The first Asia-Pacific Winter Conference on Plasma Spectrochemistry, based on a series of successful biennial meetings sponsored by the ICP Information Newsletter in North America, features developments and applications in plasma spectrochemical analysis by inductively coupled plasma (ICP), dc plasma (DCP), microwave plasma (MIP), glow discharge (GDL, HCL), laser sources, and flames, furnaces, arcs and sparks. The meeting will be held Monday, April 25 through Saturday, April 30, 2005, in Chiang Mai, Thailand (www.tourismthailand.org) at the Lotus Hotel Pang Suan Kaew (www.lotuspskhotel.com). Continuing education short courses at introductory and advanced levels and manufacturers’ seminars will be offered on Saturday and Sunday, April 23 and 24. Spectroscopic instrumentation and accessories will be shown during a three-day exhibition from Monday to Thursday, April 25 to 28, and a Workshop on New Plasma Instrumentation will be presented on Monday, Tuesday, and Wednesday afternoons. A conference excursion will be held on Thursday, April 28, and a special Thai dinner festival will be held Friday, April 29.

Objectives and Program

The rapid growth in popularity of plasma sources in the Asia-Pacific region for atomization and excitation in atomic spectroscopy and ionization in mass spectrometry and the need to discuss recent applications and developments of these discharges in spectrochemical analysis stimulated the organization of this meeting. The Conference will bring together international scientists experienced in applications, instrumentation, and theory in an informal setting to examine recent progress in the field. Approximately 300 participants from 20 countries are expected to attend.

Over 200 papers describing applications, fundamentals, and instrumental developments with plasma sources will be presented in lecture and poster sessions by more than 200 authors. Symposia organized and chaired by recognized experts will include the following topics: 1) Sample introduction and transport phenomena; 2) Micronebulization and flow processing spectrochemical analysis; 3) Elemental speciation and sample preparation for speciation; 4) Plasma instrumentation, including chemometrics, expert systems, on-line analysis, microplasmas, software, and remote-system automation; 5) Sample preparation, treatment and automation, 6) Excitation mechanisms, plasma phenomena and modeling; 7) Spectroscopic applications, standards and reference materials, and high-purity materials; 8) Plasma source mass spectrometry, 9) Glow discharge atomic and mass spectrometry, 10) Radionuclides and stable isotope analyses, 11) Laser-assisted plasma spectrometry, and 12) Flame and furnace developments and applications. Six plenary and 22 international, invited lectures will highlight advances in these areas. Four afternoon poster sessions will feature applications, automation, and new instrumentation. Five panel discussions will address critical development areas in sample introduction, instrumentation, elemental speciation, plasma source mass spectrometry, and novel software and hardware. Plenary, invited, and submitted papers will be published in 2005 after peer review as the official Conference proceedings.

Schedule of Activities

- Call for Papers, Short Abstracts Due, Early Bird Registration: Monday, January 3, 2005
- Final Abstracts for All Paper Due: Friday, January 28, 2005
- Exhibitor Reservation Deadline: Friday, January 28, 2005
- Conference Pre-Registration and Exhibition Pre-Registration Due: Friday, January 28, 2005
- Exhibitor Booth Reservation Deadline: Monday, February 28, 2005
- Hotel Pre-Reservation: Friday, March 25, 2005
- Late Pre-Registration Deadline: Friday, March 25, 2005
- Winter Conference Short Courses: Saturday - Sunday, April 23 - 24, 2005
- Manufacturers’ Seminars: Saturday - Sunday, April 23 - 24, 2005
- Winter Conference on Plasma Spectrochemistry: Monday, - Saturday, April 25 - 30, 2005
- Workshop on New Plasma Instrumentation: Tuesday - Thursday, April 26 - 28, 2005
- Instrument Exhibition: Monday - Thursday, April 25 - 28, 2005
- Conference Manuscripts Submission Deadline: Thursday, June 30, 2005
Asia-Pacific Winter Conference on Plasma Spectrochemistry  
Chiang Mai, Thailand, April 25-30, 2005

Conference Background

THE MEETING


Some in the field consider the Winter Conference one of the technically most significant meetings convened on these topics. Ten European Winter Conferences have been held in Leysin, Switzerland (1985), Lyon, France (1987), Reutte, Austria (1989), Dortmund, Germany (1991), Granada, Spain (1993), Cambridge, England (1995), Gent, Belgium (1997), Pau, France (1999), and Lillehammer, Norway (2001), Garmisch-Partenkirchen, Germany (2003), and the 2005 meeting is planned for Budapest, Hungary, January 29 - February 2, 2005.

The first biennial Asia-Pacific Winter Conference on Plasma Spectrochemistry also will feature developments and applications in plasma spectrochemical analysis by inductively coupled plasma (ICP), dc plasma, microwave plasma, glow discharge, laser sources, and flames, furnaces, arcs and sparks. The meeting will be held at the Lotus Hotel Pang Suan Kaew (www.lotuspskhotel.com) in Chiang Mai, Thailand (www.tourismthailand.org). Continuing education short courses at introductory and advanced levels and manufacturers' seminars will be offered, and spectroscopic instrumentation and accessories will be exhibited. A Workshop on New Plasma Instrumentation and panel discussions will be presented. The proceedings of the 2005 Asia-Pacific Winter Conference will appear in these major spectroscopy journals during Winter 2005.

THE PEOPLE

The Winter Conference attempts to bring together the major figures in the field of plasma spectrochemistry in a comfortable and informal setting to promote maximum information exchange and conversations. We accomplish this by inviting keynote speakers, employing principals to organize and chair sessions and panel discussions, and by offering technical short-courses taught by experts. Furthermore, experienced and novice analytical chemists seeking to share and expand their experiences in plasma spectrochemistry participate actively. The following speakers have been invited to participate S. Becker, R. Beckett, A. Bengtson, M. Betti, J. Broekaert, H. Berndt, I. Brenner, J. Caruso, O. Donard, G. Eiden, J. Feldmann, N. Furuta, A. Garcia Alonso, C. Grégoire, D. Günter, K. Heumann, G. Hieftje, N. Jakubowski, V. Karanassios, D. Katskov, M. Ketterer, H.M. Kingston, R.K. Marcus, J. Olesik, M. Montes-Bayón, R. Russo, F. Vanhaecke, T. Walczyk, and J. Watling. Panel discussions, workshops, and symposia will be led by international experts.

THE LOCATION

Warm-weather sites are selected for the Winter Conference to promote the relaxed atmosphere conducive to effective scientific information exchanges. Chiang Mai (www.tourismthailand.org), Thailand's second largest city (population 167,000), is located 750 km (470 miles) north of Bangkok and was founded in 1296 on the Ping River in a fertile valley some 1023 feet (312 m) above sea level. Mountains surrounding Chiang Mai ("New City") form the lower extremes of the Himalayan foothills and are the homes to several hilltribes of Tibeto-Burman origin. From Chiang Mai north the dry season may last from mid-November to May, and April is hot and dry (rainfall averages 3 inches (8 cm)). Temperatures in April range from 21 to 35°C (70 - 95°F) with an average of 28.9°C. Chiang Mai provides major attractions north the dry season may last from mid-November to May, and April is hot and dry (rainfall averages 3 inches (8 cm)).

The 2005 Asia-Pacific Winter Conference will be held at the Lotus Hotel Pang Suan Kaew (www.lotuspskhotel.com),
a first-class hotel, located a 15-minute drive from the Chiang Mai International Airport (www.thaiair.com/thailand/Travel_Destination_Information/Airport_Information/Chiangmai_inter_airport.htm; www.airportthai.co.airportnew/chmai/html/index), which is a 70-minute flight from the Bangkok International Airport (www.thaiair.com/thailand/Travel_Destination_Information/Airport_Information/Bangkok_inter_airport.htm). Hourly flights are made by Thai International Airlines (www.thaiair.com), the official conference carrier.

The Lotus Hotel Pang Suan Kaew is conveniently located in the center of many attractions near the city's old walled center and connected with the Kad Suan Saew shopping complex, the largest shopping mall in northern Thailand. The old city is a neat square bounded by moats and partial walls, where several of Chiang Mai's important temples are situated. The Lotus PSK consists of two wings with 690 guest rooms, five restaurants, sports club fitness and aerobic center, sauna and steam rooms, gymnasium, Olympic size swimming pool, traditional Thai massage, and convention facilities. Deluxe (409 rooms) and suites are available in the Doi Suthep wing (13 floors with an atrium-style open lobby), and 246 economical superior rooms are located in the 6-story Huay Kaew wing.

Ample space for the Conference is available. The Lotus PSK hotel has a total of 20 conference and meeting rooms. The Pak Sak Luang conference room (960 m²) accommodates 550 classroom style, and the exhibition area (Pak Sak Noi room and foyer) is 10 m by 27 m (192 m²) and can accommodate more than 25 exhibition booths and posters. In total this provides uncrowded space for the meeting and exhibition, posters, receptions, and conversations.

