Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand
November 27 - December 2, 2006
Second Asia-Pacific Conference

The Second Asia-Pacific Winter Conference on Plasma Spectrochemistry, based on a series of successful biennial meetings sponsored by the *ICP Information Newsletter* in North America and the 2005 Asia-Pacific meeting in Chiang Mai, Thailand, 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, November 27 through Saturday, December 2, 2006 in Bangkok, Thailand (www.tourismthailand.org) at the Rama Gardens Hotel (www.ramagardenshotel.com). Continuing education short courses at introductory and advanced levels and manufacturers' seminars will be offered on Saturday and Sunday, November 25 and 26. Spectroscopic instrumentation and accessories will be shown during a three-day exhibition from Monday to Thursday, November 27 to 30, and a Workshop on New Plasma Instrumentation will be presented on Monday, Tuesday, and Wednesday afternoons. A conference excursion will explore Ayuttahaya, Thailand's former capital, on Thursday afternoon, November 30, followed by a special Thai dinner at the Rose Garden (www.rose-garden.com).

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 2007 after peer review as the official Conference proceedings.

Schedule of Activities

Call for Papers, Abstracts Due; Early Bird Registration	**Friday, July 7, 2006**
Exhibitor Booth Reservation and Pre-Registration Due	**Friday, August 18, 2006**
Final Abstracts for All Papers Due	**Friday, October 6, 2006**
Exhibitor Reservation Deadline	**Friday, October 6, 2006**
Conference and Hotel Pre-Registration	**Friday, October 6, 2006**
Late Pre-Registration Deadline	**Friday, November 17, 2006**
Winter Conference Short Courses	**Saturday and Sunday, November 25 - 26, 2006**
Manufacturers' Seminars	**Saturday and Sunday, November 25 - 26, 2006**
Winter Conference Program	**Monday through Saturday, November 27 – December 2, 2006**
Workshop on New Plasma Instrumentation	**Monday through Wednesday, November 27 - 29, 2006**
Instrument Exhibition	**Monday through Thursday, November 27 - 30, 2006**
Conference Excursion to Ayutthaya and Thai Dinner at The Rose Garden	**Thursday, November 30, 2006**
Conference Manuscripts Final Deadline	**Friday, January 19, 2007**

2008 Winter Conference on Plasma Spectrochemistry

January 6 – 12, 2008, Temecula, California

http://www-unix.oit.umass.edu/~wc2006
wc2006@chem.umass.edu
http://www.pechanga.com
http://www.temecula.org

Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

November 27 - December 2, 2006, Bangkok, Thailand

http://www-unix.oit.umass.edu/~wc2005
wc2005@chem.umass.edu
www.tourismthailand.org

THE MEETING

The **Winter Conference on Plasma Spectrochemistry** is sponsored biennially by the ICP Information Newsletter, Inc., a nonprofit, philanthropic research organization located in Hadley, Massachusetts, and organized by Dr. Ramon Barnes of the University Research Institute for Analytical Chemistry. Previous meetings were held in San Juan, Puerto Rico (1980); Orlando, Florida (1982); San Diego, California (1984, 1988, 1992, 1994); Kailua-Kona, Hawaii (1986), St. Petersburg, Florida (1990), Fort Lauderdale, Florida (1996, 2000, 2004), Scottsdale, Arizona (1998, 2002), and Tucson, Arizona (2006). Attendance has grown from 170 in 1980 to more than 600 with world-wide scientific participation representing 30 countries. Technical sessions comprise lectures and posters describing application, fundamental, and instrumentation developments with popular electrical plasma sources. The inductively coupled plasma (ICP), glow discharge sources, microwave induced plasma, direct current plasma, and laser-assisted plasma spectrochemistry are featured. New spectrometric instrumentation, novel sample introduction systems, plasma system automation, sample preparation approaches, elemental speciation, spectroscopic standards, quality assurance, new diagnostic characteristics, and theoretical treatments are highlighted. More than 325 technical papers are presented, and selected papers have been published together as the Conference proceedings in *Spectrochimica Acta, Part B* (1981, 1983, 1985, and 1987), *Journal of Analytical Atomic Spectrometry* (1988, 1990, 1992, 1994, 1996, 1998, 2000, 2002, 2004, 2006), and *Journal of Analytical Bioanalytical Chemistry* (1998, 2000, 2002, 2004, 2006).

Some in the field consider the Winter Conference one of the technically most significant meetings convened on these topics. Eleven 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 Budapest, Hungary (2005). The next meeting is planned for Taormina, Italy, February 18-23, 2007.

The first biennial Asia-Pacific Winter Conference on Plasma Spectrochemistry was held in Chiang Mai, Thailand, in April 2005, and the **Second Asia-Pacific Winter Conference** 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 Rama Gardens Hotel (www.ramagardenshotel.com) only minutes away from the international airport in Bangkok, 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 Second Asia-Pacific Winter Conference will appear in major spectroscopy journals during Winter 2007.

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. Aggarwal, S. Becker, R. Beckett, A. Bengtson, J. Broekaert, H. Berndt, I. Brenner, J. Bunch, P. Farnsworth, N. Furuta, A. Gilmutdinov, F. Giné, D. Günther, L. Halicz, K. Heumann, G. Hieftje, V. Hoffmann, N. Jakubowski, D. Katskov, M. Ketterer, D. Koppenaal, R. Lobinski, R. Michel, J. Nóbrega, A. Prange, R. Russo, D. Schaumloeffel, R. Sturgeon, F. Vanhaecke, K. Wagatsuma, 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. Bangkok, known in Thai as Krung Thep ("City of Angels") and Thailand's capital and largest city, was founded in 1782 by the first monarch of the present Chakri dynasty. It is now the country's spiritual, cultural, diplomatic, political, commercial and educational hub. A seaport located in the southern part of the central plain on the estuary of the Chao Phraya, it covers an area of more than 1,500 square kilometers, and it is home to approximately ten million people or more than 10% of the country's population. Bangkok became the capital of Siam in 1782, following Thon Buri, which was the capital from 1767 to 1782, and Ayutthaya (1351-1767). Bangkok is a vibrant city, in which the old blends with the new. Over the last few decades Bangkok has changed into a modern, exciting and sophisticated city. It offers to visitors not only the cosmopolitan amenities they would expect from other big cities, but also a unique treasure trove of cultural attractions. Thailand, in the heart of Southeast Asia, was never colonized and thus kept its unique culture and heritage intact. Bangkok offers visitors the opportunity to experience fascinating glimpse of Thailand's gentle culture amidst the bustle of a great and dynamic metropolis. This great city has had astounding success in combining the ancient and modern world. For tourists Bangkok has a feast of attractions to offer. Within the

city, traditional, multicolored temples (*wat*) and royal palaces are dwarfed by modern skyscrapers. The city is dotted with 400 glittering Buddhist temples of great beauty and fascination, magnificent palaces, classical dance extravaganzas, numerous shopping centres and traditional ways of life, especially along the "Venice of the East" timeless canals and the Chao Phraya River of the "River of Kings" winding through the city. Useful tourist information on Bangkok can be obtained from the official website of the Bangkok Tourism Division (www.bangkoktourist.com).

