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RADIOCHEMISTRY IN EUROPE NEWSLETTER

Issue 33 – December 2005

**“ A MERRY CHRISTMAS & A PROSPEROUS NEW YEAR TO
ALL ”**

EDITORIAL COMMENT

Welcome to the thirty third Newsletter for Radiochemists in Europe now under the sponsorship of the European Association for Chemical and Molecular Sciences (EuCheMS). The new WebPages for the WP can be found at www.euchems.org/Divisions/NRC

From the home page the “Future Events” and Radiochemistry newsletters are readily available. Useful Links have also been established, including the Homepage of the Radiochemistry Group of RSC. If any other group would like their website to be linked, please send me the details. With regard to the Future Events conferences in other disciplines, which have or could have a section involving nuclear and radiochemistry and also conferences of interest outside of Europe are included. It is the WP’s aim to communicate and work with a wide range of disciplines and topic areas.

The WP intends to become a Division of EuCheMS. To this end we need to have at least 20 members nominated by their National Chemical Society or Institute. This month we welcomed five new members Dr Divna Djokic (Serbia & Montenegro), Dr Catalina Gascó Leonarte (Spain), Dr Ioannis Paschalidis (Cyprus) Dr. Israel Zilbermann and Dr Rayna Stefanova (Bulgaria). In addition Prof. Andreas Türler from the

Institute for Radiochemistry of the TU München has replaced Prof Rolf Michel as the representative of GDCh. Full contact details are given at the end of the newsletter.

This is your newsletter for radiochemists in Europe. Articles, reports on meetings, laboratory profiles, courses, positions vacant, redundant equipment and any other item you feel may be of interest to other radiochemists are still urgently required. Also the early announcement of dates for meetings and conferences is important to avoid the possibility of organising two at the same time on similar topics within Europe. Details of any courses would also be of interest to extend the existing database.

May I remind readers to inform me of any change to their e-mail address?

Providing that information is available I intend to compile this newsletter 4 times per year in March, June, September, and December/January. At present the timing is not precise as only three newsletters were issued in 2004 due to lack of information. Please send information in good time for inclusion that is by the end of the month prior to publication. **Editor: Dr. Tony Ware (e-mail:tonyware@compuserve.com)**

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? EUROPEAN RADIOCHEMISTS ASSOCIATION.

Aims and Objectives

The objective of the association is to extend and improve communications between radiochemists in Europe through a newsletter. This will be achieved through aims, which include

1. Establishing a liaison person within each country (or group).
2. Exchanging with each of the other liaison persons details of the activities of their own group during the current and subsequent years,
3. Setting up a diary of relevant International Events to avoid duplication of dates and hence improve attendance
4. Exchanging details of specialist equipment, facilities and methodology.

? EUROPEAN ASSOCIATION for CHEMICAL and MOLECULAR SCIENCES

1st European Chemistry Congress

The 1st European Chemistry Congress will be held in Budapest, Hungary from 27 to 31 August 2006. The Congress website is <http://www.euchems-budapest2006.hu> One of the Special Topics Symposia during the Congress is on "Hot Topics in Nuclear & Radiochemistry" arranged by the WP on Nuclear and Radiochemistry. It is scheduled to take place on 30 - 31 August 2006. This symposium aims at reviewing the state of the art and outlining the most prospective directions in the field of Nuclear- and Radiochemistry. The invited lectures will cover four of the most dynamic topics in the field, specifically

Chemistry of New Elements (Heinz W. Gäggeler, Switzerland)

Radionuclides in the Environment (Heino Nitsche, Berkeley, USA)

Radiopharmaceuticals (H H Coenen, Jülich, Germany)

Chemistry of the Nuclear Fuel Cycle (Charles Madic, CEA, France)

These lectures will address not only the specialists, they should give a clear picture of the development in this field to the general chemical public.