One of the best sight-seeing trips in Chiang Mai is the Doi Suthep mountain that rises 5498 feet to the northwest of the city, including Wat Phrathat, an exquisitely beautiful shrine at 3500 feet, the Royal Palace at 4300 feet, and the Meo hilltribe village a little beyond. This is the site our the Conference excursion on Thursday afternoon, April 28. Numerous daily, commercial sight-seeing tours visit the city and temples, cottage industries, palaces and wats, hilltribe villages, elephant rides and bamboo rafting, and national parks and city zoo. Thai cooking and massage school classes are other cultural pursuits. Jungle trekking, boat trips, elephant riding, mountain biking, and golfing are popular outdoor activities.

**THE SCHEDULE**

The 2005 Asia-Pacific Winter Conference will include activities beginning on Monday, April 25, and continuing through Saturday, April 30 immediately following Songkran, the traditional Thai New Year celebrated nationwide (April 12 - 14/15). The Conference will be preceded on Saturday, April 23, and Sunday, April 24, by a number of fee-based, professional short courses, each lasting four hours and presented by experts on specific topics. Simultaneously, exhibitors and other providers of plasma spectrochemical instruments, supplies, and related products will offer free seminars, training programs, or user's meetings. The Conference begins with a social mixer Sunday evening, April 24, and convenes daily at 8:00 am until 6:30 pm. Lectures, posters, and panel discussions will be presented. A social gathering is planned for each evening beginning at 5 (to 6:30 pm), an excursion on Thursday afternoon, April 28, and the Conference dinner is scheduled for Friday evening.

**INSTRUMENT EXHIBITION**

The three-day exhibition will open on Monday noon, April 25, with lunch in the exhibition area. Spectroscopic instrumentation and chemicals, glassware, publications, and software supporting plasma spectroscopy will be displayed by approximately 20 companies and organizations. Typically,
new plasma spectrochemical instrumentation is previewed here. The exhibition will close Thursday noon, April 28.

MANUFACTURER’S SEMINAR PROGRAM FOR PLASMA INSTRUMENTATION

During the weekend Short Course program, Saturday and Sunday, April 23-24, exhibitors and/or producers or distributors of plasma spectrochemical instrument, supplies, and related products will present four-hour seminars, training/education programs, or user's meetings. This program is free, although registration will be required. New or advanced customer training, product introduction and/or demonstrations, product line descriptions, or user's group meetings and discussions are included. These seminars will be presented in parallel with the fee-based short courses.

WORKSHOP ON NEW PLASMA INSTRUMENTATION

A three-day Workshop on New Plasma Instrumentation will be held Monday through Wednesday afternoons, April 26 - 28, from 3:15 to 5:15 pm, with vendor presentations on plasma instrumentation, accessories, and sample preparation. Instrument manufacturers will describe new plasma source developments, and exhibitors will discuss sample introduction, alternative sources, and sample preparation. The afternoon program will parallel the exhibition and poster sessions. The Workshop program will be divided into three main sections: plasma source (ICP) atomic emission spectroscopy (Monday), plasma source (ICP) mass spectrometry (Tuesday), and plasma accessories (e.g., chromatograph interface, electrothermal vaporizer, laser and spark ablation, special nebulizers, preconcentration and sample introduction equipment, special adapter kits), standards and sample preparation (Wednesday). Representatives from companies and/or exhibitors will present brief technical descriptions and discussions of their new products and design philosophy.

TRAVEL, OFFICIAL AIRLINES

Thai Airways International (www.thaiairways.com, 1-800-426-5204) is the official airline for the Asia-Pacific Winter Conference. The event code number is TG05042002. Both Thai and United Airlines are members of the Star Alliance airline network, established in 1977 as the first global airline alliance. Among the 14 members are Air Canada and Lufthansa for which discounted conference fares also are offered.

United Airlines is the co-official airline of the Asia-Pacific Winter Conference on Plasma Spectrochemistry. Call United's toll free number (1-800-521-4041 within the United States and Canada) and refer to Meeting ID Number 529CJ for PLASMA SPECTROCHEMISTRY to book a reservation and receive a 10% discount off the lowest applicable discount fare (excluding first class for international travellers) or a 15% discount off full coach fares with no advanced purchase. An additional 5% discount will apply when tickets are purchased at least 60 days in advance of your travel. Discounts apply on United, TED, United Express, and United code share flights operated by US Airways, US Airways Express, and Air Canada in the United States and Canada. Outside the United States and Canada contact the local United Reservation Center. For travel into or out of Europe, transportation is also valid on Lufthansa German Airlines. Milage Plus members receive full credit for all miles flown to this meeting. Tickets can be mailed by United, picked up at a local travel agency or United Airlines ticket office. Call today as seat may be limited. Applicable travel period is April 17 to May 5, 2005. Reservation centers are open 7 days a week from 8 am to 10 pm EST. Meeting city airline codes are Bangkok (BKK) and Chiang Mai (CNX).

For special car rental discounts in conjunction with the United Airlines meeting agreement, contact Avis at 1-877-289-2611 and reference Avis Meeting Discount Number K019303 or Alamo at 1-800-327-9633 and reference Alamo Meeting Discount Number 389817GR.

GENERAL INFORMATION


Visas. Consult the Thai Embassy, High Commission or Consulate (http://www.thaiembassy.org/) for visa requirements. The Thai government allows residents of 57 nations, including most European countries, Australia, New Zealand, and the USA to enter for tourism purposes without a visa for 30 days without charge. Citizens of Brazil, Korea, and Peru may enter Thailand without a visa for a maximum stay of 90 days.

Official Language. English is the official language of the Winter Conference. English is widely understood in Thai cities and Thai-English street signs are found nationwide.

Letter of Invitation. Individuals requiring an official letter of invitation to attend the Conference should write to the Conference Secretariat. This procedure is designed to assist participants who need to obtain a visa or permission to attend the Winter Conference and does not cover registration fees or other expenses. The invitation does not imply provision of financial or other support.

Currency. The Thai monetary unit is the baht, which is subdivided into 100 satang. Notes are issued in denominations of B1000 (gray), B500 (purple), B100 (red), B50 (blue), B20 (green), B10 (brown). There are 1, 5, 10 baht, and 25 and 50 satang coins. The US$1 is worth approximately 40 baht, and 1 Euro is worth approximately 52 baht. Current exchange rates among various world currencies can be estimated at a currency rate.

2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry, Chiang Mai, Thailand
Value-Added Tax. Thailand has a 7% value-added tax (VAT). Tourist hotels will usually add a 10% hotel tax, and sometimes a 10% service charge.

Airport Departure Fees. A 500 baht fee is charged for international departures.

Electricity. The electricity in Thailand is 220 V, 50 Hz. Wall outlets are a hybrid arrangement that accept both round two-pole and flat two-blade terminals.

Customs. Visitors may bring any amount of foreign currency into Thailand, but they must indicate the amount on the customs declaration form upon arrival. Travelers may take out no more than 50,000 Baht per person unless the customs form verifies a greater amount was brought into the country.

Health and Personal Insurance. The Winter Conference cannot accept liability for injuries or losses arising from accidents or other situations during or as a consequence of the Conference. No vaccinations are required for entering Thailand unless the traveller is arriving from contaminated countries.

Student Travel Awards. Winter Conference Student Travel Awards will recognize outstanding original research in the field of plasma spectrochemistry by a graduate student or postdoctoral student. Grants will be awarded depending on the availability of funds. Grant applications are available by contacting the Conference Secretariat. Students will be notified of the award and amount on or before April 1, 2005. Awards will be presented at the Conference.

Full Country Name. Thailand (Prathet Thai, meaning “land of the free”)
Capital. Bangkok (Krung Thep, meaning “city of angels”)

Geography. The kingdom of Thailand lies in the heart of Southeast Asia, making it a natural gateway to Indochina, Myanmar and Southern China. Its shape and geography divide into four natural regions: the mountains and forests of the North; the vast rice fields of the Central Plains; the semiarid farm lands of the Northeast plateau; and the tropical islands and long coastline of the peninsula South.

The country comprises 76 provinces that are further divided into districts, subdistricts and villages. Bangkok is the capital city and centre of political, commercial, industrial and cultural activities. It is also the seat of Thailand’s revered Royal Family.

Thailand is a constitutional monarchy with His Majesty King Bhumibol Adulyadej, or King Rama IX, the ninth king of the Chakri Dynasty, the present king. The King has reigned for more than half a century, making him the longest reigning Thai monarch. Thailand embraces a rich diversity of cultures and traditions. With its proud history, tropical climate and renowned hospitality, the Kingdom is a never-ending source of fascination and pleasure for international visitors.

Area. Thailand has a total area of 513,115 km² (202,000 miles²) and population of nearly 62 million located in southeast Asia bordering on the Indian Ocean and Myanmar in the West, Cambodia and Lao in the East, Laos and Myanmar in the North, and Malaysia and the Gulf of Thailand in the South.

Topography. Thailand is divided into 4 natural regions. 1) The mountainous North, with its profusion of multicolored orchids, fascinating native handicrafts and winter temperatures are sufficiently cool to permit cultivation of temperate fruits such as strawberries and peaches; 2) The high Northeast Plateau, which still jealously guards its many archaeological and anthropological mysteries; 3) The Central Plain, one of the world’s most fertile rice and fruit-growing areas with colorful traditional culture and way of life as well as the sandy beaches of the East Coast and vibrant cosmopolitan Bangkok; 4) The peninsular South where the unspoiled beaches and idyllic islands complement economically vital tin mining, rubber cultivation and fishing.