The Second Asia-Pacific Winter Conference will be held at the Rama Gardens Hotel Bangkok (www.ramagardenshotel.com), a first-class hotel, located a 10 to 15 minute drive from the Bangkok International Airport (http://www.thaiair.com/Travel_Destination_Information/Airport_Information/Bangkok_inter_airport.htm). Know as Bangkok's resort in the city, the Rama Gardens boasts the largest hotel garden (21.2 acres) in Bangkok. The Rama Gardens Hotel, conveniently located 30 minutes from downtown Bangkok, includes 500 guest rooms and suites in two low-rise wings, six restaurants, sports complex fitness and aerobic center, sauna and steam rooms, gymnasium, two swimming pools, tennis courts, jogging track, and convention facilities. Deluxe and economical superior rooms and suites are available at a special conference rate. The latest addition to the property is an 11-story facility comprising 138 executive deluxe rooms and suites. For guest's convenience the Rama Gardens Hotel provides daily complimentary shuttle bus to downtown shopping centers, BTS Mohchit or Underground Chatuchak Park Station and Chatuchak Weekend Market.

Ample space for the Conference is available. The Rama Garden hotel has a total of 14 conference and meeting rooms. The Grand Hall 2 conference room (472 m^2) accommodates 310 classroom style, and the exhibition area (Grand Hall 1 and foyer) is 23 m by 25 m (575 m^2) 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.

THE SCHEDULE

The Second Asia-Pacific Winter Conference will include activities beginning on Monday, November 27, and continuing through Saturday, December 2, 2006. The Conference will be preceded on Saturday, November 25, and Sunday, November 26, 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, November 26, 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), and an excursion to Ayutthaya followed by the Conference dinner is scheduled for Thursday, November 30.

INSTRUMENT EXHIBITION

The three-day exhibition will open on Monday noon, November 27, 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, November 30.

MANUFACTURER'S SEMINAR PROGRAM FOR PLASMA INSTRUMENTATION

During the weekend Short Course program, Saturday and Sunday, November 25-26, 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.

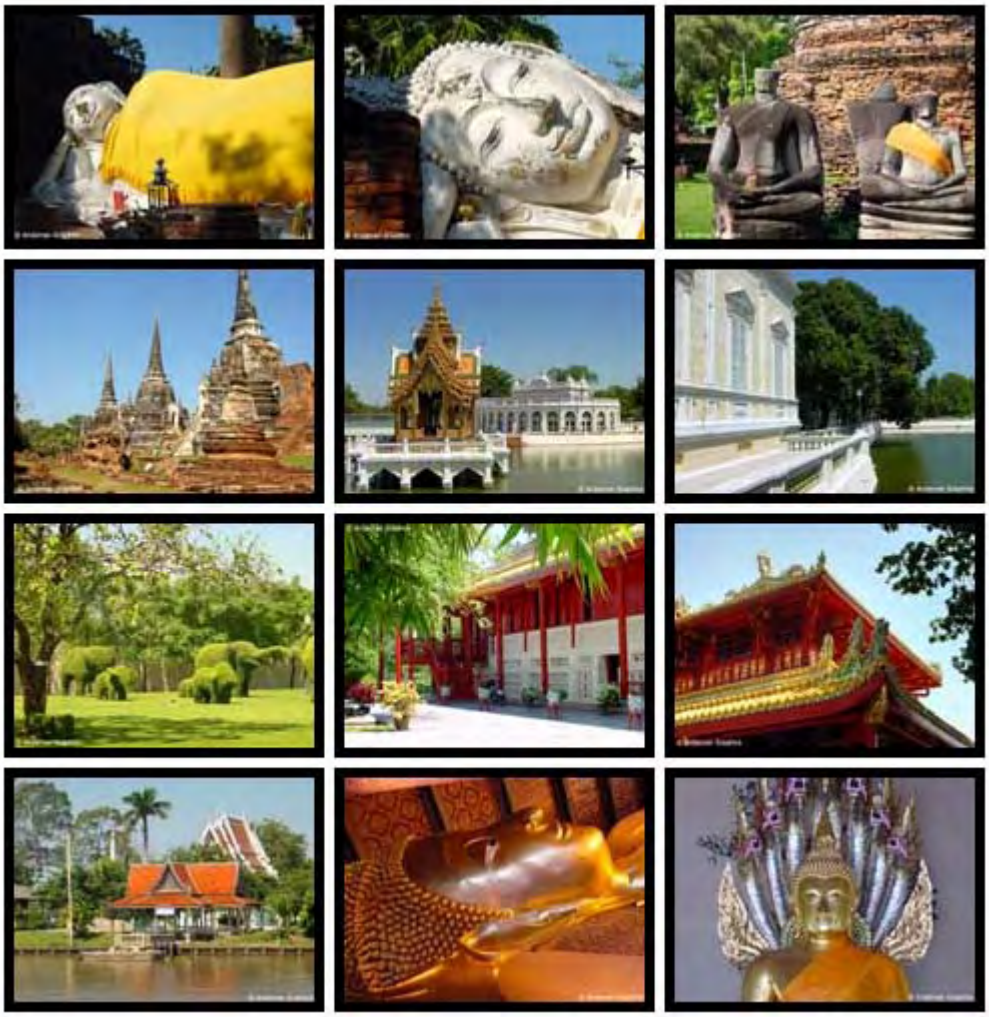
WORKSHOP ON NEW PLASMA INSTRUMENTATION

A three-day Workshop on New Plasma Instrumentation will be held Monday through Wednesday afternoons, November 26 - 29, 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.

