

A Preview of the 2004 Winter Conference on Plasma Spectrochemistry

D. Conrad Grégoire

Keeping up with the latest developments in plasma spectrochemistry is a formidable task, but one that is critical to you and your organization. The one-stop source of such information is the 2004 Winter Plasma Spectrochemistry Conference. This conference is the 13th in a series of increasingly popular biennial meetings featuring the very latest in developments in plasma spectrochemistry and analysis by inductively coupled, direct current, and microwave plasmas, as well as glow-discharge and laser sources. It is anticipated that more than 650 people from 30 countries will attend to hear more than 350 papers presented by the world's leaders in fundamental and applied spectrochemistry. The invited speakers, symposia chairs, and discussion panel chairpersons make up a who's who in analytical spectroscopy. This year, many new plenary and invited lecturers will be featured, along with an expanded and revised series of valuable short courses. The informal atmosphere of the conference will make learning easy and enjoyable. Make plans to attend and at the same time take in some of the recreation opportunities in Florida, the sunshine state. Golfers will want to participate in the fifth annual golf tournament on Sunday,

January 4 . . . or should that be "fore"?

The program is organized around 14 symposia themes that cover elemental speciation, speciation sampling, and sample preparation; excitation mechanisms and plasma phenomena; flow-injection and flow-processing spectrochemical analysis; glow-discharge atomic and mass spectrometry; inductively coupled plasma (ICP) atomic and mass spectrometry (MS); laser ablation and breakdown spectrometry; microwave atomic and MS; plasma chromatographic detectors; plasma instrumentation, microplasmas, automation, and software innovations; sample introduction and transport phenomena; sample preparation, treatment, and automation; high-purity materials; spectrochemical chemometrics, expert systems, and software; spectroscopic standards, reference materials, and databases; and stable isotope analyses and applications.

Anyone planning to purchase plasma instrumentation or to do some comparative shopping will be very interested in the manufacturers' seminars held January 2–4 and the workshop on new plasma instrumentation taking place January 6–8. This is a unique opportunity for manufacturers to highlight their products and, at the same time, to give prospective buyers a

chance to compare and contrast features offered by different instruments.

All of the technical sessions of the Winter Conference are plenary — that is, there is only one meeting room, and all participants and attendees have the opportunity of hearing every presentation given at the conference. Symposia will be led by international experts and begun with a plenary keynote lecture followed by invited and submitted lectures. A quick look at the preliminary program summary gives an indication of the great strength, breadth, and depth of coverage of the oral presentations. Oral sessions will be complemented by four poster sessions. A full instrument exhibition will feature the products of more than 40 companies and organizations producing instrumentation, chemicals, glassware, publications, and software pertaining to spectroscopy and related applications.

Participation is a key aspect of the Winter Conference. Poster sessions and panel discussions will give all attendees a chance to contribute and to challenge the experts. During the course of the conference, six panel discussions will be held covering topics ranging from elemental speciation, to applications and challenges in ICP-MS, to teaching spectroscopy.



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Preliminary Program Summary

Plenary Lectures

- James D. Winefordner, *Atomic Spectrochemical Analysis*
- Freddy Adams, *Elemental Speciation: Present Problems and Future Prospects*
- Rick Russo, *Laser-Assisted Plasma Spectrochemistry*
- Gary M. Hieftje, *Prognosis for Plasma Source Mass Spectrometry*
- Norbert Jakubowski, *Plasma Source Mass Spectrometry: Sources and Developments*
- Luc Moens, *Isotope Ratio Measurements with ICP-MS: High End and Low End Instruments and Applications*

Invited Lectures

- John Olesik, *Sample Introduction and Sample Plasma Interactions*
- Akbar Montaser, *Fundamental Nebulization Processes*
- Ralph Sturgeon, *SPME for Organometallic Speciation Measurement – Sample Preparation Made Easy?*
- Olivier X. Donard, *Sample Preparation for Elemental Speciation*
- Alfredo Sanz-Medel, *Element Speciation in Biological Materials by ICP-MS: A Road to the Proteomics World*
- Ryszard Lobinski, *Inductively Coupled Plasma Mass Spectrometry in Proteomics Research*
- Rita Cornelius, *Accuracy in Elemental Speciation*
- Detlef Günther, *The Future of Laser Ablation ICP Mass Spectrometry – ng or nm?*
- Jeffrey Hopwood, *Inductively Coupled and Capacitively Coupled Microdischarges Operating in the UHF Band*
- José Broekaert, *From the ICP to Microplasmas on a Chip*
- Annemie Bogaerts, *Laser Ablation: Can Modeling Help Us to “See the Light”?*
- Jean-Michel Mermet, *Is the Availability of the Entire UV-Visible Emission Spectrum Beneficial to Our Understanding of the ICP?*
- Günther Knapp, *Is an Improvement in the Field of Sample Decomposition Still Imaginable?*
- R. Sam Houk, *ICP-MS Instrumentation: Status and Future*