Population. Thais are well-known for their friendliness and hospitality. A large majority of over 62 million citizens of Thailand are ethnic Thai, along with strong communities whose ethnic origins lie in China, India and elsewhere. About 7 million people reside in the capital city of Bangkok.

People. Thai (80%), Chinese (10%), Malay (3%), and the rest are minorities (Mons, Khmers, hilltribes) Ethnic Thais form the majority, though the area has historically been a migratory crossroads, and has thus produced a degree of ethnic diversity. Integration is such, however, that culturally and socially there is enormous unity. See www.chiangmai1.com/chiang_mai/people.shtml.

Language. Spoken and written Thai is largely incomprehensible to the casual visitor. However, English is widely understood, particularly in Bangkok where it is almost the major commercial language. English and some European languages are spoken in most hotels, shops and restaurants in major tourist destinations, and Thai-English road and street signs are found nationwide.

Religion. Buddhism (95%), Muslim (4%), others (1%)

Government. Thailand has had a constitutional monarchy since 1932. Parliament is composed of 2 houses, The House of Representatives and the Senate. Both representatives and senators are elected by the
Call for Paper Abstracts and Titles

Preliminary titles and abstracts (50 words) are solicited on original plasma spectrochemical research, methods and applications. A submission form is available on page 9. The title and abstract deadline is Monday, January 3, 2005. Accepted titles will be acknowledged and assigned program times, and final abstracts will be due January 28, 2005. An abstract processing fee ($50) will be waived for on-time submissions, and a post-deadline processing fee penalty will be added for late submissions. Symposium topics include the following, and papers covering other plasma-related topics are encouraged:

Symposium Topics
• Elemental speciation and speciation sample preparation
• Excitation mechanisms and plasma phenomena
• Flow injection and flow processing spectrochemical analysis
• Glow discharge atomic and mass spectrometry
• Inductively coupled plasma atomic and mass spectrometry
• Laser ablation and breakdown spectrometry
• Microwave atomic and mass spectrometry
• Micronebulization systems, microplasma systems
• Plasma chromatographic detectors
• Plasma instrumentation, automation, software innovations
• Sample introduction, transport phenomena, and modeling
• Sample preparation, treatment, and automation; high-purity materials, and quality assurance
• Spectrochemical chemometrics, expert systems, and software
• Spectroscopic standards and reference materials, databases
• Stable isotope analyses and applications
• Spectrochemical chemometrics, expert systems, and software
• Spectroscopic standards and reference materials, databases
• Stable isotope analyses and applications

Conference Travel and Registration Grants

The Winter Conference sponsor, the ICP Information Newsletter Corporation, is a tax-exempt philanthropic organization that will offer Conference Travel and Registration Grants to students and international scientists, who wish to present recent research results at the 2005 Asia-Pacific Winter Conference. This grant program is supported by fund raising and donations from individuals and corporate sponsors, and no Conference registration fees are used. Tax-deductible gifts for these grants are solicited, and donations can be made with registration (see Registration form, page 16) or directly at any time. Travel and Registration Grant rules and application forms can be obtained from the Conference Secretariat.

2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry
%ICP Information Newsletter, Inc., P.O. Box 666, Hadley, MA 01035-0666 USA;
85 N. Whitney St., Amherst, MA 01035-1869 USA
Dr. Ramon Barnes, Conference Chairman, Telephone (413) 256-8942, Fax (413) 256-3746,
email wc2005@chem.umass.edu, http://www-unix.oit.umass.edu/~wc2005

2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry, Chiang Mai, Thailand
Asia-Pacific Winter Conference on Plasma Spectrochemistry
Program Outline

Monday, April 25, 2005

8:00 Opening and Welcome
8:05 (PL1) Plenary Lecture
1. Sample Introduction and Transport Phenomena
9:00 (IL1) Invited Lecture
9:30 (IL2) Invited Lecture
10:30 (IL3) Invited Lecture
11:00 (CL01) Contributed Lecture
11:30 (CL02) Contributed Lecture
12:00 Exhibition Opening and Lunch
Afternoon
2:00 Parallel Sessions: Plasma Spectrochemistry and Non-plasma Atomic Spectrometry
3:00-6:30 Exhibition and Poster Session: Sample Introduction
3:15-5:15 (WS1) Workshop New Plasma Instrumentation
5:30 (PD1) Panel Discussion Sample Introduction
6:30 Social Mixer

Tuesday, April 26, 2005

2. Elemental Speciation
8:00 (PL2) Plenary Lecture
9:00 (IL4) Invited Lecture
9:30 (IL5) Invited Lecture
10:30 (IL6) Invited Lecture
11:00 (CL03) Contributed Lecture
11:30 (CL04) Contributed Lecture
12:00 Exhibition and Lunch
Afternoon
2:00 Parallel Sessions: Plasma Spectrochemistry and Non-plasma Atomic Spectrometry
3:00 - 6:30 Exhibition and Poster Session: Sampling and Preparation, Elemental Speciation, Sample Preparation and Standards, Teaching Spectroscopy
3:15 - 5:15 (WS2) Workshop New Plasma Instrumentation
5:30 (PD2) Panel Discussion Problems in Elemental Speciation
6:30 Social Mixer

Wednesday, April 27, 2005

3. Laser Assisted Plasma Spectrochemistry
8:00 (PL3) Plenary Lecture
9:00 (IL7) Invited Lecture
9:30 (IL8) Invited Lecture
10:30 (IL9) Invited Lecture
11:00 (IL10) Invited Lecture
11:30 (IL11) Invited Lecture
12:00 Exhibition and Lunch
Afternoon
2:00 Parallel Sessions: Plasma Spectrochemistry and Non-plasma Atomic Spectrometry
3:00 - 6:30 Exhibition and Poster Session: Automation, Instrumentation, Laser Assisted Plasma Spectroscopy, Software, Glow Discharge Atomic/Mass Spectrometry
3:15 - 5:15 (WS3) Workshop New Plasma Instrumentation
5:30 (PD3) Panel Discussion Plasma Spectroscopy: Frontiers
6:30 Social Mixer

Thursday, April 28, 2005

4. Plasma Source Mass Spectrometry: Applications, Radionuclides and Stable Isotope Analysis
8:00 (PL4) Plenary Lecture
9:00 (IL12) Invited Lecture
9:30 (IL13) Invited Lecture
10:30 (IL14) Invited Lecture
11:00 (CL05) Contributed Lecture
11:30 (CL06) Contributed Lecture
12:00 Exhibition Closing and Lunch
Afternoon
2:00 Excursion to Doi Suthep and a Meo hilltribe village

Friday, April 29, 2005

8:00 (PL5) Plenary Lecture
9:00 (IL15) Invited Lecture
9:30 (IL16) Invited Lecture
10:30 (IL17) Invited Lecture
11:00 (CL07) Contributed Lecture
11:30 (CL08) Contributed Lecture
12:00 Lunch
Afternoon
2:00 Parallel Sessions: Plasma Spectrochemistry and Non-plasma Atomic Spectrometry
3 - 6:30 Poster Session: Plasma Mass Spectrometry, Applications, Fundamentals, Instrumentation, Stable Isotopes, Mechanisms, Plasma Sources
5:30 (PD4) Panel Discussion Radionuclides and Stable Isotope Analysis
6:30 Conference Dinner Classical Lanna Night

Saturday, April 30, 2005

6. Excitation Mechanisms and Plasma Phenomena, Sample Preparation, Treatment, and Analysis
8:00 (PL6) Plenary Lecture
9:00 (IL18) Invited Lecture
9:30 (IL19) Invited Lecture
10:30 (IL20) Invited Lecture
11:00 (IL21) Invited Lecture
11:30 (IL22) Invited Lecture
12:00 (PD5) Panel Discussion Plasma Source Mass Spectrometry Applications
1:00 Conference Closing and Lunch
CONFERENCE EXCURSION

The Conference group excursion is planned for Thursday afternoon, April 28 (1:30 - 4:30 pm) to Doi Suthep and a Meo hilltribe village. No technical sessions are scheduled for this period. The tour includes bus transport, an experienced English-speaking guide, entrance fees, cable car ticket, and car transport to the Meo Village. The special conference tour price is 560 Baht ($14), and tickets should be purchased by Tuesday noon, April 26.

Offering panoramic views of Chiang Mai and the plains below, Doi Suthep is a peak about 3,500 feet (1676-m) high some twelve miles (16 km) north west of the Chiang Mai. A zig-zag road winds upward to a 300-step staircase that leads to the famous temple of War Phrathat (Wat Pratat Doi Suthep), the most important and exquisite temple in Chiang Mai, where one can admire a large Pagoda containing the holy relics of Buddha. A short cable car ride voids the climb up the staircase. The temple is dominated by a 24-meter chedi (religious memorial) topped with a five tiered parasol. The temple is a centre for meditation instruction frequently disturbed by visitors ringing the numerous bells that surround the compound.