CONFERENCE EXCURSION AND DINNER

The ancient city of Ayutthaya, the Thai capital for 417 years, is one of Thailand's major tourist attractions. Ayutthaya in its heyday in the 18th century, left European visitors in awe. The city, founded in 1350 by King Uthong, was once the most powerful in SE Asia, attracting traders from all the major European powers of the time. While the Thai capital, 33 kings of five dynasties ruled the kingdom. It was sacked by the Burmese in 1767, bringing one of the most culturally influential eras in Thai history to an end. The ruins of the former capital, now a UNESCO World Heritage site, however, remain impressive. Located about two hours (76 km north) from Bangkok, Ayutthaya boasts magnificent sites and numerous ruins. Ayutthaya covers 2556 km^2 and includes three palaces (Grand Palace, Chantharakasem Palace, Wang Lang) and monasteries. The excursion provides a way to experience a part of Thailand that still follows traditional rhythms. The tour goes by bus and provides a glimpse of both the past and the present. Following the afternoon visit to Ayutthaya, the bus will transport conferees to a theme party at the Rose Garden Riverside. The Rose Garden, a beautifully landscaped 70-acre botanical park by the Ta Chine River, is located just outside Bangkok and has provided entertainment, relaxation, and a place to meet since 1962. Culture, tradition and a native way of life have been preserved through daily practices and performances. An “Evening at Rose Garden Riverside” is a special dining program that is tailor-made for a distinctively Thai venue and theme. It combines culinary skills in international cuisines, banqueting services and a cultural troupe together in an outdoor garden setting by the river for a fun-filled and entertaining evening with a distinctive Thai theme to provide guests with a unique and memorable experience. The program brings guests together in one of Thailand’s famous festival celebrations culminating in a fireworks display.



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 yet to be determined. 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 537TM for ASIA PACIFIC WINTER MTG 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 November 20 to December 9, 2006. Reservation centers are open 7 days a week from 8 am to 10/8 pm EST. Meeting city airline code is Bangkok (BKK).

GENERAL INFORMATION

Tourist Information. The Tourism Authority of Thailand (TAT) provides a range of information for visitors (www.tat.or.th, www.tourismthailand.org). Other sites are http://www.bangkok.com; http://www.lonelyplanet.com/worldguide/destinations/asia/thailand; http://encarta.msn.com/encyclopedia_761561385_1/Thailand.html.

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 38 baht, and 1 Euro is worth approximately 49 baht. Current exchange rates among various world currencies can be estimated at a currency rate website (*e.g.*, http://finance.yahoo.com/m3, http://www.expedia.com/pub/agent.dll).

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 November 1, 2006. 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 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 km^2 (202,000 $miles^2$) 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 ethic 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.

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 people. A prime minister elected from among the representatives leads the government. The country is divided into 76 provinces. The Bangkok Metropolitan Administration comes under an elected governor. Appointed provincial governors administer the other 75 provinces (Changwat), which are divided into districts (Amphoe), subdistricts (Tambon) and villages (Mu Ban).

Head of State. H.R.H. King Bhumibol Adulyadej (Rama IX of the Chakri Dynasty)

Administration. 76 provinces, each subdivided into amphoe (district), tambon (subdistrict) and muban (village)

National Flag. The red, white, and blue stripes symbolize the nation, Buddhism, and the monarchy, respectively.

Time. The time in Thailand is seven hours ahead of Greenwich Mean Time (+7 hours GMT).

Climate. Thailand enjoys a tropical climate with three distinct seasons - hot and dry from February to May (average temperature 34°C and 75% humidity); rainy with plenty of sunshine from June to October (average day temperature 29 °C and 87% humidity); and cool from November to January (temperatures range from 32°C to below 20°C with a drop in humidity). The South has a tropical rainforest climate with temperatures averaging 28°C almost all year round. See www.wunderground.com/global/stations/48327.html; http://weather.yahoo.com/forecast/THXX0002.html.

Tap water. Tap water is clean but drinking from it directly should be avoided. Bottled water is recommended.

Clothing. Light, cool clothes are sensible and a jacket is needed for formal meetings and dining in top restaurants. Shorts (except knee length walking shorts), sleeveless shirts, tank tops and other beach-style attire are considered inappropriate dress when not actually at the beach or in a resort area.

Weights and measures. The metric system is used throughout Thailand. Numerals on vehicle speedometers, highway markers and speed limits all indicate kilometers.

Business hours. Most commercial concerns in Bangkok operate on a five-day week, usually from 8 am to 5 pm. Many stores open seven days a week from 10 am to 10 pm. Government offices are generally open between 8.30 am and 4.30 pm with a noon to 1 pm lunch break, Monday to Friday except on public holidays. Banks are open Mondays to Fridays from 9.30 am to 3.30 pm except on public holidays.

Postal Services. Thailand's mail service is reliable and efficient. Major hotels provide basic postal services on their premises. Provincial post offices are usually open from 8.00 a.m. to 4.30 p.m.

Telephone services. At present, all telephone numbers (for local calls and long distance calls within the country) have nine digits. For Bangkok calls, 02 is added to the existing numbers (*i.e.*, 0 2694 1222). For provincial calls, an area code is added to the existing numbers. For example, area code for Chiang Mai is 053 = 0 5324 8604; area code for Phuket is 076 = 0 7621 1036. For mobile phones, 01 or 09 is added to the existing numbers. The international dialling code for Thailand is 66. When making international calls to Thailand, add 66 and omit the leading 0. When making international calls from Thailand, first dial 001+country code+area code+telephone number. Direct assistance. 1133 (local), 100 (international).

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 8. The title and abstract deadline is Friday, July 7, 2006. Accepted titles will be acknowledged and assigned program times, and final abstracts will be due October 6, 2006. 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

Abstracts and titles for the Workshop on New Plasma Instrumentation (November 28-30) from manufactures and vendors also will be accepted with the same guidelines as conference presentations. A $250 registration fee is required for Workshop speakers.

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 2006 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 11) or directly at any time. Travel and Registration Grant rules and application forms can be obtained from the Conference Secretariat.

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

Bangkok

Bangkok, the capital of the Kingdom and Land of Smiles is a city that never sleeps. Besides temples, palaces and all the other attractions to see and things to do, Bangkok offers plenty of activities and places to explore, and a visitor definitely will never be bored. Vibrant and exotic nightlife, scrumptious food and excellent dining spots, superb shopping and of course, the best of all, spas and massages, all await a visitor's precious leisure time in Bangkok.

Like other big cities around the world, Bangkok offers a myriad of activities to fill any leisure time. But unlike other cities, Bangkok doesn't have a real city centre. The capital is split into two sides by the majestic Chao Phraya River and most tourists and visitors will spend the majority of their time on the Eastern half which more or less makes the heart of the city.

The mere size of the city, the hustle and bustle, and the strange sounding area names appear confusing to the newcomer. But no need to be worried about finding your way around, it's not that hard once you've familiarised yourself with the place. Just take some time to prepare. Make a list of things you'd like to see and do, and have a look at a map to get a sense of where places are. If you're a first timer in Bangkok, read more about the location of places, and consult the local area guides.

Whatever your interests are, you'll find that Bangkok's abundance of cultural, leisure and recreational activities offer something for everybody! From colourful shopping to exquisite dining, and exotic nightlife to rejuvenating massages. Bangkok covers a vast territory; tourist, residential, shopping and entertainment areas overlap while getting around town is fairly easy - but watch out for the traffic jams! Bangkok suffers from notorious traffic congestion, annual flooding, and severe air pollution.

