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***RADIOCHEMISTRY IN EUROPE***  
***THE NEWSLETTER of the***  
***DIVISION of NUCLEAR and RADIOCHEMISTRY***

**Issue 38 – June 2007**

**EDITORIAL COMMENT**

Welcome to the thirty-eighth newsletter for Radiochemists in Europe. The WebPages of the Division can still be found at [www.euchems.org/Divisions/NRC](http://www.euchems.org/Divisions/NRC). From the home page the “Future Events”, updated each month or when fresh information is received, 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.

**NEW SECTION** It has been suggested that one more section could be added to the newsletter giving the parameters of the latest most salient publications of the field of nuclear and radiochemistry. It could be a kind of literature observer and would help the colleagues who have no library or on-line connection to all the important Journals. How do you feel about this? Is there anyone with the time and facility to do this? As indicated elsewhere I am prepared to edit and include information sent to me.

The aims and objectives of the division as given in our Procedures and Practices are given below.

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. See the 10year Planning Calendar on the website. 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 it is intended to compile this newsletter 4 times per year in March, June, September, and December/January. 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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□ **DIVISION of NUCLEAR and RADIOCHEMISTRY.**

**Mission and Objectives**

The Division of Nuclear and Radiochemistry is a network of societies and their scientists working in nuclear and radiochemistry throughout Europe and aims to have close links to related institutions all over the world. A broad communicative basis is achieved by cooperation with relevant supranational bodies such as IUPAC and IAEA as well as with journals and newsletters. It endeavours to establish and maintain the highest quality standards in science and research. NRC accepts a role to harmonise education and training in all aspects of nuclear and radiochemistry and to offer a means of communication and collaboration between scientists working in the fields.

### Objectives of the NRC are:

- To contribute to the advancement of nuclear and radiochemistry in Europe;
- To identify important areas in science, technology and other human activities relevant to nuclear and radiochemistry, and to stimulate actions in such fields;
- To address aspects of importance in or to nuclear and radiochemistry which need regulation, harmonisation, standardisation or codification, and to make recommendations as appropriate;
- To encourage cooperation between analytical chemists whether working in academia, industry or governance, in particular within the countries of the member societies of EuCheMS
- To foster close contacts and cooperation of NRC with the European Commission and other relevant institutions;
- To safeguard the interests of the nuclear and radiochemistry community, especially concerning recognition and legitimisation in matters of regulation and legislation as well as decision making in economic and in social areas;
- To assist and strengthen quality in teaching and training of nuclear and radiochemistry in education and in daily practice;
- To support the transfer and exchange of knowledge, equipment and personnel in the areas of NRC expertise both within Europe and in non-European countries;
- To hold a European Conference at least every other year;
- To assume a general promotion and coordination function for other conferences and courses in Europe related to NRC activities;
- To disseminate information to the wider scientific community and general public about nuclear and radiochemistry and its achievements.

### **Priorities of the Division**

1. Constitution was established as Practices and Procedures with the aims and objectives given above.
2. The Division should continue editing the Newsletter as official information periodical of the Division with S. Jerome and A. Vertes agreeing to assist A. Ware in editing.
3. Web site. All members are asked to send any links, they would like to have listed here, to A. Ware.
4. Diary of future events (10-years Calendar) – has been established
4. Co-ordination of T&E in Radiochemistry and Review of Courses. A survey will be circulated to Division members for comments.
5. Contact has been made with the Technical Advisory Boards of both the NRC and Radchem series of meetings. The list of these and other Future Events are being maintained up to date on the website.

### **Membership**

I have been in contact with Dr Divna Djokić who wishes to remain a member of the Division even though Montenegro has separated from Serbia. He is now in Serbia but his address and e-mail remain unchanged. There is no indication as yet as to whether the Chemical Society will split or remain to cover both countries. **(Dr Tony Ware)**

**If your country does not have a nominee to the Division, please press your Chemical Society to nominate a candidate.**

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### □ **EUROPEAN ASSOCIATION for CHEMICAL and MOLECULAR SCIENCES**

Professor Ferdi Schüth, Max-Planck-Institut, gave a lecture on behalf of EuCheMS at the conference on '**Sustainable Neighbourhood - from Lisbon to Leipzig through Research**', in Leipzig. The summary of his lecture follows.