The Doi Suthep temple, first established in 1383 under King Gue Na, is one of North Thailand’s most sacred temples. According to the legend, during the rule of King Ku Na (1355-1385), a Buddha relic was found and placed on an elephant permitted to roam freely. The elephant climbed onto Doi Suthep and stopped at the present site of Suthep Temple. Thus, the Buddha relic was worshipped where the elephant stopped. The existing temple was established in the 16th Century and modified and expended several times. The temple consists of well-decorated buildings and a Buddha tower, which is inlaid with engraved golden plates and four decorative umbrella covers.

This trip also visits a Meo Village at Doi Pui where the hilltribe live their primitive way of life. Thailand has a hilltribe population of some half a million of which perhaps a quarter live in Chiang Mai province. Each tribe has a different language, dress, religion and culture. The Meo (or Hmong) are the second largest group famed for their independence and association with the poppy industry. The village at Doi Pui shows their way of life and contains two small “museum huts” that focus on hilltribe cultures and opium production techniques. Many decorative handicrafts are available from local villagers.

CONFERENCE DINNER

The Conference dinner is planned for Friday evening, April 29 (6:30 - 9:30 pm) with a Lanna theme at the Imperial Chiang Mai Resort and Sports Club. The dinner includes bus transport, a welcoming drink (Thai herb), and welcoming flowers. Everyone will be seated poolside and boats will come along to serve food (Pad-thai noodle, soup, sweets, and fruit). Also there will be a Khan Toke dinner with authentic Thai clear seafood soup, fried river prawns with sweetened chili paste, grilled turmeric chicken, roasted duck curry with longan, fried vegetables, fried fish with garlic and pepper, jasmine rice, and assorted Thai desserts and fruits. Demonstrations of fruit carving, umbrella painting, and Thai northern dancing will be concluded with fireworks. The special conference dinner price is 1600 Baht ($40), and tickets should be purchased by Wednesday noon, April 27.
CONFERENCE PRESENTATION TITLE AND ABSTRACT SUBMISSION FORM

Submission Deadline: January 3, 2005

I (we) plan to submit a paper as a ☐ lecture (15 minutes), ☐ poster, ☐ computer poster, ☐ either.

TITLE

AUTHOR NAME(S) [give full names of all authors, underline presenting author]:

COMPLETE POSTAL AND E-MAIL ADDRESS(ES) [give full address of all authors]:

Please send a 50-word descriptive abstract, sign below, and return this form by January 3, 2005, to 2005 Asia-Pacific Winter Conference, Attention: R. Barnes, ICP Information Newsletter, P.O. Box 666, Hadley, MA 01035-0666, or 85 N. Whitney St., Amherst, MA 01002-1869; fax (413) 256-3746, e-mail wc2005@chem.umass.edu

CLASSIFICATION. Which of the following best describes your paper?
A. Symposium:
B. Application:

PUBLICATION. Which of the following best describes your intentions for publication of the proposed paper?
☐ submission to Conference proceeding journal: ☐ Analytical and Bioanalytical Chemistry or ☐ Journal of Analytical Atomic Spectrometry.
☐ submission to ICP Information Newsletter. ☐ submission to another journal. ☐ no plan to submit manuscript.

CERTIFICATION.
I (we) certify that the material to be presented represents original research or development, which at the time of the Conference will previously not have been published or presented in public.

SIGNATURE ___________________________________________________________ DATE ________________

COMPLETE MAILING ADDRESS (if not included above):

TELEPHONE/FAX/EMAIL:

Received: Manuscript No. Paper Registration 2005-______-_______
INSTRUCTIONS FOR PREPARATION OF EXTENDED ABSTRACT

Submission Deadline: January 28, 2005

An extended abstract (up to two pages long) of an accepted paper composed as a computer file with a popular word processor program (e.g., Microsoft Word, WordPerfect) and a printed hard copy must be returned by January 28, 2005 to be included in the Conference program. Instructions for style and layout follow, and an illustration is given on the next page. The abstract must be accompanied by a completed and signed "Transfer of Copyright" agreement form that allows us to publish the abstract in the ICP Information Newsletter. A $50 abstract processing fee will be waived for on-time submission. Please let us know immediately if you do not plan to submit an abstract. If we do not receive your extended abstract in a reasonable time (February 7), we will assume that your paper has been withdrawn.

COMPOSITION AND PREPARATION INSTRUCTIONS

NOTICE: Your abstract will be reproduced directly from the computer file you send (after editing if needed). We require that PC- or Macintosh-compatible word-processor files on disk be sent with your printed abstract. Include a separate file for embedded graphics, photographs, and equations. ASCII (.rtf) or attached e-mail internet files of the abstract also may be submitted, but hard copies and computer files should be mailed for verification. All abstracts should follow the described format. Adobe® Acrobat® pdf files will not be accepted.

1. Submit the abstract as a word-processor file on a 3.5-inch, Zip computer diskette, or CD ROM. Indicate on the label the disk type and format, word processor and graphics programs (indicate version) used, file names of the abstract and graphics, and file date. File name should include the first author's initials and paper number (e.g., EVSTHP30.doc). For the hard copy, use a laser printer. We can reproduce color in the abstract, but please consider the file size. Electric typewriter or dot matrix computer printers copies are not acceptable. Symbols and equations must be laser printed. Figures or photographs must be digital files with 300 to 600 dpi image resolution.

2. On plain white paper (or the form provided or its duplicate) start with the PAPER NUMBER, then PRINT THE ABSTRACT TITLE IN CAPITAL LETTERS AT THE TOP OF THE PAGE. Follow with the Full Names of the Authors, their complete Business Addresses, and Postal Codes. Print the Speaker's Name in boldface. You may include the author's e-mail address and digital photograph as an option.

3. Leave a one-line space between the title and the abstract. Indent the beginning of each paragraph five spaces. Justify all text, and set margins for 9.25 inches (235 mm) page length and 7 inches (178 mm) paragraph width. Keep all lines as wide as possible without exceeding the paragraph width at either side. Single space throughout. Use a 12-point font.

4. If literature citations are included, number them sequentially, insert the reference number in [square brackets], and list them in sequence at the end of the abstract. Follow the style specified for the American Chemical Society journals or the Journal of Analytical Atomic Spectrometry. Credits, if any, also should be added at the end of the abstract, but not as a new paragraph.

5. An abstract may be submitted on plain paper when it follows the guidelines of the special form. Before submitting the abstract, check format, nomenclature, and spelling. American English is preferred.

6. One copy of the computer word-processor file and a printed version of the abstract are requested. Deadline for receipt of abstracts in our office is Friday, January 28, 2005.

7. Mail computer disk in an appropriate mailer and hard copy abstract to: Winter Conference, %ICP Information Newsletter, P.O. Box 666, Hadley, MA 01035-0666 USA. For express mail or courier service only, use the following address: Winter Conference, 85 N. Whitney St, Amherst, MA 01002-1869.
WP21 ANALYSIS OF ENERGY-RELATED EFFLUENTS USING ICPES. Mary M. McKown and Donald L. Sgontz, Battelle, Columbus Laboratories, 505 King Avenue, Columbus, OH 43201; Judith E. Gebhart, GSRI, New Orleans, LA 70186, and Ann L. Alford, Environmental Protection Agency, College Station Road, Athens, GA 30601; mmmckown@somewhere.gov

The development of alternative energy resources must be concerned with concurrently establishing the environmental impact of new technologies. An extensive profile of effluents from seven energy-related activities sponsored by the U.S. Environmental Protection Agency included samples from oil shale operations and coal gasification experiments. Selected samples were examined by ICPES and results compared to data generated by spark source mass spectrometry (SSMS).

Thirty elements were determined by ICPES using a Jarrell-Ash AtomComp 975 following perchloric acid digestion and concentration of the effluents. Agreement of ICPES and SSMS data will be defined as "good", "fair", or "poor" for this discussion. Good agreement was obtained for aluminum, barium, boron, calcium, chromium, copper, iron, lead, and zinc. The oil shale comparisons were poor for several metals [1].

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2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry

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email wc2005@chem.umass.edu, http://www-unix.oit.umass.edu/~wc2005

13
HOTEL RESERVATION FORM

Lotus Hotel Pang Suan Kaew
21 Huay Kaew Road, Chiang Mai 50200, Thailand

First NAME ____________________________________________________________
Last NAME __________________________________________________________________
COMPANY NAME _____________________________________________________________
Date of Birth __________ / _________ / _________ (dd/mm/yy)
ORGANIZATION NAME________________________________________________________
MAILING ADDRESS ___________________________________________________________
CITY ____________________STATE____ ZIP/POSTAL CODE______COUNTRY________
WORK PHONE ________________________ CELL PHONE __________________________
FACSIMILE___________________________ E-MAIL________________________________

SHARING WITH (If Twin Room)__________________________________________________

Accommodations at Lotus Hotel Pang Suan Kaew

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Room Rate</th>
<th>Period of Stay</th>
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<tbody>
<tr>
<td>Deluxe Room</td>
<td>❑ Single</td>
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<td></td>
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<td>Superior Room</td>
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<td>$20/ night</td>
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<td>$25/ night</td>
</tr>
<tr>
<td>(including breakfast)</td>
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</tbody>
</table>

All room rates are net inclusive of service charge and government tax, subject to availability.