Asia-Pacific Winter Conference on Plasma Spectrochemistry
Program Outline

Monday, November 27, 2006

8:00 Opening and Welcome
8:10 (PL1) *Plenary Lecture*

1. Sample Introduction and Transport Phenomena

9:10 (IL1) *Invited Lecture*
9:40 (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, November 28, 2006

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* **Developments with Elemental Speciation in Life Sciences**
6:30 ***Social Mixer***

Wednesday, November 29, 2006

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 Spectrometry, Software, Glow Discharge Atomic/Mass Spectrometry**
3:15 - 5:15 (WS3) *Workshop* New Plasma Instrumentation
5:30 (PD3) *Panel Discussion* **Plasma Instrumentation: LA-ICP-MS**
6:30 ***Social Mixer***

Thursday, November 29, 2006

4. Excitation Mechanisms and Plasma Phenomena, Sample Preparation, Treatment, and 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 Ayutthaya**
6:30 **Conference Dinner at The Rose Garden**

Friday, December 1, 2006

5. Plasma Source Mass Spectrometry: Fundamentals, Applications, and Instrumentation

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* **Plasma Source Mass Spectrometry Instrumentation**

Saturday, December 2, 2006

6. Plasma Source Mass Spectrometry: Applications, Radionuclides and Stable Isotope 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* **Radionuclides and Stable Isotope Analysis**
1:00 ***Conference Closing and Lunch***

2006 Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

CONFERENCE PRESENTATION TITLE AND ABSTRACT SUBMISSION FORM

Submission Deadline: July 7, 2006

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

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 type a 50-word descriptive abstract, sign below, and return this form by July 7, 2006,
to 2006 AP 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:

❒ Sample introduction/transport phenomenon, ❒ Micronebulizers, flow processing, ❒ Elemental speciation, ❒ Chromatography and plasma detectors, ❒ Automation and plasma instrumentation, ❒ Artificial intelligence, Chemometrics, Software, ❒ On-line and remote analysis, ❒ Sample preparation and treatment, ❒ Spectroscopic standards and reference materials, ❒ Excitation mechanisms and plasma phenomena, ❒ Laser-assisted plasma spectrochemistry, ❒ Glow discharge, ❒ Teaching spectroscopy, ❒ Plasma source mass spectrometry, ❒ Stable isotope analysis, ❒ Quality assurance.

B. Application:

❒ Agriculture/Botany, ❒ Biology, ❒ Chemicals, ❒ Energy, ❒ Environment, ❒ Food, ❒ Geology, ❒ High-purity materials, ❒ Industrial products, ❒ Medicine/Clinical/Forensic, ❒ Metals, ❒ Oceanography, ❒ Petroleum, ❒ Semi/superconductor, ❒ Stable isotopes, ❒ Water, ❒ Other _____; ❒ *Workshop on New Plasma Instrumentation*

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.

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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

INSTRUCTIONS FOR PREPARATION OF EXTENDED ABSTRACT

Submission Deadline: October 6, 2006

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 October 6, 2006* 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 (October 20), 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, October 6, 2006*.**

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.

SAMPLE

XY00 START THE ABSTRACT TITLE HERE USING CAPITAL LETTERS. Follow with the Author(s) Name(s), Business Address, Postal Code. The name of the **speaker** should be printed in **boldface**. Print all text within the guidelines [7 inches (178 mm) wide x 9.25 inches (235 mm) long]. Do not print the guidelines.

Leave a single line space between the heading and the remainder of the abstract. Indent five spaces to begin each paragraph, and do not insert spaces between paragraphs. Keep all lines as wide as possible without touching or going beyond the guidelines. Abstracts should be printed single space with a laser printer. Use a type size to give 12 characters (letters) per inch. Use this sheet as an example of 12 characters per inch.

The following is an illustration:

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].

[1] R.K. Winge, V.J. Peterson and V.A. Fassel, *Appl. Spectrosc.,* **33**, 206 (1979).

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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

HOTEL RESERVATION FORM

Rama Gardens Hotel Bangkok

9/9 Vibhavadi Rangsit Road, Laksi, Bangkok 10210, Thailand

Indicate

First NAME _____ _____
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Date of Birth _____ / _____ / _____ (dd/mm/yy)
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FACSIMILE _____ E-MAIL_____
SHARING WITH (If Twin Room)_____

Indicate

Accommodations at Rama Gardens Hotel

Room Type		Room Rate	Period of Stay	
Deluxe Room	❏ Single	$72.41 (2800 THB) / night	**Check in Date**	**Check Out Date**
(including breakfast)	❏ Twin	$77.58 (3000 THB) / night	_____	_____
			(dd/mm/yy)	(dd/mm/yy)
Superior Room	❏ Single	$51.72 (2000 THB)/ night		
(including breakfast)	❏ Twin	$56.89 (2200 THB)/ night	**Total nights:** _____	

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

NUMBER OF ROOMS _____ NUMBER OF OCCUPANTS/ROOM_____
SPECIAL NEEDS ❏ Handicapped (describe _____) ❏ Other_____

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Transportation Service (On Request) Rama Gardens Hotel/Bangkok International Airport

❏ Airport to Hotel Arrival date: _____ (dd/mm/yy) Time: _____ Flight: _____
❏ Hotel to Airport Departure date: _____ (dd/mm/yy) Time: _____ Flight: _____

Indicate

Authorization of Credit Card Payment

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ARRIVAL DATE _____ CHECKOUT DATE_____
CREDIT CARD PAYMENT ❏ American Express, ❏ Diners, ❏ Discover, ❏ MasterCard, ❏ Visa
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Cancellation Penalty: Cancellation notice should be received by the hotel before November 10, 2006. Failure or late notification will automatically result in one night or one day room charge. Reservations will be confirmed to you by email.

Fax this form to Rama Gardens Hotel Bangkok Resort, Fax (66 2) 561-1025, 561-3416

Tel (66 2) 561-0022, email rama@ramagardenshotel.com, www.ramagardenshotel.com

Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

CONFERENCE FEE SUMMARY

Conference Registration Fees	*Before* October 6, 2006	*After*	*After* November 17, 2006
Conference*	$495	$720	$900
Exhibitor**	$110	$335	$600
Student***	$ 65	$110	$240
Postdoctoral***	$ 90	$220	$400
Single Day*** (2 days max) @	$170	$300	$400
Short Course Enrollment (each course)	$100	$200	$300
Additional Conference Dinner and Excursion (includes transportation, taxes, gratuity)			
Conference Dinner, November 30 (adult)	$ 75	$ 77	$ 80
Conference Dinner (child under 12)	No Charge		
Conference Excursion, November 30 afternoon	$ 39	$ 40	$ 41
Additional or Duplicate, Proceedings			
Souvenir T Shirt (Size ___)	$ 15	$ 17	$ 20
Conference Abstracts (duplicate)	$ 20	$ 30	$ 50

* Conference registration includes Conference abstracts, excursion and dinner, souvenirs and tee shirt, and one-year subscription to *ICP Information Newsletter*.

