Indiana Section of the Society for Applied Spectroscopy

July / August 2000 Newsletter

ISSAS 2000-2001 SEMINARS

Welcome to a new year of exciting seminars for the Indiana Section of the Society for Applied Spectroscopy! This past year we had the pleasure of hearing presentations from Dr. John Wright from the University of Wisconsin – Madison, Dr. Marc Porter from Iowa State University, Dr. David Hercules from Vanderbilt University, and Dr. Evan Williams from the University of California – Berkeley. As usual, our speakers represented diverse fields that included optical spectroscopy and mass spectrometry. In September, Dr. Wright talked about two dimensional coherent vibrational spectroscopy as the optical analogue to 2D-NMR. Dr. Porter spoke on the formation, structural characterization, and reactivity of organosulfur layers on gold through the use of infrared spectroscopy and force microscopy. In February, Dr. Hercules gave a presentation on the mass spectrometry of block copolymers. Our 1999-2000 seminar series was concluded by the SAS tour speaker, Dr. Williams, who spoke on two - dimensional mass spectrometry of biomolecules. We would like to thank all of the speakers and attendees for making the past year's seminar series one of the best.

We will continue to provide more excellent seminars during this next year. We have two speakers lined up for the fall, and are currently obtaining speakers for the spring. In conjunction with the Indiana Instrumentation Institute, our fall schedule will involve an exchange program between Indiana University and Purdue University. In order to accommodate those who live in the northern region of the ISSAS, we will be holding one of the seminars in West Lafayette. In October, Dr. Shuming Nie of Indiana University will be speaking at Purdue University. Dr. Scott McLuckey of Purdue University will be speaking in November at Indiana University. We will also hold one seminar in early spring, and our SAS tour speaker in late spring. If you have suggestions for speakers, please contact Andrew Szumlas at aszumlas@indiana.edu.

THIS MONTH IN SPECTROSCOPY

What was Sir J. J. Thomson describing when he wrote of "corpuscles" in 1897?

In August of 1897, Sir J.J. Thomson described his continuing experiments involving cathode rays [*Phil. Mag.* **44** (1897) 293]. Thomson found that cathode rays consisted on small, negatively charged particles that had a mass 1000 times less than that of hydrogen ions. Additionally, Thomson noted that the mass of the particles was independent of the gas from which they were formed, suggesting the fundamental nature of the particles. He called these particles "corpuscles." Thomson had just discovered the electron. For this work Thomson was awarded the 1906 Nobel Prize in Physics.
A complete copy of Thomson paper describing the discovery of the electron call be found at http://web.lemoyne.edu/~giunta/thomson1897.html

Spectroscopy Trivia:
What commonly used term in spectroscopy did G. N. Lewis coin in October 1920 for quanta of light?

The answer to this question can be found in next the addition of "This Month in Spectroscopy" or log on to the ISSAS trivia page at http://www.indiana.edu/~issas/trivia.html.

RECENT DEVELOPMENTS IN SPECTROSCOPY

Single Molecule DNA screening: Prof. Ed Yeung and co-workers at Iowa State University recently described a novel way to screen DNA without the initial (and usually prerequisite) PCR step. To accomplish this, the researchers imaged the electrophoretic movement of individual DNA molecules within a glass capillary. Three methods of detection are described, which allow the determination of electrophoretic mobilities for multiple species on a time scale as short as a few milliseconds. (*Anal. Chem.* **72**, 2879, 2000)

A Universal Chip-Based Optical Detector: The shrinking of the laboratory to the size of a single microchip has been an area of increased efforts in recent years. However, detector systems to date have focused on the use of fluorescent tags or fluorophores in the analyte stream. Prof. Darryl J. Bornhop and colleagues at Texas Tech have taken steps to alleviate the need for such fluorophores. Although not as sensitive as fluorescence detection, the research team showed the feasibility of using backscatter interferometry as an on-chip detection method. The detector probes only a few hundred picoliters, and is sensitive down to the micro-molar regime. (*Anal. Chem.* **72**, 2690, 2000)

SAS SHORT COURSES

The Society for Applied Spectroscopy is offering short courses at the Federation of Analytical Chemistry and Spectroscopy Societies meeting in Nashville, Tennessee on September 23-28, 2000. The courses being offered are:

Fourier Transform Infrared Spectrometry - Peter R. Griffiths and James A. de Haseth

IR and Raman Chemical Imaging - Patrick J. Treado

Chemical Speciation of Environmental Samples: Techniques and Application - Marc M. Lamoureux

Capillary Electrophoresis: Rapid and Efficient Analysis of Organic and Inorganic Compounds - Vahid Majidi

Chemometrics in Analytical Chemistry and Spectroscopy - Charles E. Miller

Delivering Chemistry Instruction via the Internet - George R. Long

Process Analytical Chemistry: Out of the Lab and into the Pipe - Christian Hassell and James Rydzak

More information can be found on the national SAS Website at: http://www.s-a-s.org/

THANK YOU!