FERDI SCHÜTH, Max-Planck-Institut für Kohlenforschung and European Association for Chemical and Molecular Sciences (EuCheMS)  
Our current energy infrastructure is to a large extent based on oil and gas. It seems clear that the production of these energy sources will at some point in time peak while demand continues to grow. This problem is especially pronounced in Europe with its relatively low reserves. The adaptation of our energy infrastructure, from energy supply through energy storage to distribution, is one of the biggest challenges our society faces today. Whatever the solutions will be in the future, it is clear that our energy supply will become more dependent on chemistry's innovative

contributions. If one analyzes the development of our energy infrastructure in the past, one realizes that chemistry has played a continuously increasing role, and that it now has become a core technology in this field. While initially energy sources like wood and coal were basically just combusted, and oil was only refined by distillation, modern power plants have now become chemical plants with respect to the flue gas treatment, and refineries are large chemical complexes in order to optimize the use of the energy content of the crude oil. This trend will continue if new energy sources have to be tapped in order to meet the needs of our society for a safe and sustainable energy supply.

The lecture will present examples of the essential role of chemistry in transforming our energy infrastructure. Two functions of oil have to be replaced in the next decades, that of an energy source and that as an energy storage and transport form. If our society wants to retain hydrocarbons, such as Diesel and gasoline, as the primary fuel, we have to provide pathways to generate these fuels from conversion of solar energy to hydrocarbons, be it by direct chemical routes or via biomass. Conversion of biomass to hydrocarbons relies heavily on chemical transformations, which can incidentally also be used to convert coal to liquid fuels, if one is willing to accept to additional CO<sub>2</sub> production in the latter case. Biomass can be converted by reforming reactions to synthesis gas, which can further be converted to gasoline by Fischer-Tropsch processes. Alternatively, biomass can be used to generate biogas which can either be combusted to generate energy, or converted again to liquid fuel after reforming and Fischer-Tropsch synthesis. Hydrogen as another potential energy carrier needs to be produced either by thermochemical processes or electrolysis or direct photochemical water splitting, be it by inorganic catalysts or chemical systems copied from the photosystems of organisms. If the hydrogen is generated, storage is a crucial question for which viable solutions are also provided by chemistry. Direct production of electricity from heat or solar radiation will also be strongly facilitated if novel

materials are discovered as a result of chemical research. These include stable organic solar cells or new thermoelectric materials. For storage of electrical energy advanced battery systems are necessary which rely on new electrodes or improved electrolytes. Breakthroughs in the development of ion exchange membranes could revolutionize fuel cell technology, which provides an alternative access to electrical energy.

The European Research Area is especially well positioned to tackle these challenges. Chemical research and the chemical industry are very strong in many European countries, there is a high level of public awareness with respect to energy related issues, and there is a strategic need for a reduction of Europe's dependence on fossil fuels due to their limited availability in our region of the world.

The lecture will also focus on the collaboration among chemists and chemical societies in Europe to address these challenges through the newly established Working Party on Chemistry and Energy of the European Association of Chemical and Molecular Sciences (EuCheMS), the umbrella organization of 50 member societies which together represent 150,000 chemists in academia, industry and government in over 35 countries across Europe.

**Contact author: Prof. Dr. Ferdi Schüth,  
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**•EUROPEAN TECHNOLOGY PLATFORMS**

**Progress Towards New Technology Platforms on Geological Disposal and Sustainable Nuclear Fission under Euratom.**

*Background on Technology Platforms*

European Technology Platforms are stakeholder groupings, led by industry, which help to define research and development priorities, timeframes and action plans on a number of strategically important issues where achieving Europe's future growth, competitiveness and sustainability objectives is dependent upon major research and technological advances in the medium to long term.