** Conference registration for personnel of organizations participating in Conference exhibition and 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.

CANCELLATION POLICY: Full refund if written request postmarked before November 10; 50% refund if request postmarked no later than November 17. No refund for request postmarked after November 17.

New subscriptions to the *ICP Information Newsletter* for 2007 are available at a special 10% discount [$60.30 (US, Canada), $82.80 (Europe, South America), $91.80 (Asia, Pacific, *etc*.)].

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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27 - December 2, 2006

CONFERENCE REGISTRATION

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COMPANY
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Please indicate:
❏ Author ❏ Co-author ❏ 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: ❏ 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) Other
Arrival Date/Time Airline
Departure Date Hotel: ❏ Rama Gardens Hotel ❏ Other

C. Conference Registration Fees	*Before* **October 6, 2006**	*After*	*After* **November 17, 2006**	*Enter Amount*	*Subtotal*
❏ Conference	$495	$720	$900	$_____	
❏ Exhibitor	$110	$335	$600	$_____	
❏ Student	$ 65	$110	$240	$_____	
❏ Postdoctoral	$ 90	$220	$400	$_____	
❏ Single Day __ days (2 days max)@	$170	$300	$400	$_____	$_____
D. Short Course Enrollment (each)	$100	$200	$300 [indicate below]		
Mark Date, Time **Fill-in**	**Course Number (SX- 00)**		**and Name**		
❏ (1) November 25, 8 am **S**__ -				$_____	
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F. Duplicate/Additional Shirts, Abstracts, Proceedings, Donations				Number Ordered		
❏ Souvenir T Shirt (Size ___)	$15	$17	$20	(x___)	$_____	
❏ Conference Abstracts (duplicate)	$20	$30	$50	(x___)	$_____	$_____
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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

Bangkok, Thailand, November 27-December 2, 2006

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*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).

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Arrival Date/Time Airline
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❏ Student	$ 60	$_____	
❏ Postdoctoral	$ 80	$_____	
❏ Single Day __ days (2 days max)@	$150	$_____	$_____
D. Short Course Enrollment (each)	$ 90		
Date, Time **Indicate Course Number (SX - 00) and Name**			
❏ (1) November 25, 8 am **S**__ -		$_____	
❏ (2) November 25, 1 pm **S**__ -		$_____	
❏ (3) November 25, 7 pm **S**__ -		$_____	
❏ (4) November 26, 8 am **S**__ -		$_____	
❏ (5) November 26, 1 pm **S**__ -		$_____	
❏ (6) November 26, 7 pm **S**__ -		$_____	$_____
E. Additional Conference Dinner, Excursion (includes transportation, etc.)		Number Ordered	
❏ Conference Dinner, November 30 (adult)	$75	(x___) $_____	
❏ Conference Dinner (child under 12)	No Charge	(x___) $_____	$_____
❏ Conference Excursion, November 30 pm	$39	(x___) $_____	$_____
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Second Asia-Pacific Winter Conference on Plasma Spectrochemistry

November 27 – December 2, 2006
Bangkok, Thailand

The second biennial Asia-Pacific Winter Conference will be held in Bangkok, Thailand (www.tourismthailand.org) in November at the Rama Gardens Hotel. 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
- 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
- Stable isotope and radionuclide analyses and applications

Also

- Continuing Education Short Courses, Saturday - Sunday, November 25 - 26
- Manufacturer's Seminars, Saturday - Sunday, November 25 - 26
- Spectroscopy Instrumentation Exhibition, Monday - Thursday, November 27 - 30
- Provocative Panel Discussions, Daily
- Workshop on New Plasma Instrumentation, Monday-Wednesday, November 27-29
- Conference Excursion and Conference Dinner, Thursday, November 30

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.

Second Winter Conference Short Courses

Saturday, November 25 - Sunday, November 26, 2006

Descriptive Abstracts

SC-01 Introduction to ICP-Mass Spectrometry, November 25, 8 am, Frank Vanhaecke, Laboratory of Analytical Chemistry, Ghent University, Ghent, Belgium [frank.vanhaecke@ugent.be]

This course is intended mainly for the newcomer to ICP-MS. ICP characteristics as an ion source, ion extraction, operating principles of ion optics, ion focusing, quadrupole and sector mass analysis, and detectors will be described. The general analytical capabilities, applications survey, and an introduction to matrix effects will be presented. Removal of polyatomic ion interferences, alternate mass analyzers, solid sampling, analysis of limited solution volumes, and combining ICP-MS with chromatography for speciation and removal of interferences also will be considered.

Keywords: ICP-MS characteristics, instrumentation, interferences, applications

SC-02 Sample Vaporization in Atomic Spectrometry, November 25, 8 am, Dmitri Katskov, Tshwane University of Technology, Pretoria, South Africa [katskovda@tut.ac.za]

The processes in condensed and gas phase, accompanying sample vaporization, control analytical performances of atomic absorption, emission and mass spectrometry will be discussed in this course. The experimental conditions typical for these methods permit the study of high temperature processes not accessible for other instrumental systems. The data obtained in such investigations can be applied in fundamental science or for optimization of experimental conditions in atomic spectrometry. Current state of theory and experimental research in the field will be discussed in this course. The vaporization technique, evaluation of its efficiency based on computer simulation, and principles of diagnostics of the processes concurrent to vaporization will be covered. The associated phenomena will be discussed and prospective research topics outlined.

