

Indiana Section of the Society for Applied Spectroscopy

April/May 2002 Newsletter

ISSAS 2000-2001 SEMINARS

The fourth Indiana Section of the Society for Applied Spectroscopy seminar was held on February 18, 2002. This seminar featured the work of Dr. Mary Carroll from Union College, who presented her research entitled, "Adventures in Molecular Spectroscopy at an Undergraduate Institution." Professor Carroll's research involves the investigation of dye/surfactant and dye/sol-gel interactions, and the development of sol-gel-based chemical sensors. We would like to thank Dr. Carroll and all who attended this seminar at the Indiana University Chemistry Department.

The fourth seminar in the 2001-2002 series will feature Dr. Michelle Buchanan from Oak Ridge National Laboratory. Dr. Buchanan will be speaking about her research on the development of tools to investigate and possibly

control interactions within a cell. This seminar will be held at the Indiana University Chemistry Building (Room C033) at 6:00 pm on Monday April 22, 2002. Dinner with Dr. Buchanan will be held after the meeting at Janko's Little Zagreb. If you are interested in attending dinner, please RSVP William Wetzel via email (wwetzel@indiana.edu) by noon on Monday, April 22, 2002.

ISSAS CALL FOR OFFICER NOMINATIONS

With the close of the 2001-2002 seminar series, the ISSAS seeks nominations for officers to serve for the 2002-2003 fiscal year. If you would like to nominate yourself or someone you know for a position as an ISSAS officer, please submit your nomination to Denise McClenathan via e-mail (dmcclena@indiana.edu) or at the

address listed in the contact section of this newsletter. Nominations are due by May 1, 2002 and ballots will be mailed to ISSAS members after this date. The new officers will be announced in early June on the ISSAS website and in the next newsletter.

NEWS IN SPECTROSCOPY

NASA Launches Newest Line of Spectrometers: NASA has recently released its revolutionary Planetary Integrated Camera Spectrometer (PICS), a CCD based instrument that offers higher sensitivity and performance over previous spacecraft instruments. A team led by NASA researchers has devised a miniaturized sensor system that could be a catalyst for a revolutionary new generation of small, low-cost spacecraft to explore the solar system. PICS is expected eventually to replace whole suites of individual spacecraft instruments that, on some NASA missions, can weigh more than 180 kilograms (400 pounds) and take up as much room as a four-drawer filing cabinet. Literally smaller than a breadbox, PICS combines some of the most productive and often-used space sensors into a 5-kilogram (11-pound) package. Its development represents a crucial step toward enabling future NASA missions

that will have to use smaller launch vehicles and, hence, smaller spacecraft to travel to distant planets and other bodies in the solar system. More information about these spectrometers can be found at: <http://stargate.jpl.nasa.gov/pics/>.

GRADUATE STUDENT AWARD

Each year the Society presents its Graduate Student award to a graduate student in recognition of outstanding research in the area of spectroscopy. Any full-time graduate student doing research in the field of spectroscopy is eligible for the award. The award consists of a plaque and travel expenses to the FACSS meeting in October to accept the award. Nominations may be made by any member of the Society or Local Sections and should be submitted on or before June 1 of each year to nominate a graduate student for this award. Please include a letter of nomination with a copy of the student's CV. If you have any questions, please contact William Wetzel (wwetzel@indiana.edu).

THIS MONTH IN SPECTROSCOPY

In February of 1966, which two scientists first reported laser action of a fluorescent organic dye compound?

Sorokin and Lankard first observed the stimulated emission from an organic dye in 1966. A chloro-aluminum phthalocyanin solution in ethanol was pulsed with a ruby laser, generating stimulated emission centered at $0.755 \mu\text{m}$ with a spectral half width of 5 cm^{-1} . Through the use of several dyes, it is possible to tune the laser output over the entire spectrum into the near UV at one end and the IR at the other end. In the past, dye lasers were most frequently involved in many applications such as laser atomic spectrometry. At the time they were the only tunable lasers available, however the significance of dye lasers is currently threatened by the growing development of other tunable light sources such as solid-state and semiconductor lasers.