Indicate

NUMBER OF ROOMS__________________ NUMBER OF OCCUPANTS/ROOM___________

SPECIAL NEEDS❑ Handicapped (describe______________________) ❑ Other___________________

Transportation Service (free of charge) Lotus Hotel/Chiang Mai Airport

❑ Airport to Hotel  Arrival date: ___________ (dd/mm/yy)  Time: ___________ Flight: ______________
❑ Hotel to Airport  Departure date: ___________ (dd/mm/yy)  Time: ___________ Flight: ______________

Authorization of Credit Card Payment

TOTAL AMOUNT To Pay ____________________________ ____________________________
ARRIVAL DATE ______________________ CHECKOUT DATE_______________________
CREDIT CARD PAYMENT ❑ American Express, ❑ Diners, ❑ Discover, ❑ MasterCard, ❑ Visa
CREDIT CARD NO. ____________________________ EXPIRATION DATE________________
Card Holder's Name ____________________________
AUTHORIZED SIGNATURE ____________________________ (dd/mm/yy)

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Tel (66) 5322-4333, email info@lotusspskhotel.com, www.lotuspskhotel.com
## Conference Fee Summary

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<th>After</th>
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<td>Conference*</td>
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<td><strong>Short Course Enrollment</strong> (each course)</td>
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<tr>
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<td>$12</td>
<td>$13</td>
<td>$14</td>
</tr>
</tbody>
</table>

**Conference Dinner and Excursion** (includes transportation, taxes, gratuity)

- Conference Dinner, April 29 (adult): $36 → $38 → $40
- Conference Dinner (child under 10): no charge
- Conference Excursion, April 28 afternoon: $12 → $13 → $14

**Additional or Duplicate, Proceedings**

- Souvenir T-Shirt (Size ___): $15 → $17 → $20
- Conference Abstracts (duplicate): $20 → $30 → $50
- Conference Proceedings: $55 → $60 → $65

* Conference registration includes Conference abstracts, souvenirs and tee shirt, and one-year subscription to *ICP Information Newsletter*. Conference dinner and excursion are not included in the registration.

** Conference registration for personnel of organizations participating in Conference exhibition includes Conference abstracts and souvenir shirt only. Exhibitors must be registered as employees of a sponsoring firm. Conference dinner and excursion are not included in the Exhibitor registration fee.

*** Conference registration includes Conference abstracts and souvenir shirt only. Only full-time students are eligible for student registration. Enclose a letter signed by the academic advisor. No registration fees are charged for accompanying persons, family, or children.

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ZIP/POSTAL CODE

Telephone (Business) (Home) E-MAIL FAX

Please indicate:

- Author
- Co-author
- Attending (Sir Single day)
- Short Course Only)
- Exhibitor
- Student* (Predoctoral Postdoctoral)

*Only full-time students are eligible for student registration. Academic advisor must countersign registration.

Tee Shirt Size:
- Extra Extra Large
- Extra Large
- Large
- Medium
- Small
- Very Small (Child).

B. Accompanying Person(s), Transportation, Accommodations (Information purposes only)

Give names of accompanying person: Spouse or Children (Names/Ages)

Arrival Date/Time

Departure Date

Hotel: [Lotus PSK Hotel] [Other]

C. Conference Registration Fees

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<td>$170</td>
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D. Short Course Enrollment

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E. Conference Dinner, Excursion (includes transportation, tax, gratuity)

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<tr>
<th>Number Ordered</th>
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<tbody>
<tr>
<td>Conference Dinner, April 29 (adult)</td>
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<tr>
<td>Conference Dinner (child under 10)</td>
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<tr>
<td>Conference Excursion, April 28 pm</td>
</tr>
</tbody>
</table>

F. Duplicate/Additions, Abstracts, Proceedings, Donations

<table>
<thead>
<tr>
<th>Number Ordered</th>
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<tbody>
<tr>
<td>Souvenir T Shirt (Size__)</td>
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<tr>
<td>Conference Abstracts (duplicate)</td>
</tr>
<tr>
<td>Conference Proceedings</td>
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<tr>
<td>Subscription to ICP Information Newsletter (January - December 2005)</td>
</tr>
<tr>
<td>Tax-Deductible Contribution to Conference Travel-Registration Funds</td>
</tr>
</tbody>
</table>

TOTAL $__________

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REGISTRATION NUMBER 2005__|__|__| - |__|__|__|

Payment: $ Check No. Date Received: ____________________

Refund: Check Date Acknowledgment: ____________________

2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry, Chiang Mai, Thailand
A. Registration

Please Type or Print Clearly

<table>
<thead>
<tr>
<th>FAMILY NAME</th>
<th>FIRST NAME</th>
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CITY | STATE | ZIP/POSTAL CODE
--- | --- | ---

Telephone (Business) | (Home) | E-MAIL | FAX
--- | --- | --- | ---

Please indicate:
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- Attending
- Single day
- Short Course Only
- Exhibitor
- Student* (Predoctoral, Postdoctoral)

*Only full-time students are eligible for student registration. Academic advisor must countersign registration.

Tee Shirt Size:
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- Extra Large
- Large
- Medium
- Small
- Very Small (Child)

B. Accompanying Person(s), Transportation, Accommodations (Information purposes only)

Give names of accompanying person: Spouse or Children (Names/Ages)

Arrival Date/Time

Departure Date

Hotel:
- Lotus PSK Hotel
- Other

C. Conference Registration Fees

<table>
<thead>
<tr>
<th>Only Before</th>
<th>January 3, 2005</th>
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</table>

| Conference | $400 | $__________ |
| Exhibitor  | $  95 | $__________ |
| Student    | $  60 | $__________ |
| Postdoctoral | $  80 | $__________ |
| Single Day | $150 | $__________ |

D. Short Course Enrollment

<table>
<thead>
<tr>
<th>Date, Time</th>
<th>Indicate Course Number (SX - 00) and Name</th>
</tr>
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</table>

| (1) April 23, 8 am | S__ - |
| (2) April 23, 1 pm | S__ - |
| (3) April 23, 7 pm | S__ - |
| (4) April 24, 8 am | S__ - |
| (5) April 24, 1 pm | S__ - |
| (6) April 24, 7 pm | S__ - |

E. Conference Dinner, Excursion (includes transportation, tax, and gratuity)

<table>
<thead>
<tr>
<th>Number Ordered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conference Dinner, April 29 (adult) $34</td>
</tr>
<tr>
<td>Conference Dinner (child under 10) no charge</td>
</tr>
<tr>
<td>Conference Excursion, April 28 pm $12</td>
</tr>
</tbody>
</table>

F. Duplicate/Additional Shirts, Abstracts, Proceedings, Donations

<table>
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<th>Number Ordered</th>
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<tbody>
<tr>
<td>Souvenir T Shirt</td>
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<tr>
<td>Conference Abstracts (duplicate) $18</td>
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<tr>
<td>Conference Proceedings $49</td>
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<td>Subscription to ICP Information Newsletter (January - December 2005) $__________</td>
</tr>
<tr>
<td>Tax-Deductible Contribution to Conference Travel-Registration Grant Funds $__________</td>
</tr>
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</table>

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- VISA

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Signature: ____________________ Date: ____________________

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Refund: $__________ Check Date __________ Acknowledgment: __________
SC-01 Electrothermal Vaporization for Atomic and Mass Spectrometry. April 23, 8 am, D. Conrad Grégoire, Geological Survey of Canada, 601 Booth St., Room 721, Ottawa, ON K1A 0E8, Canada [gregoire@NRCan.gc.ca]

The application of electrothermal vaporization techniques (ETV) for the ultra-trace analysis of micro samples will be covered. The main emphasis, particularly for the analysis of real samples, will be on ICP mass spectrometry. In ETV liquid or solid samples are heated in a graphite tube or on a filament made of metal or graphite. Vaporized material is carried to the argon plasma by a stream of argon gas. Covered in this course will be ETV instrumentation, the principle of operation of ETV, background spectral features in ETV-ICP-MS, the mechanisms of analyte vaporization, chemical modification and the use of physical carriers, non-spectroscopic interferences, and specific applications that highlight the analytical domain of ETV-ICP-MS.

Keywords: Electrothermal vaporization, ICP emission spectrometry, ICP mass spectrometry, microanalysis, trace analysis, isotope ratio determination

SC-02 Trace Element Speciation. April 23, 1 pm, Olivier F.X. Donard, Laboratoire de Chimie Bio-Inorganique et Environnement, CNRS EP 132, Université de Pau et du Pays de l’Adour, Centre Hélioparc, 2 avenue du Président Angot, F-64000 Pau, France [olivier.donard@univ-pau.fr]

The chemical forms of metals in natural, aqueous, and solid environments are of considerable interest. The approaches and techniques used to sample, preserve, and measure the chemical forms of trace elements in environmental samples will be the focus of this course. Regulatory procedures, development of methodology, and collaborative exercises also will be examined. Chromatographic and other separation techniques, generation of species-specific gases and vapors, and other approaches will be discussed. The role of plasma and furnace spectroscopic detection systems will be examined.