Keywords: Electrothermal vaporization, trace element determination, computer simulation, chemical interferences, spectral interferences, diagnostics

SC-03 Spectrochemical Analysis of Long-lived Radionuclides, November 25, 7 pm, Sabine Becker, Central Division 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 and middle-lived radionuclides (such as U, Pu isotope analysis, Sr-90, Ra-226, I-129 measurements at ultratrace level and others) especially in environmental materials such as waters, geological, biological and medical samples, in nuclear materials, and in radioactive waste [J.S. Becker, *Int. J. Mass Spectrom.*, **242**, 183 (2005)]. The aim of this course is to discuss the state of the art and the progress in determination of long- and middle-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 ICP-Sector Field Mass Spectrometry, November 25, 1 pm, Norbert Jakubowski, Institute for Analytical Sciences, Postfach 101352, D-44013 Dortmund, Germany [jakubowski@ansci.de], and Meike Hamester, Thermo Electron Bremen, Hanna-Kunath-Str. 11, Bremen, D-28199 Germany

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 ultra-pure 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, November 26, 8 am, J. Sabine Becker, Central Division of Analytical Chemistry, Research Center Jülich, 52425 Jülich, Germany [s.becker@fz-juelich.de], and J. Susanne Becker, Laboratoire de Chimie Bio-Inorganique et Environnement, CNRS EP 132, Université de Pau et du Pays de l'Adour, Centre Technologique

Hélioparc, 2 avenue du Président Angot, F-64000 Pau, France [susanne.becker@univ-pau.fr]

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 (*e.g.*, 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 the progress and recent research in life science including 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. Furthermore, new direction of quantitative imaging (element mapping) of thin sections of brain tissues by LA-ICP-MS in order to study neurodegenerative diseases (such as Parkinson and Alzheimer diseases, depression or epilepsy) will be discussed. Such investigations are important for understanding of physiology for diagnosis and for treatment of diseases.

Keywords: Imaging, life sciences, mass spectrometry, laser ablation ICP-MS, elemental analysis, metallomics, phospho-proteomics, MALDI-MS

SC-06 Glow Discharge Spectrometry, November 26, 7 pm, Volker Hoffmann, IFW Dresden, POB 270116, D-01171 Dresden, Germany [v.hoffmann@ifw-dresden.de]; Norbert Jakubowski, Institute for Analytical Sciences, Postfach 101352, D-44013, Dortmund, Germany [jakubowski@isas-dortmund.de]

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). Hard- and software (quantification) will be explained and applications will be compared with other methods of direct solids elemental analysis. 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 Sample Preparation for Spectrochemistry, November 25, 7 pm, Joaquim A. Nóbrega, Department of Chemistry, Federal University of São Carlos, São Carlo, SP, Brazil [djan@terra.com.br]

This course presents both selected applications and the theory for sample preparation featuring acid digestion for elemental and ultra-trace elemental analysis. Specific sample preparation approaches for AAS, ICP-MS and ICP-AES including conventional and microwave power, reagent temperature, pressure, matrices, chemical compatibility, and practical standard methods will be discussed. Basic features of microwave decomposition methods, equipment, vessel design, and accessories will be covered. Methods for transfer of procedures between equipment are highlighted, and applied methods such as the new 3052 developed for EPA SW-846 for total microwave digestion of soils, sediments, ash, tissues, foods, and combination of these samples are reviewed. Safety considerations in laboratory microwave sample preparation and analysis are stressed. Special applications based on digestions with diluted acids or bases in closed vessels, vapor-phase digestion, and extractions in focused-microwave ovens will be discussed.

Keywords: Microwave heating, acid digestion, organic and inorganic sample preparation, elemental analysis, environmental analysis, microwave equipment, microwave theory, safety

SC-08 Bioanalytical Spectroscopy, November 25, 7 pm, Norbert Jakubowski, Institute for Analytical Sciences, Postfach 101352, D-44013 Dortmund, Germany [jakubowski@ansci.de]

This course will be of interest to all scientists in working in analytical chemistry. The main objective of the course is to provide the basic knowledge of atomic spectroscopy for biological applications. It covers atomic absorption spectrophotometry, ICP-AES, ICP-MS, x-ray techniques, hyphenation approaches, and speciation analyses

Keywords: Bioanalytical processes, analytical applications, synthesis, instrumentation, parameters

SC-09 Environmental Monitoring and Fingerprinting: The Use of ICPMS-Based Isotopic Measurements, November 26, 7 pm, Michael E. Ketterer, Department of Chemistry, Northern Arizona University, Box 5698, Flagstaff, AZ 86011-5698 USA [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. "Fingerprinting" has two main objectives: a) developing a qualitative but definite yes/no answer about the presence of a specific environmental source, and b) where possible,

providing quantitative apportionment information. This course will cover the reasons for isotopic variations and will describe how these systems can be used for either tracing of the element of varying isotopic composition, or as a pathfinder for source elucidation of another element or pollutant. The course will cover how to select isotopic systems, design monitoring approaches, and collect the requisite data by Q-ICPMS, SF-ICPMS, and MC-ICPMS. The course will examine case studies from several important examples based upon published literature and/or the instructor's own work.

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 Professor of Chemistry and Biochemistry. 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 Fundamental Principles and Selected Applications of the Isotope Dilution Technique for Elemental Trace and Elemental Species Analysis by ICP-MS, November 26, 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) is well known for a long time as a definitive and therefore relatively accurate analytical method for trace element determinations. The fundamental principles of ICP-IDMS and its application as an accurate validation and/or routine method for trace element determination will be discussed. Elemental speciation is a strongly increasing field with growing importance in analytical chemistry. ICP-IDMS online coupled with separation techniques such as GC, HPLC and CE (so called hyphenated techniques) therefore became an important tool for the determination of elemental species at very low concentration levels. A species-specific as well as species-unspecific spiking mode can be carried out by using an isotopically labeled spike compound of the species to be determined and by any spike compound with an isotope enrichment of the corresponding element, respectively. The species-specific ICP-IDMS technique can also be applied for validation of elemental species methods with respect to possible species transformations which often take place during sample pretreatment steps. Representative examples will be presented to demonstrate the power but also the limitations of ICP-IDMS analyses for elemental trace and ele-mental species determination.

Keywords: Isotope dilution mass spectrometry, trace element analysis, elemental speciation, hyphenated techniques, species-specific and species-unspecific spiking mode

SC-11 Calibration and Data Evaluation in Atomic Spectrometry, November 26, 8 am, José A.C. 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 data evaluation, 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, ETV-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 chem-

istry 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 Laser Ablation Mass Spectrometry: Hardware, Methodology, and Applications, November 26, 1 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 instrumentation method developments, and applications 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 reduce this problem for different laser and ICP-MS systems will be discussed. Furthermore, different quantification strategies and non-matrix matched calibration examples will be given. Applications of the technique and figures of merit will also be discussed.

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

SC-13 Flow Injection Analysis and Applications for ICP OES and ICP-MS, November 26, 1 pm, Maria Fernanda Giné, CENA, University of Sao Paulo, Priacicaba, SP 13400970, Brazil [mfgine@cena.usp.br]

Fundamentals of flow analysis and compatibility to ICP sample introduction devices will be outlined. The course will provide information about strategies for sample pre-treatment using flow systems especially when the determination of trace elements in different samples is desired. Flowing advantages for achieving on-line analyte pre-concentration and separations including solid phase extractions, dialysis, and speciation will be presented. The efficiency of new manifolds for coupling flow systems to ICP instruments to improve quantification by performing automated standard additions, programmed dilutions and isotope dilution will be discussed.