Spectroscopy Trivia:

In May of 1948, who first presented the principle of holography, which later earned that scientist the 1971 Nobel Prize in Physics?

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

MEMBERSHIP RENEWAL

If you have not already renewed your membership to SAS for 2002, please consider doing so today. You can renew via the secure server at www.s-a-s.org, or by calling 301-694-8122. Remember, the online journal access is free to members.

Also, 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 monthly journal *Applied Spectroscopy*. For further information about membership in the ISSAS, please feel free to contact any of the officers or visit our website:

<http://www.indiana.edu/~issas>.

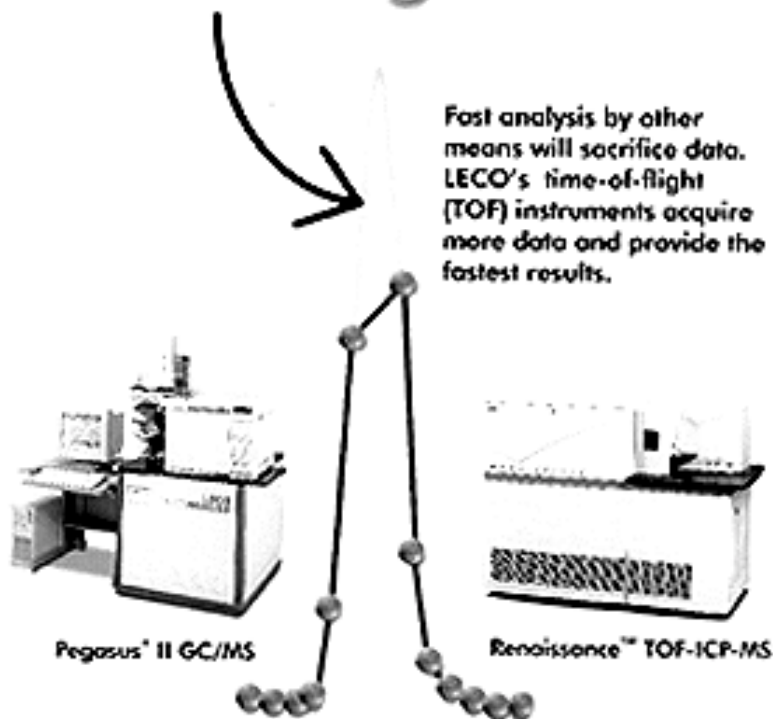
ISSAS ONLINE

Please remember to check us out at 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 website at the following address: <http://www.indiana.edu/~issas>.

CONTACT INFORMATION

You may contact any of the ISSAS officers via phone (812) 855-7905, fax (812) 855-0958, email at (issas@indiana.edu), or write to:
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Indiana Section of the Society for Applied Spectroscopy
2001-2002 Seminar Series

**SCIENCE AT THE MOLECULAR LEVEL:
NEW CHALLENGES FOR CHEMISTRY**

Dr. Michelle V. Buchanan
Chemical Sciences Division, Oak Ridge National Laboratory
Oak Ridge, TN 37831
http://www.ornl.gov/divisions/casd/casd_home.html

We have all seen reports in popular and scientific literature about the “new science”—particularly science “in the post-genome era” and science “at the nanoscale.” Common to both of these scientific areas is a central focus on understanding and controlling processes at the molecular level. Thus, it is not surprising that chemistry is at the heart of these new scientific directions and will play a major role in these areas of research. For example, new analytical tools will be needed to understand the myriad interactions that occur within a cell so we can develop ways to control these processes. Similarly, new approaches for observing and controlling synthesis at the molecular level will be needed to produce nanoscale materials and devices. This presentation will provide an overview of chemical research at Oak Ridge National Laboratory related to these new scientific areas, focusing on activities associated with Department of Energy’s Genome to Life program and the new Center for Nanoscale Materials Science.