An additional invited lecture - Teaching of nuclear and radiochemistry in the modern age (Anthony R. Ware, England) - is aimed to trigger discussion on the ways of prevention of the decline of numbers of students in this field, that recently became a global problem.

The programme of the Symposium will further include a few contributed lectures and a poster session that should cover all the areas of Nuclear & Radiochemistry, not only those highlighted by the invited lectures. For further details, registration and offer of paper/poster presentation visit the Congress website at <http://www.euchems-budapest2006.hu>.

2nd European Chemistry Congress

This is to let you know that the Italian Chemical Society will be organising the 2nd European Chemistry Congress in Torino on 16-20 September 2008.

EuCheMS Executive

The full list of the EuCheMS Executive Committee is on the web at <http://www.euchems.org> From there you can access the WP on Nuclear and Radiochemistry with further links to useful websites related to nuclear and radiochemistry.

Contact: Dr Tony Ware (e-mail: tonyware@compuserve.com)

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LABORATORY PROFILES

Eichrom

Over the last years Eichrom has not only diversified its activities, but also developed several new materials (DGA Resin, MnO₂ Resin, Resolve Filters, Beryllium Resin etc.) Details were presented at a recent meeting in Manchester.

Two years ago Eichrom moved its European operation to Rennes. The new location in the west part of France allowed them space to build their own research and development laboratory as well as a radiochemical laboratory for the analysis of drinking water. The latter

has obtained its accreditation in September 2004. This experience gives them a better understanding of the requirements and challenges radiochemical laboratories are facing these days. Therefore they would like to take the opportunity to present Eichrom's new quality control system, in the hope that it will better correspond to your needs and expectations.

Contact e-mail: eichromeurope@eichrom.com, Fax (+33 2 23 50 13 90) or mail (Eichrom Europe, Campus de Ker Lann, Parc de Lormandière, Bât.C, Rue Marys Bastié, 35170 Bruz, Frankreich).

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CONFERENCE & MEETING REPORTS

IAEA Consultants Meeting 21 – 25 Nov

Following the previous technical meeting on "Assessment of the teaching and applications in radiochemistry" at Antalya, Turkey in 2002 and the consultants meeting on "Development of distance learning modules for selected aspects in radiochemistry" in Kailua-Kona, Hawaii in 2003 a further consultants meeting was held in Vienna on "Training and Education in Nuclear Analytical Techniques and Radiochemistry".

Those present were Mr Matthias Rossbach (IAEA convenor), Prof. Z Homonnay (Hungary), Dr. B Sen (India), Dr. A Kronenberg (USA & Germany), Dr. A Pérez Gramatges (Cuba), Mr. A Eltajeb (Sudan) and Dr. A Ware (UK & EuCheMS).

The initial presentations brought out some essential topics for further discussion.

1. "It is important to differentiate between education and training; education provides people with a thorough understanding of a technology whereas

- training enables people to conduct established operations applying a technology.”
2. There is a need to identify the target audience before deciding on the necessity for education and/or training and the level to which it is required. It was decided that the target audience could be broken down into several categories; the general public, students and fellow scientists.
 3. The participants of the meeting should consider what material is required for each target group identified.
 4. In all cases it should be remembered that many nuclear scientists are NOT working in nuclear power, weapons and waste disposal. A recent UK survey, confirmed by other participants, has shown that >50% of nuclear scientists worked in medicine, industry, environment, etc.
 5. It was felt necessary for radiochemists to have a basic academic education and training in a wide variety of applications. These should be carried out at academic institutes rather than “on-the-job training”. For radiochemistry in particular, the training requires hands-on experiences.

Following the meeting in Hawaii the IAEA had placed a contract with Dr. Pérez Gramatges to develop a distance learning module. Some time was spent in reviewing progress. It was agreed that this should be available on CD to widen its use. The meeting concluded with the following recommendations to the IAEA

Recommendations to the IAEA

1. The IAEA should continue to support the education and training of radiochemistry and nuclear analytical techniques in member states. IAEA should also encourage Member States to maintain and initiate programmes in these areas.