Each Technology Platform produces a Vision Paper (of where the sector will be say 10 to 20 years in the future), then they define a Strategic Research Agenda (detailing what research needs doing) and then develop an Implementation Plan. There are already European Technology Platforms in a number of other areas, but none so far dedicated to the nuclear area.

*Technology Platforms in the Nuclear Field*

The Seventh multiannual Framework Programme for Euratom (the European Atomic Energy Community) funds nuclear research and training activities, and runs 2007-11. In the Euratom 2007 Work Programme, it states that two technology platforms are to be established:

"during the course of FP7, the intention is to establish Technology Platforms in the field of "geological disposal" and "sustainable nuclear fission", and the

resulting Strategic Research Agendas will then provide important input for the Euratom programme in these areas."

*Sustainable Nuclear Energy (SNE) Technology Platform*

The establishment of the TP on sustainable fission is now well underway, and there will be a conference to mark the launch of this TP in Brussels, on 21 September 2007.

*Geological Disposal Technology Platform*

With regards to the TP in the field of geological disposal, there is currently a preparatory co-ordination action for the development of this TP underway. The project is entitled "co-ordination of research, development and demonstration RD&D (Research Development and Demonstration) priorities and strategies for geological disposal", and is funded under Euratom in FP6. This action aims to assess the feasibility of a Technology Platform that would provide a European framework for networking and co-operation in the field of RD&D for geological disposal of radioactive waste in the EU. The study receives input from project partners, radioactive waste management organisations (disposal implementers), and key stakeholders. These inputs will be analysed after which a proposal for such a TP will be implemented under Euratom in Framework Programme 7. This project has just got underway, and started in November 2006.

#### Further information

The 2007 Euratom Work Programme is available on the UKRO WebPages on Euratom at:  
[http://www.ukro.ac.uk/subscriber\\_services/fp7/euratom](http://www.ukro.ac.uk/subscriber_services/fp7/euratom)

Information about the Sustainable Nuclear Energy TP event is available at:

20/06/2007 - Launch Conference of the European Technology Platform: Sustainable Nuclear Energy (Event)

<[http://ims.ukro.ac.uk/Cultures/en-GB/Left+Navigation/Event/20070620\\_euratom\\_event.htm](http://ims.ukro.ac.uk/Cultures/en-GB/Left+Navigation/Event/20070620_euratom_event.htm)>

Details of the 'Co-ordination of research, development and demonstration (RD and D) priorities and strategies for geological disposal' project are available at:

[http://cordis.europa.eu/fetch?CALLER=FP6\\_PROJ&ACTION=D&DOC=3&CAT=PROJ&QUERY=1182337004415&RCN=80060](http://cordis.europa.eu/fetch?CALLER=FP6_PROJ&ACTION=D&DOC=3&CAT=PROJ&QUERY=1182337004415&RCN=80060)

General Information on European Technology

Platforms is available at:

[http://cordis.europa.eu/technology-platforms/home\\_en.html](http://cordis.europa.eu/technology-platforms/home_en.html)

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**•LABORATORY/BUSINESS PROFILES**

None offered in the last few months. Please send copy if you wish your laboratory or business to be featured.

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**•CONFERENCE AND WORKSHOP DETAILS**

#### **The eleventh international conference on the Chemistry and Migration Behaviour of Actinides and Fission Products in the Geosphere (MIGRATION 2007)**

This will be held August 26 - 31, **2007**, in Munich, Germany. The MIGRATION conferences provide an international forum for the timely exchange of scientific information on chemical processes controlling the migration behaviour of actinides and fission products in natural aquifer systems. Experimental investigations and predictive modelling of these processes are the main topics of the conferences. The information generated from the MIGRATION conferences is the basis for the mechanistic understanding of the migration behaviour of long-lived radionuclides in the geosphere, which is essential for the long-term performance assessment of nuclear waste disposal.

After 20 years, MIGRATION '07 will get back to the grassroots, where everything started: Twenty years ago - in 1987 - J.I. Kim, at that time professor for radiochemistry at the TU München, Germany, called this conference in Munich into being. It is certainly his outstanding merit that the MIGRATION conferences remained such a successful story over this long time period.