In the last ISSAS newsletter, we announced the new officers for the 2000-2001 year. We would like to express our sincere thanks and appreciation to Andrew Leach (1999-2000 ISSAS Chair) and Bradley Shaw (1999-2000 ISSAS Chair-elect) for their dedication and hard work. The success of last year's seminar series was a direct result of their efforts. Thanks Andy and Brad!

2000-2001 ISSAS OFFICERS

The new ISSAS officers are looking forward to this upcoming year. If you have any suggestions or comments, please contact us.

Chair
Andrew Szumlas
aszumlas@indiana.edu

Chair-elect
Denise McClenathan
dmcclena@indiana.edu

Secretary
William Wetzel
wwetzel@indiana.edu

Treasurer
Jason Starkey
jastarke@indiana.edu

NEW MEMBERSHIPS

Your local Indiana Section of the Society for Applied Spectroscopy is looking for new members. We invite you to recommend membership to any of your colleagues or students who you may feel would benefit from membership in such an organization. The fee for joining is very reasonable for both professionals and students alike. Membership also includes a subscription to the journal *Applied Spectroscopy*. For further information on ISSAS membership, please feel free to contact us or visit our website at http://www.indiana.edu/~issas.

ISSAS ONLINE

Please remember to check out our website! The ISSAS homepage will keep you updated on local section and national events as well as provide information about our corporate sponsors. Please visit our site at http://www.indiana.edu/~issas.

If you have a non-commercial spectroscopy related website that you would like us to link on our web page please contact Denise McClenathan at dmcclena@indiana.edu.

EMAIL DISTRIBUTION LIST

For those who wish to be more directly informed of the ISSAS schedule, we currently have an email distribution list that is in use. Meeting announcements will be sent to all on this list prior to each event. This can be a convenient way for you to forward information to non-members concerning seminars that might be of interest to them or this can serve as a reminder so you don't miss a meeting! To subscribe, send a message to issas@indiana.edu and include the text :

subscribe issas

To remove your name from the list, send a message to the same location and include the text:

unsubscribe issas

1999-2000 SPONSORS

The Indiana Section of the Society for Applied Spectroscopy would like give a special thank you our corporate sponsors who made the 1999-2000 seminar series possible:

Air Products and Chemicals, Inc.

Chicago Spectro Service Laboratories, Inc

The Leco Corporation

Kaiser Optical Instruments, Inc.

Spectral Dimensions

We are now in the process of obtaining sponsors for the 2000-2001 seminar series. If your company or organization is interested in supporting the ISSAS, please contact our Treasurer, Jason Starkey, at jastarke@indiana.edu.

CONTACT INFORMATION

You may contact any of the ISSAS officers via phone (812) 855-7905, email (issas@indiana.edu), fax (812) 855-8300, or write to:

Society for Applied Spectroscopy - Indiana Section
Department of Chemistry
Indiana University
Bloomington, Indiana 47405

CHEMICAL IMAGING

For the next generation of FTIR, NIR or Raman spectral imaging systems contact:

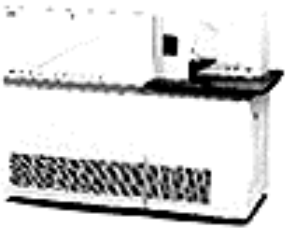
Spectral Dimensions

Phone: (301) 260-0290 ◆ Fax: (301) 260-0292
E-Mail: info@spectraldimensions.com
Web-Site: www.spectraldimensions.com

Pick up your missing data.

Fast analysis by other means will sacrifice data. LECO's time-of-flight (TOF) instruments acquire more data and provide the fastest results.

Pegasus® II GC/MS



Renaissance™ TOF-ICP-MS

ISO-9001
No. FM 24045

LECO Corporation
3000 Lakeview Avenue • St. Joseph, MI 49085-2396
Phone: 616-982-5496 • Fax: 616-982-8977
http://www.leco.com
LECO is a registered trademark of LECO Corporation.

LECO®

Manufacturer of a wide range of high-performance specialty gases and equipment.

• Carrier gases • Gas calibration standards
• Laboratory gas generators • High-purity gas regulators
• High-purity automatic changeover panels

Air Products and Chemicals, Inc.
1508 E 86th St., Suite 231
Indianapolis, Indiana 46240
Phone: 800-470-1579
Fax: 317-844-8427
Technical Service: 800-752-1597
www.airproducts.com

AIR PRODUCTS
Performance. Pure and simple.

© 1997 Air Products and Chemicals, Inc. (1-1997)

Discover The Potential

Raman Microscope

FEATURES
- Easy-to-use
- Autocalibration and validation
- Windows based software
- Compact, robust design

BENEFITS
- No sample preparation
- Non-destructive sampling
- 1 µm spatial resolution
- Fast, reliable measurements

APPLICATIONS
- Method development
- QA/QC
- Contaminant analysis
- Troubleshooting

KAISER OPTICAL SYSTEMS, INC.

A KAISER AEROSPACE & ELECTRONICS COMPANY

371 Parkland Plaza • P.O. Box 983 • Ann Arbor, MI 48106-0983
Telephone (734) 665-8083 • Fax (734) 665-8199 • http://www.kosi.com