6:00 PM
Monday, April 22, 2002
Chemistry Building Room C033
Indiana University
Bloomington, Indiana 47405

Biographical Sketch

Michelle V. Buchanan received a B.S. degree in Chemistry from the University of Kansas in 1973 and a Ph.D. from the University of Wisconsin in 1978 in Analytical Chemistry. Dr. Buchanan joined the research staff in the Analytical Division at Oak Ridge National Laboratory in 1978. She has been group leader of both the Organic Spectroscopy Group (1989-1994) and of the Organic and Biological Mass Spectrometry Group (1994-1999), and served as the Associate Director of the Life Sciences Division from 1999-2000. Dr. Buchanan is currently the Director of the Chemical Sciences Division at Oak Ridge National Laboratory.

Dr. Buchanan has been the principal investigator on multiple projects funded through DOE, NIH, NCI, DOD and the FDA and has 2 U.S. patents. She has received numerous honors and awards, which include the Leadership Award, the IR-100 Award, the American Women in Science Technical Award, the YWCA Outstanding Contribution to Science and Technology Award, and she also has three Technical Achievement Awards from Oak Ridge National Laboratory. Dr. Buchanan also serves on the Advisory Board for the NSF Center for High Field Fourier Transform ICR Mass Spectrometry at Florida State University, the advanced instrumentation board at the National Institute of Justice, the Department of Chemistry at the University of Tennessee, and the Boston University School of Medicine Mass Spectrometry. Dr. Buchanan is also currently on the Editorial Board for *Fresenius' Journal of Analytical Chemistry* and the *Journal of Mass Spectrometry*, and has formerly served on the Editorial Boards for *Biomedical and Environmental Mass Spectrometry*, *Organic Mass Spectrometry*, and *Analytical Chemistry*.

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Post Seminar Dinner with Dr. Michelle Buchanan

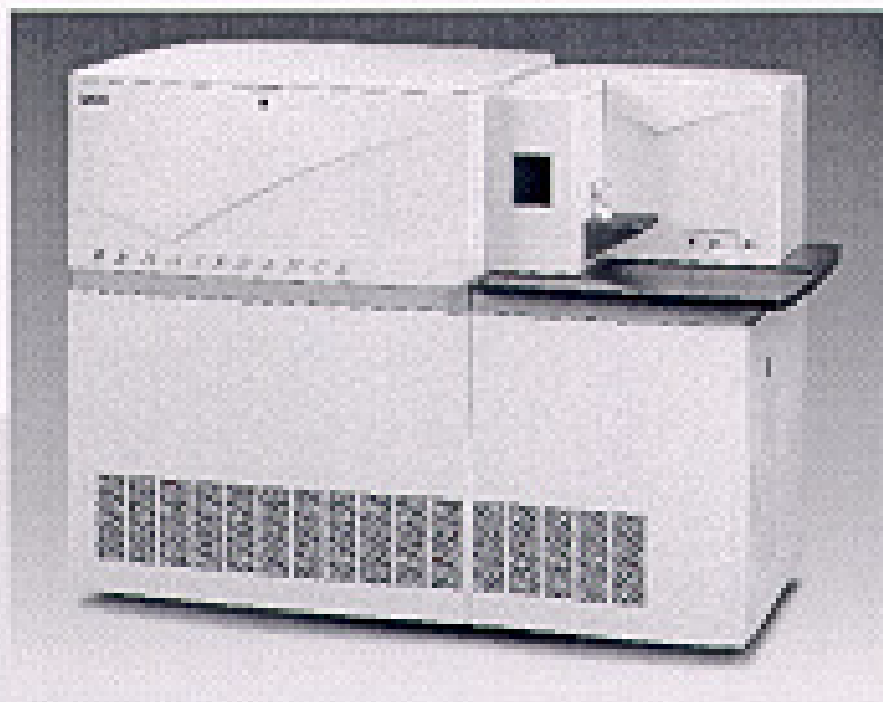
Monday, April 22, 2002

Seminar
Chemistry Building
Indiana University
Bloomington, IN
6:00 pm

Dinner
Janko's Little Zagreb
223 W. 6th Street
Bloomington, IN
7:30 pm

For Dinner, please RSVP to Bill Wetzel (issas@indiana.edu or
(812) 855-7905) by noon on Monday, April 22, 2002.

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