- Gregory Eiden, *Progress in Collision Cell ICP-MS: Recipe Collections or Science?*
- Willard Harrison, *Increasing Use of the Glow Discharge for Both Atomic and Molecular Analysis*
- Maria Betti, *Applications of GDMS in Different Fields of Research in Comparison to Other Analytical Techniques*
- Klaus G. Heumann, *Isotope Dilution La-ICP-MS: A New Calibration Method for Trace Element Determination in Pulverized Solid Samples?*
- Garcia Alonso, *Multilabeled Speciated Isotope Dilution ICP-MS: The Way to Reliable Quantitative Chemical Speciation*
- Thomas Walczyk, *New Concepts for Using MC-ICP-MS in Biomedical Research*
- Michael Ketterer, *Environmental Applications of ICP-MS*
- J. Sabine Becker, *Unexplored Directions in ICP-MS*

Poster Sessions

- Sample introduction, flow injection analysis, elemental speciation
- Automation, instrumentation, laser-assisted plasma spectrometry, software
- Applications, glow discharge atomic/mass spectrometry, mechanisms, plasma sources, sample preparation and standards, teaching spectroscopy
- Plasma mass spectrometry, applications, fundamentals, instrumentation, stable isotopes

Panel Discussions

- Sample introduction – Jean-Michel Mermet, chair
- Problems in elemental speciation – Maria Montes-Bayón, chair
- Microsample plasma instrumentation: frontiers – Barry Sharp, chair
- An international approach to teaching spectroscopy – Vassili Karanassios, chair
- Plasma source mass spectrometry applications – Frank Vanhaecke, chair
- New plasma source mass spectrometers – Norbert Jakubowski, chair

Education remains one of the main objectives of the Winter Conference. Sixty-two continuing education short courses are offered, many of which are completely new. Courses last for four hours and cover topics on analysis by plasma spectrochemistry, instrumentation, sample introduction, and plasma spectrochemical techniques. Short courses are taught by the acknowledged experts in each given subject. Students have the opportunity to learn the very latest techniques pertinent to their own

work or interest. Classes are small, giving participants the opportunity to make valuable contacts with the instructor and other participants and to obtain solutions to practical problems. All course materials are provided to students in digital format.

Poster prizes will be awarded to the best student and contributed posters selected by a panel of dedicated judges. Among the prizes are one-year print subscriptions to the *Journal of Analytical Atomic Spectrometry* and *Analytical*

and Bioanalytical Chemistry, the two journals in which the conference proceedings will appear in September 2004.

Conference travel and registration grants are a relatively new initiative of the Winter Conference and are part of the Corporate Affiliates and Patrons Program. ICP Information Newsletter Inc., publisher of the *ICP Information Newsletter*, is a tax-exempt philanthropic organization sponsoring the Winter Conference on Plasma Spectrochemistry. As a publicly supported or-

Short Courses

Analysis by plasma spectrochemistry. Topics include trace analysis of biomedical materials; analysis of foods and food products; solving multidisciplinary analytical problems; analytical and process chemistry in semiconductor devices fabrication; spectrochemical analysis of long-lived radionuclides; determination of inorganic arsenic, selenium, and chromium species in environmental and industrial samples; geoanalysis mass spectrometry; petroleum analysis with plasma spectrometry; water quality applications and environmental chemistry; spectroscopic techniques and applications in a pharmaceutical laboratory; trace and ultratrace analysis of high-purity materials; spectrochemical applications of reference materials; determination of plutonium by ICP-MS; and understanding and implementing ICP-AES methods 200.7 and 6010B.