Keywords: Arsenic, chromium, mercury, tin, chemical forms, separation, speciation

SC-03 Spectrochemical Analysis of Long-lived Radionuclides. April 23, 7 pm, Sabine Becker, Central Department for Analytical Chemistry, Research Center Jülich GmbH, D-52425 Jülich, Germany [s.becker@fz-juelich.de]

For a couple of years ICP-MS with its ability to provide a very sensitive multielemental determination of trace and ultratrace elements and precise isotopic analysis has been increasingly established for the determination of long-lived radionuclides especially in environmental materials such as waters, geological, biological and medical samples, in nuclear materials, and in radioactive waste [J.S. Becker, H.-J. Dietze, Encyclopedia Analytical Chemistry, John Wiley, 1999, 12947]. The aim of this course is to discuss the state of the art and the progress in determination of long-lived radionuclides by ICP-MS and LA-ICP-MS in routine analysis and research compared with TIMS, GDMS, and radioanalytical techniques.

Keywords: Environmental samples, ICP-MS, isotope ratio measurements, LA-ICP-MS, long-lived radionuclides, multicollector ICP-MS, radioactive waste, separation techniques, trace and ultratrace analysis, urine

SC-04 High Resolution ICP-MS. April 24, 8 am, Norbert Jakubowski, Institut für Spektrochemie und Angewandte, Postfach 101352, D-44013 Dortmund, Germany [jakubowski@isas-dortmund.de], and Meike Hamester, ThermoElectron

This course is an introduction to ICP-MS with a double focusing magnetic sector mass analyzer. It offers fundamental background, a thorough discussion of analytical features, and state of the art information on applications. Different types of double focusing instruments also are considered. Specific topics include fundamental aspects of ICP-MS (physical properties of a double focusing instrument, operational characteristics in comparison with quadrupole instruments); analytical characteristics (spectral and non-spectral interferences, figures of merit in low and high resolution modes, blanks and memory effects, HPLC and GC interfaces), and applications (industrial including ultrapure reagents and alloys, environmental, geological, and biomedical materials).

Keywords: High-resolution ICP-MS, figures of merit, interfaces, applications, ultra-trace analysis

SC-05 Advanced mass spectrometry in life science. New directions in metallomics and phosphoproteomics. April 24, 1 pm, J. Sabine Becker, Central Division of Analytical Chemistry, Research Center Jülich, Germany [s.becker@fz-juelich.de], and J. Susanne Becker, Laboratory of Analytical Chemistry, Department of Chemistry, University of Konstanz, 78457 Konstanz, Germany

Most elements of periodical table (essential major and minor elements, such as H, N, C, O, Mg, P, S, Cl, K, Ca and...
trace elements: F, Si, V, I, Cr, Mn, Fe, Co, Ni, Cu, Zn, As, Se, Mo, Sn) are of great importance for health of living organisms. Whereas the absence or the deficit of essential metals (such as Fe, Cu, Zn) results in deficiency diseases, they can also catalyze cytotoxic reactions and contribute to enzymatic activity (metalloenzymes) of proteins. In contrast, toxic elements in certain concentration, such as Cd, Hg, Pb, natural and artificial radionuclides: U, Th, Pu are dangerous for health. A combination of atomic and molecular mass spectrometric methods using laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) and matrix assisted laser desorption/ionization mass spectrometry (MALDI-MS) was developed for the characterization and identification of separated protein spots after two-dimensional (2D) gel electrophoresis in mitochondria and in human proteins from Alzheimer diseased brain vs. control brain. The aim of this short course is to describe different analytical techniques for the determination of minor and trace elements, for example, in body fluids (blood, urine), liver, kidney, lung, hair, brain samples and others. Such investigations are important for understanding of physiology for diagnosis and for treatment.

**Keywords:** Life sciences, mass spectrometry, laser ablation, elemental analysis, metallomics, phosphoproteomics, MALDI-MS

SC-06 Glow Discharge Spectrometry, April 24, 7 pm, Norbert Jakubowski, Institut für Spektrochemie und Angewandte Postfach 101352, D-44013, Dortmund, Germany [jakubowski@isas-dortmund.de], and Lothar Rottmann, ThermoElectron, Bremen

This course is designed to serve as an introduction to the fundamental operating principles of glow discharge devices and their applications in atomic emission (GD-AES) and mass spectrometries (GDMS) and will be given by international experts. Hard- and software (quantification) will be explained and applications will be compared with other methods of direct solids elemental analysis. Analytical figures of merit for the two spectrometric methods are discussed. Direct current, radio frequency and pulsed glow discharges will be described with respect to the plasma and electrical discharge parameters. Finally, the session will be concluded with a discussion of future trends in instrumentation and applications.

**Keywords:** Glow discharge, atomic emission, mass spectrometry, elemental analysis

SC-07 Microwave-Assisted Processes (MAP™), Part 1, Introduction, April 23, 8 am, Jocelyn Paré and Jacqueline Bélanger, Environmental Technology Centre, Environment Canada, 335 River Rd., Ottawa, ON K1A OH3, Canada [Jocelyn.pare@ec.gc.ca, Jacqueline.Belanger@ec.gc.ca]

This course on microwave-assisted chemistry will be of interest to all scientists working in analytical chemistry. Part 1 will include an introduction to microwave chemistry and definitions of microwave assisted processes (MAP), extraction processes (liquid phase vs. gas phase), solvent selection, basic principles and important parameters, and examples. Part 2 will describe traditional and novel instrumentation and apparatus, dielecimeter, novel approaches, and analytical applications and examples. The main objective of the course is to provide the basic knowledge required to design experimental protocols. The course is based on empirical or semi-empirical results, and each topic is supported with sufficient material to demonstrate the principles involved. The presentations provide the participants with a maximum number of real-life examples and their respective practices in the laboratory, so that one can better understand the fundamental principles underlying the MAP technologies with their advantages and limitations. Another objective is to provide experimental methodology whereby each theoretical principle is demonstrated on an empirical basis with examples and nonmathematical treatment of the associated microwave phenomena.

**Keywords:** Microwave-assisted analytical processes, extraction, analytical applications, synthesis, instrumentation, parameters

Jocelyn Paré completed his Ph. D. in natural products chemistry from Carleton University, Ottawa, Ontario, in 1984. He is Research scientist, Section Head, and Division Chief, of the Environmental Technology Centre in the Department of the Environment of Canada. Over the course of his career he has occupied various positions and has been honored through various awards. Paré is recognized as a scientific leader worldwide and as one of Canada’s most prominent innovators. He is the author of more than 135 scientific publications and 13 patents. He presented his research worldwide through more than 340 communications

SC-09 Environmental Monitoring and Fingerprinting: The Use of ICPMS-Based Isotopic Measurements, April 23, 7 pm, Michael E. Ketterer, Department of Chemistry Northern Arizona University, Box 5698, Flagstaff, AZ 86011-5698 [michael.ketterer@nau.edu]

The how and why of using quadrupole and sector ICP-MS for environmental monitoring and fingerprinting determinations will be presented. This course will describe types of samples, sample treatment methods, separation/preconcentration procedures, and ICP-MS strategies.

**Keywords:** Microwave-assisted analytical processes, extraction, analytical applications, synthesis, instrumentation, parameters
Methods for determining the activities of Pu by isotope dilution procedures as well as Pu isotopic compositions will be described. The merits of ICP-MS compared to decay counting and other MS approaches will be discussed. Various case studies and applications will be presented, including isotopic fingerprinting of local/regional sources, sediment chronology, and soil erosion/transport studies.

Keywords: Environmental monitoring, ICP-MS, isotope dilution, isotope ratios, case studies, fingerprinting

Michael E. Ketterer received his undergraduate education at the University of Notre Dame (BS, Chemistry, 1980) and earned a PhD in Analytical Chemistry in 1985 from the University of Colorado. His PhD research was in the area of electroanalytical chemistry, but he now considers himself a “recovering electrochemist”. He was employed in industry for two years, then he worked from 1987-1993 at the USEPA’s National Enforcement Investigations Center. In 1988, while employed at EPA-NEIC, he began working with quadrupole ICPMS. From 1993-1998 he was Assistant Professor of Chemistry at John Carroll University, and in 1998 he moved to Northern Arizona University, where he is currently Associate Professor of Chemistry. He now manages a laboratory equipped with a VG Axiom sector ICPMS and a VG PQII quadrupole ICPMS; current research interests are in isotopic measurements and studies of naturally occurring and artificial radionuclides in the environment.

SC-10 Accurate Elemental Speciation by IDMS with Hyphenated Techniques, April 24, 8 am, Klaus G. Heumann, Institute of Inorganic Chemistry and Analytical Chemistry, Johannes Gutenberg-University Mainz, D-55099 Mainz, Germany [heumann@mail.uni-mainz.de]

Isotope dilution mass spectrometry (IDMS) has been well known for a long time as a definitive and therefore relatively accurate analytical method for trace element determinations. Elemental speciation is a rapidly increasing field with growing importance in analytical chemistry. ICP-IDMS in connection with separation techniques such as GC, HPLC or CE (so called hyphenated techniques) therefore has become an important tool for the determination of elemental species also at very low concentration levels. Species-specific as well as species-unspecific spiking can be carried out by using an isotopically labeled spike compound of the species to be determined or by any spike compound with corresponding isotope enrichment, respectively. The species-specific ICP-IDMS can also be applied for validation of elemental species methods with respect to possible species transformations which often take place during sample pretreatment steps.

