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## RADIOCHEMISTRY IN EUROPE NEWSLETTER

Issue 30 – February 2005

### EDITORIAL COMMENT

First may I wish you all a belated Prosperous and Successful 2005.

Welcome to the thirtieth Newsletter for Radiochemists in Europe under the sponsorship of the European Association for Chemistry and Molecular Sciences (EuCheMS). Currently you will still find the WP WebPages at [www.fecs-chemistry.org/nuclear](http://www.fecs-chemistry.org/nuclear)

The new logo for the WP is included above with the same hexagon as before but with EuCheMS replacing the lettering FECS.

This newsletter is established on web page (<http://www.rsc.org/pdf/andiv/euopenews.pdf>). The newsletter is perhaps more easily accessed through the website of the WP on Nuclear and Radiochemistry of EuCheMS, whose URL is still [www.fecs-chemistry.org/nuclear](http://www.fecs-chemistry.org/nuclear). This website has other useful connections to "Future Events" called nuclear and radiochemical activities in Europe, and the Homepage of the Radiochemistry Group of RSC. If any other group would like their website to be linked, please send me the details. Note that some changes have already been made. With regard to the Future Events I include conferences in other disciplines which have or could have a section involving nuclear and radiochemistry. It

is the WP's aim to involve scientists from a wide range of disciplines and topic areas.

The WP is interested in expanding an existing database on training courses in radiochemistry. Do you think that such a database should be widely available? I ask this question again as I had limited response last time. Please let us have your comments and send details of any courses that you run including any courses available through a website.

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.

Providing that information is available I intend 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](mailto: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

### **EuCheMS takes over from FECS**

At the General Assembly meeting hosted by the Romanian Chemical Society and held in the historic Parliament building in Bucharest, the member societies approved an amended constitution and the new name. Following due process in the coming months, EuCheMS will become an 'Association Internationale Sans But Lucratif' (not-for-profit organisation) in Belgium.

EuCheMS will build on its 30 years of history and will aim to provide a more professional level of support for the needs of its 50 member societies across 36 countries throughout Europe. A funding base will enable EuCheMS to modernise its approach and develop meaningful support for chemical and molecular sciences in the 21st century.

The most vital aspect of the future strategy of EuCheMS is political impact. With the new enlarged EU, it is even more important that EuCheMS provides a focus for discussion on chemical and molecular science issues in order to influence EU government and politicians on the future development of the European Research Area. To do this, EuCheMS needs to obtain financial support.

Under its new constitution, EuCheMS will be more ready to enter into partnership with other science groups. The chemical and molecular sciences community needs to make some significant advances in order to be operating on equal terms with other science groupings and to be welcomed as a partner in joint initiatives; EuCheMS is ready to take the lead.

To succeed, EuCheMS must be visible to the decision-makers, to other science groupings and to its member societies and their members. EuCheMS aims to provide added value to the member societies in order to ensure their involvement in developing the new strategy.

***Note:** The object of EuCheMS is to promote cooperation in Europe between those non-profit-making scientific and technical societies and professional institutions in the field of chemistry whose membership consists largely of individual qualified chemists/chemical scientists and whose interests include the science and/or practice of chemistry/chemical sciences. It was founded in 1970 and currently has 50 member societies in 36 countries.*

### **EuCheMS Executive**

EuCheMS has elected new members from Switzerland, Czech Republic, Turkey and Cyprus to serve on the Executive Committee. They are: -

**Dr Reto Battaglia** of the Swiss Chemical Society: he is Director of Migros Laboratories Swiss Quality Testing Services (SQTS) in Zurich which has specialised departments for general food chemistry, analysis of residues, additives and contaminants, genetically modified food and microbiology, and non-food products; he is a regular lecturer at the ETH Zurich.

**Professor Pavel Drasar** of the Czech Chemical Society: he is Professor at the Institute of Chemical Technology in Prague and his research interests include: chemistry of natural compounds, synthesis of steroid heterocycles, synthesis of supramolecular systems with natural compounds, computational chemistry, and prediction of observables; he is involved in the European Chemistry Thematic Network (ECTN)

**Professor Selahattin Gultekin** of the Chemical Society of Turkey: he is Vice Dean of the Faculty of Arts and Sciences at Dogus University in Istanbul and his research interests include: kinetics and catalysis, transport phenomena, mathematical modelling, electrochemical processes, and optimisation

**Professor Minos Leontidis** is a member of the Pancyprian Union of Chemists Associate. He is Vice-Chairman of the Department of Chemistry at the University of Cyprus and his research interests include colloid and interfacial chemistry, chemistry of materials, classical simulations of molecular systems.

The full list of the EuCheMS Executive Committee is on the web at <http://www.euchems.org>

### **The EuCheMS Award for Service**

This award has been made to Professor Jean-Marie Lehn in recognition of his significant contribution to European cooperation in chemical sciences.

Professor Jean-Marie Lehn is Chairman of the Scientific Advisory Committee for the 1<sup>st</sup> European Chemistry Congress, to be held on 27-31 August 2006 in Budapest <http://www.fecs-budapest2006.hu/> He was one of the sponsors of the first AllChemE publication *Chemistry: Europe and the future* [www.allcheme.org](http://www.allcheme.org)

Together with Donald Cram and Charles Pedersen, Jean-Marie Lehn received the 1987 Nobel Prize for Chemistry for the development and use of molecules with structure-specific interactions of high selectivity. He is an enthusiastic promoter of chemistry to young people, regularly giving lectures to pupils at high schools across France.