Conference website: <http://www.fzk.de/migration2007>

#### **Symposium on the Scientific Basis for Radioactive Waste Management XXXI**

16 – 21 September 2007, Sheffield, UK.

The conference will cover; Decommissioning and Intermediate Waste, High Level Wastes and Spent Fuel, Low Level Wastes, Geological Repositories, Novel Techniques, Modelling, Transnational Programmes, Interface Science and Radionuclide solubility, speciation, sorption and migration.

The formal call for papers will be posted on the conference website <http://mrs2007.sheffield.ac.uk> For further information contact John Roberts at [j.w.roberts@sheffield.ac.uk](mailto:j.w.roberts@sheffield.ac.uk) or Tel +44 (0) 114 222 6026

#### **International Conference on Modern Trends in Activation Analysis (MTAA-12)**

This Conference will be held from Sep 16 to 21, 2007 at Tokyo Metropolitan University, Hachioji, Tokyo, JAPAN. (<http://www.mtaa12.com/>). The Web page for the on-line abstract submission is now open.

Please prepare an abstract according to the instruction and submit it by on-line. If you cannot submit through the web, please contact the secretary. Deadline for abstract submission is Apr. 30, 2007.

Registration for the conference needs to be done separately. Please make your registration through the web. It should be noted that the presenter must register. (The on-line registration will be opened on March 2007)

The 2007 ICAA Young Scientist Award will be given at the MTAA-12 conference.

Deadline for the applications for Young Scientist Award is Apr.30, 2007.

Contact: OURA, Yasuji, Secretary of MTAA-12. Cosmochemistry Lab., Department of Chemistry, Graduate School of Science and Engineering, Tokyo Metropolitan University

Hachioji-shi, Tokyo 192-0397, JAPAN Web-site:<http://www.mtaa12.com>

#### **CEPROCIM International Proficiency Testing Conference**

This is organised under the auspices of the Ministry of Education and Research in Romania, within the National Programme for Research of Excellence CEEEX project. The Conference is to be held in Sinaia, between 11th and 13th October 2007. It is to interest specialists in testing laboratories around the world and from all fields of activity:

aggregates, chemistry, electrical engineering, food and nutriment, environment, building materials, plastics, mechanics, metallurgy, microbiology, petrochemistry, the physics of lasers, plasma and radiation, soil, textiles, etc. On the second day of the conference, a function of your interest a training course are organising only for the registered participants. The course will unfold within the European training programme TrainMic (Training in Metrology in Chemistry) coordinated by the institute for Reference Materials on Measurements, Joint Research Center European Commission ([www.trainmic.org](http://www.trainmic.org)).

**Web: [www.pt-conf.ro](http://www.pt-conf.ro)**

**2nd International Workshop on Application of the Ionizing Radiation & Nuclear Analytical Techniques in Industry, Medicine and Environment at High Performance (Nuclear PT-2007)** will be held on 8-9 October 2007, in Bucharest - Romania. The detailed information can be obtained from website: <http://nuclearpt-2007.nipne.ro>

**The Seventh International Conference on Nuclear and Radiochemistry (NRC-7) Budapest, Hungary 24 – 29 August 2008**

NRC7 the next in the series of Nuclear and Radiochemistry Conferences will be held in Budapest at the Eötvös Loránd University. It is organised by the University supported by the Hungarian Chemical Society and sponsored by EuCheMS. The website can be found at [www.nrc7.mke.org.hu](http://www.nrc7.mke.org.hu) In keeping with previous conferences it aims to cover a range of topics in nuclear and radiochemistry. They include:

Fundamental nuclear chemistry, Actinides, Transactinides, Radioanalytical chemistry, Radionuclide production, Radiotracers in life sciences, Radionuclides in geo- and cosmochemistry, Radiochemistry in nuclear energy production, Radioecology and environmental sciences and Nuclear methods in material science and industrial applications. The deadline for submission of abstracts is 31 January 2008.