Keywords: Elemental species, isotope dilution mass spectrometry, hyphenated techniques, species-specific spike, species unspecific spike

SC-11 Calibration and Data Evaluation in Atomic Spectroscopy, April 24, 2005, 1 pm, José Broekaert, Universität Hamburg, Institut für Anorganische und Angewandte Chemie, Martin-Luther-King-Platz 6, D-20146 Hamburg, Germany [jose.broekaert@chemie.uni-hamburg.de]

Procedures will be described for calibration in plasma spectrochemical analysis including statistical evaluation of data, calibration by standard addition, use of internal and external standards, and procedures for the acquisition of the spectral background and spectral interferences (additive interferences) and of matrix enhancements and depressions (multiplicative interferences). Detection limits and determination limits as well as noise and signal-to-noise in spectrochemistry will be defined and their determination discussed and illustrated at the hand of examples. The concept of traceability will be introduced and illustrated. Methods for optimization (trial and error, Simplex) and chemometrics (data display, clustering and multivariate analysis) will be covered. Examples from ICP-AES/MS with solutions, slurry nebulization ICP-AES, MIP-AES, glow discharge atomic spectrometry, extraction and HPLC-based separations and speciation work will be discussed.

Keywords: Calibration procedures, background correction, detection limits, Simplex optimization, traceability, data treatment, clustering

José A.C. Broekaert Studied chemistry at the University of Gent (Belgium) and received a Ph.D. in 1976. He was an Alexander-von-Humboldt Research Fellow in Germany in 1977 and from 1978 to 1991 a researcher at the Institut für Spektrochemie und Angewandte Spektroskopie (ISAS), Dortmund (Germany). Since 1983 he lectured a graduate research course in atomic spectrometry at the University of Antwerp (Belgium). He received a Doctor of Science degree at the University of Antwerp in 1985. From 1991 to 1998 he was Professor of Inorganic/Analytical Chemistry at the University of Dortmund. From 1998 to 2002 he was Professor of Analytical Chemistry at the University of Leipzig (Germany) and from April 2002 at the University of Hamburg (Germany). In 1998 he was Visiting Fulbright Research Scholar at Indiana University (Bloomington, IN). Since 2004 he is adjunct Professor of Chemistry at Indiana University. His research interests include analytical chemistry with special reference to atomic spectrometry with plasma discharges (ICP, MIP, and GD) and interests in sample introduction, speciation and material analysis. He is a member of the editorial boards of Applied Spectroscopy and ICP Information Newsletters, and of editorial advisory boards of Analytical and Bioanalytical Chemistry, International Journal of Environmental Analytical Chemistry, Mikrochimica Acta and Spectrochimica Acta, Part B. He is (co)author of 280 papers/chapters/books including a textbook Analytical Atomic Spectrometry with Flames and Plasmas (Wiley-VCH, 2002).
SC-12 Advanced Laser Ablation Mass Spectrometry, April 24, 7 pm, Detlef Günther, Laboratory of Inorganic Chemistry – Elemental and Trace Analysis, ETH Hönggerberg, HCI, G113, CH-8093 Zürich, Switzerland, [guenther@inorg.chem.ethz.ch, www.analytica.ethz.ch]

The course will provide detailed knowledge about recent instrumentation and method developments in LA-ICP-MS. Various problems in laser sample interaction, aerosol transport, and atomization and ionization will be discussed. Elemental fractionation, its source, and various strategies to overcome this problem for different laser and ICP-MS systems will be extensively discussed. Furthermore, different quantification strategies and non-matrix matched calibration examples will be given. A few non-routine applications will also be discussed. Participants should have some knowledge or practical experience with LA-ICP-MS.

**Keywords:** Laser-sample interaction, elemental fractionation, aerosol size and aerosol transport, atomization and excitation, ICP-MS, interface and ICP-optimization

SC-13 Compliant Analysis of Waters and Wastes Using ICP-AES, April 23, 8 am, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@cc.huji.ac.il]

The course will describe ICP-AES applications, approaches, and methodology for determination of dissolved and acid extractable elements in pristine and waste water and solid wastes; applications of ICP-AES in waste disposal; routine monitoring of trace element concentrations; establishing trace metal water quality data base; contribution of natural background and other natural sources; anthropogenic contamination; fingerprinting aquifers, surface and waste waters and sediments with diagnostic trace elements; establishing diagnostic trace element and trace element rations to fingerprint origin, migration, and pollution sources; characterizing brines and industrial contamination; speciation in waters and sediments, and characterizing water entities using isotope ratios. The application of ICP-AES will be described for analysis of water, wastewater and related solid waste using EPA 200.7, EPA 200.8, and SW 846 procedures. The course will commence with an overview of requirements for correct and reliable sampling and sample delivery including, sampling plans, site documents, statistical models, health hazards, and chain of custody procedures. Examples will be described for reliable statistical sampling of heterogeneous and stratified waste using sampling devices. Typical statistical calculations will be exemplified. Requirements for sample preservation including container types, reagents for preservation, and holding times will be reviewed.

**Keywords:** Compliant analysis, ICP-AES, trace metals analysis, water, wastes, solids, EPA methods

SC-14 Sample Preparation for ICP-AES and ICP-MS Analysis of Geoenvironmental Samples, April 23, 1 pm, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@cc.huji.ac.il]

This course will describe the application of ICP-AES and -MS in geoenvironmental analyses. Topics covered will include sample preparation, calibration procedures using internal standards, and isotope dilution analysis. Direct solids techniques using lasers, slurries, and ETV will be described. New sample introduction devices such as membrane desolvators for solvent extraction will be presented. Problem solving with the participants will be given substantial attention.

**Keywords:** Geoenvironmental analysis, ICP-MS, ICP-AES, sample preparation, applications

SC-15 Speciation Analysis Using ICP-MS and/or ES-MS, April 23, 7 pm, Jörg Feldmann, Department of Chemistry, University of Aberdeen, Meston Walk, Old Aberdeen AB24 3UE, Scotland, United Kingdom [j.feldmann@abdn.ac.uk]

SC-16 Applications of ICP-AES, April 24, 8 am, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@cc.huji.ac.il]

The course will describe ICP-AES applications, approaches, and methodology for determination of dissolved and acid extractable elements in pristine and waste water and solid wastes; applications of ICP-MS in waste disposal; routine monitoring of trace element concentrations; establishing trace metal water quality data base; contribution of natural background and other natural sources; anthropogenic contamination; fingerprinting aquifers, surface and waste waters and sediments with diagnostic trace elements; establishing diagnostic trace element and trace element rations to fingerprint origin, migration, and pollution sources; characterizing brines and industrial contamination; speciation in waters and sediments, and characterizing water entities using isotope ratios. The application of ICP-MS will be described for analysis of water, wastewater and related solid waste using EPA 200.7, EPA 200.8, and SW 846 procedures. The course will commence with an overview of requirements for correct and reliable sampling and sample delivery including, sampling plans, site documents, statistical models, health hazards, and chain of custody procedures. Examples will be described for reliable statistical sampling of heterogeneous and stratified waste using sampling devices. Typical statistical calculations will be exemplified. Requirements for sample preservation including container types, reagents for preservation, and holding times will be reviewed.

SC-17 Compliant Analysis of Waters and Wastes Using ICP-MS, April 24, 1 pm, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@cc.huji.ac.il]

The course will describe ICP-MS applications, approaches, and methodology for determination of dissolved and acid extractable elements in pristine and waste water and solid wastes; applications of ICP-MS in waste disposal; routine monitoring of trace element concentrations; establishing trace metal water quality data base; contribution of natural background and other natural sources; anthropogenic contamination; fingerprinting aquifers, surface and waste waters and sediments with diagnostic trace elements; establishing diagnostic trace element and trace element rations to fingerprint origin, migration, and pollution sources; characterizing brines and industrial contamination; speciation in waters and sediments, and characterizing water entities using isotope ratios. The application of ICP-MS will be described for analysis of water, wastewater and related solid waste using EPA 200.7, EPA 200.8, and SW 846 procedures. The course will commence with an overview of requirements for correct and reliable sampling and sample delivery including, sampling plans, site documents, statistical models, health hazards, and chain of custody procedures. Examples will be described for reliable statistical sampling of heterogeneous and stratified waste using sampling devices. Typical statistical calculations will be exemplified. Requirements for sample preservation including container types, reagents for preservation, and holding times will be reviewed.

2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry, Chiang Mai, Thailand
**Keywords:** Compliant analysis, ICP-MS, trace metals analysis, water, wastes, solids, EPA methods

**SC-18 Sample introduction for Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES) and ICP-Mass Spectrometry (ICP-MS),** April 24, 7 pm, Vassili Karanassios, Department of Chemistry, University of Waterloo, Waterloo, ON N2L 3G1, Canada [vkaranas@uwaterloo.ca]

Despite persistent efforts by many over the years, sample introduction remains the Achilles' heel of inductively coupled plasma spectrometry. This short course offers an overview of sample introduction for ICP-AES, for quadrupole-based ICP-MS, and for high resolution ICP-MS (HR-ICP-MS), and it covers fundamentals and applications. It also gives ICP users a thorough understanding of the processes involved during sample introduction, and it offers suggestions as to how to control them to the analyst's advantage. Particular emphasis will be placed on discrete micro- to nano-size (e.g., volume or weight) sample introduction approaches [1]. The course is designed for scientists working or soon to be working with ICP-AES or ICP-MS and those who wish to gain a better understanding on how to introduce an initially ambient temperature sample into a hot, partially ionized gas-phase plasma. Those chemists interested in finding out how sample introduction affects analytical data also should attend.