Instrumentation. Topics include: calibration and data evaluation in atomic spectrometry; method validation and measurement uncertainty; advanced concepts in analytical quality assurance; high-resolution ICP-MS; glow discharge atomic emission and mass spectrometry; time-of-flight MS for elemental analysis; ICP-MS I: introduction; ICP-MS II: advanced topics; laboratory accreditation for plasma spectrochemistry; field flow fractionation ICP-MS; selecting an ICP-AES system; selecting an ICP-MS system; evaluation and control of ICP-AES and ICP-MS systems; and theory and operation of reaction cells for ICP-MS.

Sample introduction techniques. Topics include: micro and nano samples by ICP spectroscopy; electrothermal vaporization for atomic and mass spectrometry; flow injection analysis techniques and applications; micronebulizer diagnostics and analytical and fundamental characteristics; laser ablation atomic and mass spectrometry I; laser ablation atomic and mass spectrometry II, advanced; nebulizer characteristics, design, and routine operation for ICP-AES and ICP-MS; plasma spectroscopic detection in chromatography; sample introduction for ICP-AES and ICP-MS; and solid sample introduction techniques and instrumentation.

Plasma spectrochemical techniques. Topics include: advanced sample preparation for plasma spectrometry; applications of isotope dilution and isotopic measurements; plasma on a chip; element preconcentration in trace analysis; glow discharge modeling; typical errors in ICP analyses and how to avoid them; microwave sample preparation for inorganic analysis; clean microwave digestions for ultratrace analysis; plasma analysis quality control and assessment procedures; plasma diagnostics: fundamentals, measurements, applications; trace element speciation; preparing your laboratory for ICP-MS; contamination issues in trace elemental analysis; analysis of biological samples by high-resolution ICP-MS; who wants to be a millionaire? – bring your new technology to market; stable isotopes for metabolic studies; wet digestion for trace element analysis; elemental speciation for biological samples; U-Th-Pb dating of geological samples by laser ablation ICP-MS; improving laboratory productivity and data quality; solid phase microextraction for trace element speciation; achieving reliable trace elemental measurements; and becoming an expert witness.

ganization, its purpose is to promote, foster, advance, and improve study, research, teaching, and dissemination of knowledge regarding plasma spectrochemistry, analytical chemistry, science education, and related areas.

Conference travel, registration, and newsletter subscription grants are offered to students to support their atten-

dance and participation at the Winter Conference and in the spectroscopic scientific community. During the past several Winter Conferences, a significant number of student travel grants were awarded and funded by contributions from manufacturers and other plasma supporters. Travel support is also available for scientists and stu-

dents. Training and research grants are also available to both students and professional analytical chemists. Grants range from \$100 to \$3000 for international scientists, and as many people are supported as funds will allow. Information about these grants is published in the *ICP Information Newsletter*; it can also be obtained by contacting Ramon Barnes (see final paragraph).

The above charitable, educational, and scientific purposes are achieved, in part, by fund-raising. To this end, the organizers of the Winter Conference are looking for industrial, manufacturer or individual sponsors to make tax-free contributions to these grant funds. In return for their support, sponsors can have high-profile symposia named after their companies or take advantage of special discounts. Interested parties can contact Ramon Barnes directly to make the necessary arrangements.

Social activities held during the Winter Conference enhance the conference experience not only by affording a chance to relax, but also to meet new faces and make valuable contacts. The Conference holds daily social mixers as well as a conference dinner event.

The location for the 2004 Winter Conference will be the Wyndham Resort and Spa (www.wyndham.com/bonaventure) in Fort Lauderdale, Florida (www.sunny.org). For program, registration, hotel, and transportation details, contact Ramon Barnes, ICP Information Newsletter, Inc., P.O. Box 666, Hadley, MA 01003-0666, (413) 256-8942, fax: (413) 256-3746, e-mail: wc2004@chem.umass.edu, or visit the web site at www.unix.oit.umass.edu/~wc2004/WinterConf2004.htm. ■

"Pharmaceutical Industry Embraces NIR Technology" continued from page 19

Manufacturing Processes 2 (undated).

3. Foss NIRSystems, *A Guide to Near-Infrared Spectroscopic Analysis of Industrial Manufacturing Processes 4* (undated).
4. Foss NIRSystems, *A Guide to Near-Infrared Spectroscopic Analysis of Industrial Manufacturing Processes 6* (undated).
5. B.A. Olsen, M.W. Borer, F.M. Perry, and R.A. Forbes, *Pharmaceutical Technology* 26(6), 62–71, 95 (2002). ■