Keywords: Flow injection, sample introduction, laboratory automation, preconcentration, hydride generation

SC-14 Elemental Speciation Analysis in Biology and Metallomics, November 26, 7 pm, Ryszard Lobinski and Joanna Szpunar, CNRS UMR5034, Hélioparc, 2, av. Pr. Angot, F-64053 Pau, France [Ryszard.Lobinski@univ-pau.fr]

The metallome is defined as the entirety of metal ions and metal moieties in a biological cell, tissue or system. Metallomics is the global study of metals and metal species, their multielement interactions, relationships transformations and functions in biological systems. Metalloproteins are a class of proteins that make use of metal ions to perform life-sustaining processes. The case of selenium is specific since this element is covalently bound in selenocysteine a 21st aminoacid being a functional aminoacids in several selenoproteins. This short course gives an introduction to analytical techniques which allow the acquisition of metallomics information in microbiology, biochemistry, food chemistry and medicine in the context of the recent advances of mass spectrometry (ICP, electrospray, MALDI) coupled to microseparation techniques.

Keywords: metallomics, metalloproteomics, speciation, electrospray MS/MS, MALDI MS, HPLC-ICP-MS

Ryszard Lobinski is a research director at the French National Research Council (CNRS) and professor of chemistry at the Warsaw University of Technology. He is the head of the Group of Bio-inorganic Analytical Chemistry at the CNRS in Pau and the co-director of the UltraTrace Analyses Aquitaine (UT2A) (technology transfer unit of the University of Pau). Since January 2006 he is the President of the Analytical Chemistry Division of IUPAC. R. Lobinski has co-authored 4 books and over 150 scientific papers in the field of hyphenated techniques and speciation analysis with a focus on biological systems.

SC-15 Physical Chemistry of Spectrochemical Sources, November 25, 7 pm, Albert Kh. Gilmutdinov, University of Kazan, Department of Physics, 18 Kremlevskaja Street, RU-420008 Kazan, Russia

Physical and chemical properties of popular spectrochemical sources (*i.e.*, inductively coupled plasmas (ICP) and electrothermal vaporizers (ETV)) will be described in this course. Spatial distributions of basic ICP parameters (*e.g.*, electron and analyte number densities, gas and electron temperatures) will be quantitatively characterized. A sequence of processes (*i.e.*, desolvation, vaporization, atomization, excitation, ionization, and diffusion) occurring with a sample nebulized into ICP will be described. Physical chemistry of matrix interferences also will be presented. Special emphasis will be given to understanding ICP operation on a fundamental level. Inductively coupled plasmas used in analytical spectrometry represent an extremely complex physical phenomenon that includes interrelated gas dynamics and

electromagnetic effects; two independent swirling gas flows are mixed in the plasma region with the axial carrier flow and the overall gas dynamics is driven by highly non-uniform electromagnetic fields. Tremendous progress has been achieved recently in quantitative descriptions of the ICP. However, most of the models are based on the assumption of axial symmetry and stationary plasma. Recent work shows that the axis of the electromagnetic fields does not coincide with the torch axis, which means that the ICP is not axially symmetrical. A periodic expansion and contraction of the ICP adds another, temporal, dimension to the description. Thus an analytical ICP represents a 4-dimensional magnetoplasmadynamics problem for which only 2-dimensional descriptions are currently available. A new computer model that accounts for true 3-dimensional geometry of an ICP and its nonstationary nature is presented. The model is able to predict temporal behavior of 3-dimensional distributions of electromagnetic field intensities, pressure, gas flows, and plasma temperatures for any given ICP torch.

Analytical spectrometry is based on sample transformation from the condensed state into a cloud of free atoms/ions. One of the common ways of the transformation is electrothermal vaporization in graphite furnaces. Advantages and limitations of the means will be described, and key processes that accompany electrothermal atomization/vaporization will be analyzed. All conventional atomizers utilize a one-stage process: vaporization atomization with atomization immediately above the vaporization site. A new approach for sample atomization *via* an intermediate stage of analyte condensation called Vaporization Condensation Atomization (VCA) was recently developed. The V-C-A cycle is fundamentally characterized by measuring the non-stationary temperature distributions in solids and gas, by investigating the formation and dissipation of analyte and matrix vapors with spectral, spatial and temporal resolution, and by studying surface processes with atomic force microscopy. Based on this V-C-A sequence characterization, a novel vaporizer/atomizer for analytical spectrometry has been developed. The system is called a Thermo-Chemical Reactor since in one design it integrates a vaporizer, condenser and atomizer and provides maximum flexibility in conducting sample vaporization/atomization. Extended performance of the reactor and its analytical advantages will be illustrated for the analysis of "difficult" samples.

Keywords: ICP processes, electrothermal vaporization, source characterization and diagnostics, computer models and simulations, applications

SC-16 Analysis of Waters and Wastes Using ICP Spectrometry, November 25, 8 am, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@-cc.huji.ac.il]

The course will describe ICP applications, approaches, and methodology for determination of dissolved and acid extractable elements in pristine and waste water and solid wastes; applications of ICP-AES and -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 ratios 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, ICP-MS, trace metals analysis, water, wastes, solids, EPA methods

SC-17 Sample Preparation for ICP-AES and ICP-MS Analysis, November 25, 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. Sample preparation strategies including fusions and mixed acids in temperature controlled blocks, open dishes and microwave ovens will be detailed. The impact of sample preparation on measurement using ICP-AES and MS will be highlighted with emphasis on spectroscopic and nonspectroscopic interferences.

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

SC-18 Reaction Cells and Collision Cells for ICP-MS, November 26, 7 pm, Isaac B. Brenner, 9 Dishon St., Apt. 9, Malkha, Jerusalem 96956, Israel [brenner@-cc.huji.ac.il]

The design and operation of reaction cells and collision cells used for isobaric interference removal in ICP-MS will be discussed. The course begins with an introduction to the principals and kinetics of ion-molecule reactions and the operation of the rf devices (quadrupoles, hexapoles, octapoles, *etc*.). The various efficiencies of the ion chemistry ((primarily ion reactivity, reactivity, production of the ions within the cell) will be evaluated, concluding that where high efficiency of he primary chemistry is obtained, reaction of the analyte ion with impurities and the formation

of new interferences within the cell becomes important. Various means of suppressing these effects, including kinetic energy discrimination and band pass operation of the cell will be contrasted and compared, and effects related to the order of the multipole device will be considered. Examples of the application of reaction cell and collisions cell methods in the semiconductor, environmental, clinical, geochemical and isotopic analysis will be presented.