2. The IAEA should continue to support the production and launch of learning modules in radiochemistry and nuclear analytical techniques.
3. The IAEA should produce a flyer to introduce the field and emphasise the benefits of radiochemistry. This flyer to be given to member states for distribution to the public.
4. The IAEA should produce a guide for educational opportunities for distribution to students to encourage them to take up training in radiochemistry.
5. The Agency should pursue the setting up of a website for radiochemistry. This may be associated with the IAEA main site or stand-alone.
6. A searchable database should be established based on the data initially gathered at the Technical Meeting in Turkey in 2002. This will require a controller and regional liaison persons.
7. Consideration should be given to the production of films or video clips to promote radiochemistry and nuclear analytical techniques.
8. The IAEA should organise interregional and regional training courses in handling and manipulation of radioactive materials.
9. The Agency should define appealing topics of radiochemical applications of public interest and distribute this information to the media.
10. The Agency should define the core curriculum required for qualified radiochemists.

The IAEA will investigate which of these proposals can be included in future work programmes. The development of the distance learning programme will continue.

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· CONFERENCE AND WORKSHOP DETAILS

15th Radiochemical Conference (RadChem2006)

RadChem 2006 - the 15th Radiochemical Conference, will take place on 23 - 28 April 2006 in Mariánské Lázně, Czech Republic. Details on the website <http://www.fjfi.cvut.cz/radchem>.

The scope of the 15th Radiochemical Conference will cover most aspects of nuclear- and radiochemistry including, but not limited to

- Radionuclides in the Environment, Radioecology
- Nuclear Analytical Methods
- Chemistry of Actinide and Trans-actinide Elements
- Radiation Chemistry
- Production and Application of Radionuclides
- Separation Methods, Speciation
- Chemistry of Nuclear Fuel Cycle, Radiochemical Problems in Nuclear Waste Management
- Nuclear Methods in Medicine, Radiopharmaceuticals and Radiodiagnostics, Labelled Compounds

The full peer-reviewed papers (meeting the criteria of the journal) will be published as conference proceedings in a special volume of an international scientific journal (to be selected).

The Conference is sponsored by EuCheMS.

(Contact: Prof. Jan John e-mail: jan.john@fjfi.cvut.cz)

1st European Chemistry Congress

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10th International Symposium on Environmental Radiochemical Analysis (ERA10)

ERA10 will take place at the Randolph Hotel, Oxford, England from 13th to 15th September 2006. The preliminary scientific programme covers nuclear counting techniques applicable to environmental measurements, the determination of radionuclides in environmental materials (solids and aqueous matrices), the determination of radionuclides in biological samples (Bioassay), the application of radiochemical methods to environmental studies and quality assurance. Full details, costs and timescale can be found on the symposium website at <http://www.rsc.org/era2006/>

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NEWS FROM THE INTERNET

In-Situ Intercomparison Scenario 30 April - 4 May 2007 Austria.

The "In-Situ Intercomparison Scenario" (I.S.I.S. 2007) will be organised by the ARC - Seibersdorf research GmbH (ARC-sr) in cooperation with the International Atomic Energy Agency (IAEA) and the Austrian NBC Defence School.

The determination of soil contamination, dose rate measurements and in-situ gamma spectrometry are well-established and widely used measurement procedures, especially after large-scale nuclear incidents. Since several years, the organisation of international campaigns with active participation of measurement teams from various countries has improved the accuracy of in-situ gamma spectrometry and the exchange of experience in this field of metrology. To support decision makers and first responders with a more comprehensive and accurate overview immediately after a large scale nuclear or radiological emergency, as a satellite crash, releases of a nuclear power plant or terrorist acts with a dirty bomb, a fast and clear presentation of measurement data is indispensable. Therefore, this exercise will focus on the cooperation of teams in in-situ gamma spectrometry and dose rate measurements and its evaluation for emergency situations.

