 - B. Signal Manipulation and Processing
- #### Module VI. System Configuration and Packaging
- A. A. Enclosing the Hardware
 - B. B. Locating Critical Functional Items
- #### Module VII. Results Display, Communications, & Storage

- A. Results Display
- B. Information Communication
- C. Information Storage

Analyzer Course will be based on the above outline and supplemented with the following Workshops.

Remote Discrete Sample Preparation

Sample extraction of a small quantity of process fluid to a remote analyzer location.

Analyzer Valve Workshop

Methods of evaluating sampling and switching valves for operations, applications, and performance.

Volatile Chemical Headspace Analysis

Methods of isolating volatile chemicals by various vapor liquid equilibrium techniques.

(Continued on page 19)

Data Analysis Software

Windows 3.x, 95, 98 and NT

of Measurement

$$\sum s^2$$

Uncertainty Analysis

Analyze and report uncertainties, establish test & measurement capabilities, survive audits and get accredited with UncertaintyAnalyzer.

$$A = \frac{L_1}{L_2}$$

Test Decision Risk Analysis

Analyze false accept and false reject risks, control quality and costs, establish guardbands, meet ISO25 requirements with AccuracyRatio

$$a = \Phi \left[\frac{L}{(1+p)/2} \right]$$

Statistical Process Control

Control and evaluate measurement processes, track attribute values, establish parameter test or calibration intervals and more with SPCView.

$$\int_{-L}^{L} \sqrt{f(x)} dx$$

Interval Analysis

Determine test or calibration intervals, project workload and cost, ID outliers, reduce downtime without increasing inventory with IntervalMAX.

Also, check out ISG's Interval Service and Uncertainty / SPC Training

For more information, call
1-800-400-7866

or visit our Web Site at www.isgmax.com

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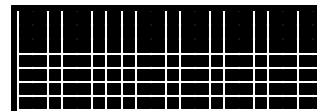
- D. Electrochemical
 - E. Photometric
 - F. Spectrophotometric
 - G. Ionization
- #### Module IV. Calibration and Validation

A. Standards Procurement

1. Prepare or Purchase
2. Vapor Standards [Pressure vs. Weight]
3. Liquid Standards [Volume vs. Weight]
4. Permeation Devices

A. Methods of Calibration

1. Normalization
2. External Standard
3. Internal Standard
4. Reference Sample
5. Set to Lab Results



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(Continued from page 18)
techniques.

**Sensors and Detection
Devices**

Overview of analytical devices including thermal, electrical, electrochemical, photometric, spectrophotometric, and ionization.

**Calibration and Real
Time Validation**

Preparation and introduction of standards and real time validation of instrument performance.

The 46th Annual Analysis Division Symposium

22-26 April 2001 • The Radisson Hotel & Conference Center • Houston, Texas

AD 2001 Topics:

- Chemical Analysis
- Maintenance
- Physical Properties
- Standards
- Spectroscopy
- Sample Systems
- Chromatography
- Analyzer Validation
- Gas Detectors
- Emerging Technologies

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ISA—The Instrumentation, Systems, and Automation Society 

The Radisson Hotel & Conference Center—Hobby Airport in Houston, Texas will be the site of the 2001 conference which will highlight a variety of presentations involving process analysis & environmental monitoring. Mark your calendars now for this exclusive event providing you with an abundance of learning and networking opportunities.

ISA DIVISION NEWSLETTER

Analysis Division



ISA—The Instrumentation, Systems,
and Automation Society

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