Keywords: Collision cell, reaction cell, spectral interference, chemical resolution, pressurized multipole, chemistry, ion dynamics, ion-molecule chemistry, in-cell produced interferences, multipole operating point, energy discrimination

SC-19 Proteomics and Plasma Spectrochemistry, November 26, 1 pm, Andreas Prange, Department for Marine Bioanalytical Chemistry, Institute for Coastal Research, GKSS Research Centre, D-21502 Geesthacht, Germany [andreas.prange@gkss.de]

The recent outstanding progress in both instrumental and methodological developments namely the possibility to combine proteomic standard techniques such as gel electrophoresis or nano- and capillary-HPLC with plasma mass spectrometric detection techniques such as collision/reaction cell or sector field ICP-MS *via* state-of-the-art interface technology opens the versatile field of bio-analytics and life science for the analytical spectrochemist.

Especially the complementary application of ICP-MS and ESI (electrospray ionization) or MALDI (matrix assisted laser desorption/ionization) MS based molecule specific characterization strategies indicates great potential for outstanding future applications and interdisciplinary efforts in the still expanding field of life sciences.

This short course will start with an introduction to proteomics and will give a comprehensive overview on ongoing analytical techniques and workflows in the field of proteomics including sample preparation, multi dimensional separation techniques such as 2D-PAGE or nano- and capillary-LC, and recent developments in the field of mass spectrometry. Special emphasis will be drawn on the added value of the complementary application of elemental and molecule specific MS techniques for life science related research but also pitfalls and limitations will be outlined.

Keywords: Proteomics, life sciences, mass spectrometry, ICP-, MALDI-, ESI-MS, separation techniques, HPLC, CE, gel electrophoresis

SC-20 Field Flow Fractionation - Inductively Coupled Plasma Mass Spectrometry/Atomic Spectrometry, November 26, 1 pm, Atitaya Siripinyanond, Mahidol University, Department of Chemistry, Rama 6 Rd., Rajthevee, Bangkok 10400, Thailand [scasp@mahidol.ac.th]

This course will outline a new set of hyphenated analytical methods: field-flow fractionation (FFF) - inductively coupled

plasma mass spectrometry/atomic spectrophotometry. This method enables the measurement of the elemental composition across the size distribution of particulate and macromolecular samples. Thus it yields size-based element speciation data applicable to a wide range of samples and applications. The course will concentrate on the use of FFF methods and the detailed information that can be derived from the combined instruments. The course will examine the choice of equipment and run conditions for a given sample and data analysis. Commercial instrumentation should be available for demonstration. Conventional on-line and off-line detectors will be compared, and ICP-MS with quadrupole and high-resolution instruments will be used to illustrate practical examples with biological, environmental, geological, polymer, and other sample types. Comparison with chromatographic and electrophoretic separations will be highlighted for elemental speciation.

Keywords: FFF, ICP-MS, water, soils, sediments, particle sizing, elemental speciation

SC-21 Mass Spectrometry Imaging, November 25, 1 pm, Cameron W. McLeod and Josephine Bunch, University of Sheffield, Sheffield S3 7HF, United Kingdom

The science of imaging encompasses an array of specialist instrumentation with differing characteristics and attributes. Perhaps the most widely recognized imaging techniques are deployed in the clinical setting where ultrasound and MRI are used for non-invasive real-time diagnostics. Mass spectrometry imaging is a sub-set of spectroscopic imaging and techniques such as LA-ICP-MS, SIMS, and MALDI-MS provide a powerful route for observation and quantification of the spatial distribution (including depth) of key chemical entities (*i.e.*, ions, elements, complexes, drugs, biomolecules) in diverse sample categories. The course will address the following topics: Introduction to imaging science and technology; Overview of MS based imaging strategies including on current state of the art for LA-ICP-MS, SIMS and MALDI-MS; Scope for application with some emphasis on biological/biomedical systems, and Literature survey.

Keywords: Mass spectrometry, imaging techniques, laser ablation, biomedical applications

SC-22 Simple Ways to Improved Power of Detection in Flame AAS, November 25, 1 pm, Harald Berndt, Institute for Analytical Sciences, Bunsen-Kirchhoff-Str. 11, D-44139 Dortmund, Germany [berndt@ansci.de]

Flame AAS is regarded rightly as a robust and inexpensive routine method. However, the power of detection is often not sufficient for many analyses. This course shows various possibilities to improve the performance of this classical technique. Equipment matching to flame AAS should have the same characteristic properties as the

flame AAS itself: robust, simple in use and inexpensive. These requirements are fulfilled with the tube in flame techniques and especially with the new developed flame furnace AAS. The simplest form is the thermospray flame furnace AAS (TS-FF-AAS), consisting of only a ceramic capillary acting as a flame heated thermospray nozzle and a metal tube positioned in the flame. Details of various construction of tube-in-flame techniques are shown. In addition the more practical side (construction, analytical performance) and the fundamentals of these methods are considered. More general topics for improvements of power of detection are discussed (e.g., prolongation of measurement time).

Keywords: Flame AAS, flame furnace AAS, thermospray, beam-injection, aerosol introduction (flame tubes), tube-in-flame techniques, sound analysis, power of detection (AAS)

Rose Garden Dinner Evening

An "Evening at Rose Garden Riverside" is a special dining program that is tailor-made for a distinctively Thai venue and theme. It combines culinary skills in international cuisines, banqueting services and a cultural troupe together in an outdoor garden setting by the river for a fun-filled and entertaining evening with a distinctive Thai theme to provide guests with a unique and memorable experience. The program brings guests together in one of Thailand's famous festival celebrations culminating in a fireworks display.

"An Evening at the Rose Garden"

Theme Party BBQ Menu

Charcoal Grill

Barbecued Chicken
Chicken Balls
Crab
Meat Balls
Mussel
Pork on Skewer
River Prawn
Rock Lobster
Rose Garden Barbecue
Sea Bass
Squid
Veal Sausage

Salad Bar

Salads and Array of Dressings

Oriental Foodstalls

Baked Potatoes
Chicken Curry
Corn Dumplings
Deep Fried Tofu (Bean curd)
Home Made Rolls and Butter
Leg of Lamb
Mini Shrimp Fritters
Pat Thai (Thai Style Fried Noodles)
Sautéed Abalone Mushroom & Baby Corn
Sautéed Mussels & Bean Sprouts
Steamboat Noodles
Steamed Rice
Taro Fritters
Tempura
Vegetable Spring Rolls

Fruits and Desserts

Assorted Cakes
Caramel Custard
Carved Fresh Fruits
Coffee/Tea
Foy Thong (Golden Silk Threads)
Fresh Macedoin of Tropical Fruits
Kanom Beung (Sweet Tacos)
Kanom Krok (Coconut Pancakes)
Lemon Tartlets
Mapraw Kaew (Coconut Ice)
Tako (Coconut Pudding)