**Keywords:** Sample introduction, micro- or nano-size samples, fundamentals and applications (with emphasis on metallomics and metallo-bio-molecules)

**Vassili Karanassios** is a Professor of Chemistry at the University of Waterloo, Canada. His research interests include (among others) sample introduction for ICP-AES and ICP-MS. Karanassios has published more than 100 papers and has given more than 300 presentations at national and international conferences.

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**SC-19 Stable Isotopes for Metabolic Studies,** April 24, 1 pm, Thomas Walczyk, Laboratory of Human Nutrition, Institute of Food Sciences, Swiss Federal Institute of Technology (ETH) Zürich, Seestrasse 72, CH-8803 Rüschlikon, Switzerland [thomas.walczyk@ilw.agrl.ethz.ch]

This course focuses on stable isotope techniques in mineral and trace element biomedical research. It is based on the need to harmonize and standardize methods and data evaluation techniques in metabolic studies using stable isotopes. The course includes an introduction to methodological principles, basic study designs and data evaluation techniques for the most common methods used in metabolic studies. It introduces the concepts of combined uncertainty budget for dose calculations and to avoid data over-interpretation, high quality stable isotope spikes, calculations for two or three stable isotope tracer systems based on isotope dilution principles and easy to use techniques to calculate combined uncertainties for complex methods.

**Keywords:** Stable isotopes, uncertainty budget, data evaluation, isotope spikes, ICP-MS
The first biennial Asia-Pacific Winter Conference will be held in April 2005 at the Lotus Hotel Pang Suan Kaew (www.lotuspskhotel.com) in Chiang Mai (www.tourismthailand.org), Thailand. More than 300 scientists are expected, and over 200 papers on modern plasma spectrochemistry will be presented. Six plenary lectures and 22 invited speakers will highlight critical topics in 12 symposia.

Symposium Features

- Elemental speciation and sample preparation
- Excitation mechanisms and plasma phenomena
- Flow injection and flow processing spectrochemical analysis
- Glow discharge atomic and mass spectrometry
- Inductively coupled plasma atomic and mass spectrometry
- Laser ablation and breakdown spectrometry
- Microwave atomic and mass spectrometry
- Plasma chromatographic detectors
- Plasma instrumentation, microplasmas, automation, and software innovations
- Radionuclides and stable isotope analyses and applications
- Sample introduction and transport phenomena
- Sample preparation, treatment, and automation; high-purity materials
- Spectrochemical chemometrics, expert systems, and software
- Spectroscopic standards and reference materials, databases

Also

- Continuing Education Short Courses, Saturday - Sunday, April 23-24
- Manufacturer's Seminars, Saturday - Sunday, April 23-24
- Spectroscopy Instrumentation Exhibition, Monday - Thursday, April 25-28
- Provocative Panel Discussions, Daily
- Workshop on New Plasma Instrumentation, Monday - Wednesday, April 25-27
- Conference Excursion, Thursday, April 28, and Dinner, Friday, April 29

Information

For program, registration, hotel, and transportation details, visit the Conference website at http://www-unix.oit.umass.edu/~wc2005, or contact Ramon Barnes, ICP Information Newsletter, Inc., P.O. Box 666, Hadley, MA 01003-0666, telephone: 413-256-8942, fax 413-256-3746, e-mail wc2005@chem.umass.edu.
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Objective

The ICP Information NEWSLETTER is a monthly journal published by the ICP Information Newsletter, Inc., a nonprofit organization, and is devoted exclusively to the rapid and impartial dissemination of news and literature information related to the development and applications of plasma sources for spectrochemical analysis.

Background

ICP stands for inductively coupled plasma discharge, which during the past 30 years has become the leading spectrochemical excitation source for atomic emission spectroscopy and ion source for inorganic mass spectrometry. The popularity of this source and the need to collect in a single literature reference all of the pertinent data on ICP stimulated the publication of the ICP Information NEWSLETTER in 1975. Other plasma sources, such as microwave induced plasmas, direct current plasma jets, and glow discharges, have grown in popularity and are also included in the scope of the ICP Information NEWSLETTER.

Scope

As the only authoritative monthly journal of its type, the ICP Information NEWSLETTER is read in more than 40 countries by scientists actively applying or planning to use the ICP or other types of plasma spectroscopy. For the novice in the field, the ICP Information NEWSLETTER provides a concise and systematic source of information and background material needed for the selection of instrumentation or the development of new methodology. For the experienced scientist, it offers a single-source reference to current developments and literature.

http://www-unix.oit.umass.edu/~wc2004/ICPnews.htm

Editorial

The ICP Information NEWSLETTER is edited by Dr. Ramon M. Barnes, Professor Emeritus of Chemistry, University of Massachusetts at Amherst, with the assistance of a 17-member Board of National Correspondents composed of leading plasma spectroscopists. The international Board members report news, viewpoints, and developments. Dr. Barnes has been conducting plasma research on ICP and other discharges since 1968. He also serves as chairman of the Winter Conference on Plasma Spectrochemistry, also sponsored by ICP Information Newsletter, Inc.

Regular Features

• Original submitted and invited research articles by ICP and plasma experts.
• Complete bibliography of all major ICP publications.
• Abstracts of all ICP papers presented at major US and international meetings.
• First-hand accounts of world-wide ICP developments.
• Special reports on dcp, microwave, glow discharge and other plasmas.
• Calendar and advanced programs of plasma meetings.
• Technical translations and reprints of critical foreign-language ICP papers.
• Critical reviews of plasma-related books and software.

Conference Activities

The ICP Information NEWSLETTER has sponsored 12 international meetings on developments in atomic plasma spectrochemical analysis since 1980 in San Juan, Orlando, San Diego, St. Petersburg, Fort Lauderdale, Kailua-Kona, and Scottsdale. Meeting proceedings have appeared in special issues of Spectrochimica Acta, Part B, Analytical and Bioanalytical Chemistry, and Journal of Analytical Atomic Spectrometry. The 2006 Winter Conference will be held in Tucson, Arizona on January 8-14, 2006. Contact wc2006@chemistry.umass.edu.

Subscription Information

Subscriptions are available for 12 issues on either an annual or volume basis. The first issue of each volume begins in June and the last issue is published in May. Volume 31 includes June 2005 through May 2006. Current volumes are available in electronic format (PDF files) only. Back print issues beginning with Volume 1, May 1975, also are available. Rates are $67 (US/Canada), $92 overseas, except Africa, Asia, and Pacifica $102. Submit order with prepayment or purchase information. Major credit cards are accepted.

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ICP Information NEWSLETTER, Inc.
Grant Program

ICP Information Newsletter, Inc., publisher of the ICP Information Newsletter and sponsor of the Winter Conference on Plasma Spectrochemistry, is a tax-exempt (section 501(c)(3) of the Internal Revenue Code of 1954), philanthropic organization incorporated in the Commonwealth of Massachusetts. As a publicly supported organization, its purpose is to promote, foster, advance, and improve the study, research, teaching and dissemination of knowledge regarding plasma spectrochemistry, analytical chemistry, science education, and related areas. The Corporation’s charitable, educational, and scientific purposes are achieved, in part, by fund raising.

The Corporation has established the following five grant programs for 2004/2005:

1. Conference Travel Grants
   A Student Travel Scholarship and International Scientist Fellowship program is to provide opportunities for students and professionals to travel to scientific conferences (e.g., the 2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry; 2006 Winter Conference on Plasma Spectrochemistry) to present papers describing their plasma spectrochemistry research. Grants will generally range from $100 for undergraduate students to $3000 for international scientists.

2. Conference Registration Grants
   A Student Conference Registration Scholarship and International Scientist Conference Registration Fellowship program is to furnish an opportunity for students and professionals to participate in a scientific conference (e.g., the 2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry; 2006 Winter Conference on Plasma Spectrochemistry) to present papers describing their plasma spectrochemistry research. Awards will generally range from $50 for students to $1500 for international scientists.

3. Newsletter Subscription Grants
   An annual subscription to the ICP Information Newsletter will be awarded to students and professional analytical chemists presently or planning to work in the field of plasma spectrochemical analysis.

4. Training Grants
   Training grants for students and professional analytical chemists will be provided to enhance their experience and background in the field of plasma spectrochemistry. Awards will be made to attend short courses (e.g., at the 2005 Asia-Pacific Winter Conference on Plasma Spectrochemistry; 2006 Winter Conference on Plasma Spectrochemistry) or practical laboratory training in qualified research facilities.

5. Research Grants
   Research grants for students and professional analytical chemists will be provided to undertake advanced research and development in plasma spectrochemistry.

These five grant programs are supported by fund raising and individual and corporate sponsors. U.S. tax-deductible contributions will be used to establish and maintain these grant programs in 2004 and 2005 for the Winter Conference on Plasma Spectrochemistry. Information for contributors and sponsors is available on request.

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