A detailed schedule on the specific exercises, organisational issues and efforts will be sent out during summer 2006.

If you are interested to receive further information, please send a short email-message to ISIS2007@arcs.ac.at.

Aachen University of Applied Sciences, Jülich Campus

EMiNA (European Master of Science in Nuclear Applications) is a study program in English for graduate students from Germany and around the world.

Nuclear Technologies are being used in many fields of science and technology. Sustainable and cost-effective production of nuclear energy secures development world wide. Use of radioactive tracers is widespread in medicine and biological sciences. Nuclear methods in material science and nanotechnology produce and characterise novel materials. Decommissioning of nuclear plants as well as the safe and reliable treatment of radioactive waste is of utmost importance for mankind.

The M.Sc. programme is open to applicants with a B.Sc. or B.Eng. in mechanical, electrical, physical, nuclear, chemical, bio-engineering or related fields and high academic standing. The program is modular in structure, meaning that individual timetables can be constructed. This gives you the chance to develop your individual expertise in the fields of:

- Nuclear energy production
- Nuclear fuel cycle
- Radioecology
- Radiation Measurement
- Radionuclide production
- Biomedical applications
- Radiation safety

A detailed description of the modules can be accessed via our homepage. www.juelich.fh-aachen.de/masters. Two independent projects are integrated to enable the students to focus their studies further. The Master's thesis project can be completed in-house or with our partners in research and industry.

(This is extracted from the University's flyer for EmiNA)

The Aachen University of Applied Sciences also offers a Master (M.Sc.) in energy systems and an extensive series of International Studies in Technology (IST) leading to a B.Eng. or Dipl.-Ing.

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JOB OPPORTUNITIES

Radiochemists / Senior Radiochemists NIRAS -AMEC NNC

AMEC NNC operates the NIRAS laboratory at Birchwood, near Warrington Cheshire, UK that is now the largest commercial radiochemical analysis facility in the UK. The NIRAS laboratory is embarking on an ambitious expansion programme, which includes new facilities, equipment and personnel. This increase in capacity is required to service the growing UK Nuclear Decommissioning Authority analysis market.

We are seeking a number of radiochemists/senior radiochemists to join our successful team. The candidates will be involved in all aspects of the business from client liaison, technical input into tenders through to responsibility for project management of a number of radiochemical analysis projects ensuring that quality results are delivered on-time to our clients.

The ideal candidates will have a combination of excellent radiochemistry knowledge and organisational ability. Previous experience of working in a fast moving analysis laboratory would be an advantage, as would knowledge of

the nuclear industry.

A competitive reward package is available to the right candidates, including relocation costs if required.

Salary is negotiable dependant on experience and skills that the candidates can bring to the business. This is an excellent opportunity to join a successful team on the next phase of our ambitious growth programme.

If you would like to apply for these positions please send your CV to Kathy Ross, HR Department, AMEC NNC Limited, Booths Park, Chelford Road, Knutsford, Cheshire. WA16 8QZ. E-mail:

Kathy.ross@amecnnc.com

Postdoctoral Research Fellowship (PostDoc)

A PostDoc in Nuclear Chemistry is available at the Department of Nuclear Chemistry and/or Centre for Radiochemistry and Radiation Chemistry, Czech Technical University in Prague, Czech Republic. The position is available for a period of one to three years starting February 1, 2006 (the starting day is negotiable). Pay conditions equal to those of ordinary research scientists with similar qualification at Czech Technical University, plus extra contribution for accommodation.

Deadline for applications: January 15, 2006. Applicants shall submit a letter of application, C.V. containing full information about education, previous posts held and any other qualifying activity, accompanied by a complete list of publications and academic works. Send applications to the Department of Nuclear Chemistry, Faculty of Nuclear Sciences and Physical Engineering, Czech Technical University in Prague, Attn.: J. John, Brehova 7, 115 19 Prague 1, Czech Republic.