The Web page of the conference is now open for registration and abstract submission. For additional details please visit <http://www.nrc7.mke.org.hu/>

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#### NEWS FROM THE INTERNET

##### IUPAC

Prof. Mauro Bonardi, a member of the Div of NRC of EuCheMS, has been the Technical Member of the Analytical Chemistry Division of IUPAC. He was appointed in the category of Nuclear Methods and came to the end of his term this year. His successor in the category, Nuclear Methods, is Prof. Zhifang Chai.

##### The Radiochemistry Society,

Now offering our exclusive hands-on Radiochemistry Training Course in 2 sessions!  
PHASE 1: JULY 16-20, 2007 (1st week)  
PHASE 2: JULY 23-27, 2007 (2nd week)  
COMPLETE 2-WEEK COURSE: JULY 16-27, 2007  
We realise that in many cases it's difficult for an employer to send their student(s) away for two weeks, therefore, we have custom tailored our hands-on Radiochemistry Training Course in sessions of 1-week each. This will allow for students to complete the 1st week now and continue the 2nd week at another offering or, the option to take the entire 2-week course in sequence.  
The Radiochemistry Society is dedicated to providing world-class training for the promotion of this rare skill set. You will receive step by step instruction on all aspects of radiometric measurements as well as laboratory safety. This unique hands-on training will provide the basis for highly effective radiometric operations and proper radiometric laboratory operations. This training will provide a life-long skill set that will enhance anyone's career.

For all the details, please visit this link:

[http://www.radiochemistry.org/courses/rc\\_rad\\_handson.html](http://www.radiochemistry.org/courses/rc_rad_handson.html)

In the past, many have asked us about offering training for Radiation Safety Officers and Refresher Courses. We will now be offering these courses in September in Richland, Washington, which will be the final offering for 2007. We suggest that you register early for this training to reserve seating.

For complete course descriptions & on-line registration visit:

RADIATION SAFETY OFFICER REFRESHER TRAINING - Sep. 3-5, 2007

<http://training.radiochemistry.org>

RADIATION SAFETY OFFICER (5-Day Course) - Sep. 17-21, 2007 <http://training.radiochemistry.org>

##### Automated Analyzer For Complex Nuclear Waste Provides Rapid Results

Science Daily - Identifying and quantifying specific alpha- and beta-emitting radionuclides in liquid solutions can be challenging and time consuming -- typically taking from days to weeks to get results back from an analytical laboratory.

But, when an industrial process-scale plant requires that an accurate, reliable analysis be completed in near real-time from samples retrieved directly from the process line, the challenge could be overwhelming. However, scientists at Pacific Northwest National

Laboratory have assembled a robust, fully automated prototype process monitor to meet demanding production needs. The device developed by PNNL scientists provides microwave-assisted sample pre-treatment, flexible chemical separations capabilities, sensitive radiochemical detection, calibration and data analysis. PNNL presenter Matthew J. O'Hara said, "This is the most extreme example of automation ever demonstrated by our team." The prototype system was originally created to perform rapid radiochemical analysis of technetium-99 in nuclear waste destined for vitrification at the Hanford Site's Waste Treatment Plant in Washington State. Samples can be adjusted, separated and analysed in less than 15 minutes to provide feedback on process performance. While developed for specific radionuclides in high-level nuclear waste process streams, the analyser is capable of being adapted for use on a wide range of applications requiring an integrated system that

performs sample preparation, column separations, on-line detection and data analysis conducted rapidly and autonomously.

PNNL scientists Jay W. Grate and Matthew O'Hara will describe pioneering work in the development of automated radiochemical analysis systems, radionuclide sensors and process monitoring approaches in back-to-back presentations at the 233rd American Chemical Society Meeting in Chicago. Their presentations -- "Automated separation-based approaches to rapid radiochemical analysis and sensing" (NUCL 111), and "Rapid automated radiochemical analyser for determination of Tc-99 and Sr-90 in nuclear waste processing streams" (NUCL 112) -- will be held at the meeting.

Note: This story has been adapted from a news release issued by DOE/Pacific Northwest National Laboratory. <http://www.sciencedaily.com/releases/2007/03/070328155710.htm>

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**JOB OPPORTUNITIES**

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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](mailto: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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