The postdoctoral fellow is expected to have solid knowledge of the use of laser fluorescence method(s) for the study of complexation in solution and/or at the

surface of solid phases. Preference will be given to the candidates with practical experience with Time Resolved Laser Fluorescence Spectrometry (TRLFS) technique. He or she will help to introduce the method(s) in the host laboratory and participate in the international research project(s) in the field of radioactive waste management and/or disposal, where he (she) will study actinide complexes with humic substances in aqueous solutions, sorption of actinides on clay sediments (materials, minerals), actinide complexation with novel extractants applicable in the Partitioning technology and/or actinides interaction with solid extractants. The work will be carried out in collaboration with outstanding international laboratories like Institut fuer Radiochemie, Forschungszentrum Rossendorf and Institut fuer Nukleare Entsorgung, Forschungszentrum Karlsruhe (both Germany). No compulsory pedagogical work is required, but the fellow will be expected to participate in supervising of student research on the same topics. Candidates who have submitted their doctoral thesis prior to the closing date may apply for the position. If appointed, successful completion of the doctoral degree is a prerequisite for taking up the position. For further information please contact: Prof. Jan John by e-mail: jan.john@fjfi.cvut.cz, phone +420224358228, mobile +420 728 554 737 or Prof. Petr Benes, petr.benes@fjfi.cvut.cz, phone +420 224 358 208. Further information about the Czech Technical University and the Department of Chemistry is available at <http://www.cvut.cz/en/> or <http://147.32.5.30/en>, respectively (both sites currently under partial reconstruction).

Post-doc at SCKCEN

Characterisation of fissile materials, explosives and chemical agents.

The growing concern for improved nuclear safeguards and homeland security has amplified the importance of security, safety and privacy in our daily lives. Accordingly, security technologies are receiving intensified attention in different research institutes, government agencies, the military, manufacturers, and end users. In this context, SCKCEN is also aiming at intensifying its research in this technology by initiating a project on detection and identification of fissile materials and explosives, called FIMECS (Fissile Materials and Explosives Characterisation System).

The FIMECS project is devoted to the development, use and testing of neutron interrogation techniques for the detection and identification of Special Nuclear Materials (SNMs) (e.g. plutonium, Highly Enriched Uranium (HEU)), explosives (also applicable to chemical agents) that could be used for terrorist activities. As the SNM may be masked by other (legal) radioactive shipments or concealed by shielding, sophisticated techniques are needed to characterise these materials and to find out their origin. In order to cope with

possible shielding of the materials, the inspection technique will rely on the detection of highly penetrating neutrons and gamma-rays that will be produced in the sample by irradiating it with neutrons produced by a neutron generator. Prompt gamma-rays and neutrons are then created which are typical for the sample. The use of Prompt Gamma Neutron Activation (PGNAA), Neutron Coincidence Counting (NCC) and neutron-gamma ray correlation techniques then allows to identify the irradiated materials. The main research objectives of FIMECS are to know the possibilities and limitations of these nuclear measurement techniques and to quantify them and to validate the computer simulations of the reaction rates and detector response. The FIMECS project includes the following tasks:

- To set up a pulsed neutron generator and associated detectors and analysers at SCK•CEN;
- To make in-depth performance evaluation studies with Monte Carlo simulations and experiments for a number of well defined measurement situations (luggage inspection, cargo inspection);
- To validate the modelling studies;
- To demonstrate the applicability of neutron interrogation;
- To evaluate spin-off research topics.

Anyone interested should apply to Peter Vermaerke. e-mail pvermaer@sckcen.be

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· AND FINALLY

Please send information for inclusion in future issues to your Liaison Person or myself Dr Tony Ware, Avoncastle, South Lane, Sutton Valence, Maidstone, Kent ME17 3AZ, UK. Tel: +44 (0)1622 842627, e-mail: tonyware@compuserve.com

IMPORTANT PLEASE send me your e-mail address so that I can inform you when websites have been updated and any other news of immediate interest.

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