Jean-Marie Lehn is Director of the Supramolecular Chemistry Laboratory at the Institut de Science et d'Ingénierie Supramoléculaires, Université Louis Pasteur, Strasbourg, <http://www-isis.u-strasbg.fr/supra/> His scientific work, over twenty years with about 150 collaborators from over twenty countries, has been described in about 400 publications and review papers. Over the years he has been visiting Professor at other institutions, including ETH Zürich, the Universities of Cambridge, Barcelona and Frankfurt.

The EuCheMS President, Professor Gábor Náray-Szabó, will present the Award to Jean-Marie Lehn at the 10<sup>th</sup> Anniversary celebration of *Chemistry: A European Journal*, to be held in Strasbourg on Friday 15 April 2005.

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#### •LABORATORY PROFILE

No profile has been offered for this issue.

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#### · CONFERENCE REPORTS

##### **Workshop on nuclear education and training (E&T)**

A workshop was held at Manchester on the 11<sup>th</sup> and 12<sup>th</sup> January 2005 on the “Exchange of best practices amongst FP6 projects related to nuclear education and training (NEPTUNO, ENETRAP, MSCRB, EURAC and CETRAD).” It was chaired and introduced by Georges Van Goethem and followed the Neptuno Second Progress Meeting. Georges is a member of the Directorate:J, Energy at the EC and can be contacted by e-mail at [Georges.Van-goethem@cec.eu.int](mailto:Georges.Van-goethem@cec.eu.int)

It was clear from the introduction that education and training should be allied to specific research areas and aimed at supporting research and training in nuclear fission and radiation protection. All efforts should aim towards improvement in the nuclear “European Higher Education Area”. The European strategy is to ensure quality, mutual recognition and mobility of nuclear scientists. There is a requirement for the community to establish a strategy for nuclear “research and training” within the areas of waste management, radiation protection, innovation and current reactors.) Each project should establish how to produce training packages, how they should be disseminated and finally utilised by industry. The NEPTUNO project had developed the furthest in these aims and ENEN had been established to ensure common acceptance of qualifications, course material and standard of presentation. Whilst the projects could fund the need for E & T it was expected that the funding for ongoing E&T would be paid for by the relevant stakeholders, which could come from the public or private sections of industry. Those present were then invited to review the E&T component of their project.

NEPTUNO (Nuclear European Platform for Training and University Organisations). The presentation was by Joseph Safieh ([joseph.safieh@cea.fr](mailto:joseph.safieh@cea.fr)). The project had received finance through FP5 and FP6 and had completed reports on E&T needs for nuclear energy throughout the enlarged Europe. They were embarking on the full implementation of a European Master of Science in Nuclear Engineering. To ensure harmonised schemes for training and pilot courses a non-profit making association ENEN had been set up. The final aim is to have an operational network of masters, doctorates and post doctorates to maintain Europe’s excellence in Nuclear Technology permitting the safe use of nuclear energy and other uses of radiation in industry and medicine. It would also draft, edit and distribute textbooks for E&T.

ENEN (European Nuclear Education Network Association) by Joseph Safieh.

The association has been established by 14 Effective Members (Academic Institutions) and 4 Associated Members (Nuclear Research Centres, Government Institutes, Nuclear Co.’s, Regulatory Bodies and Nuclear Learning Society). It is a non-profit making organisation with a main aim to deliver the European Master of Science in Nuclear Engineering (EMSNE). Pilot courses are already underway and it is expected that 5 EMSNE will be granted during 2004/5. ENEN is unable to issue diploma’s but will grant a certificate in addition to the diploma (EMSNE) granted by the relevant Effective Member. Through its organisation based on a General Assembly of Members, Board of Directors and 5 working committees it is hoped to ensure mutual recognition of courses and awards throughout the EU. Besides the Masters course there will be continuous training programmes. The 5 committees are Teaching and Academic Affairs (Delivering EMSNE), Advanced Courses and Research (Link ENEN members and research in EU), Training and Industrial Projects (Continuous career training), Quality Assurance and Knowledge Management (Identify deficiencies).

ENETRAP (European Network on Education and Training in Radiological Protection) presented by Michèle Coeck ([mcoeck@sckcen.be](mailto:mcoeck@sckcen.be)). There is a requirement under Article 31 of EU Treaty for “qualified experts” in radiological protection. Currently there is a European Masters in Nuclear Technology at Grenoble and a European Radiological Protection Course (ERPC) for qualified expert status at INSTN, Saclay. It is felt that there is a need to harmonise the definition of “qualified expert” across the 25 member countries and to establish level and quality of education and training to meet the European Basic Safety Standards. To do this it is the aim of ENETRAP to establish a consortium of universities to establish a European Masters in Radiological Protection (EMRP) and to revise the current ERPC to include credit transfers and distance learning. The project expects to follow the pattern of NEPTUNO in using EUTERP (European Training and Education in Radiological Protection) to recognise courses and coordinate pilot sessions for training.

MSCRB (European Master of Science Course in Radiobiology) presented by Kevin Prise ([prise@gci.ac.uk](mailto:prise@gci.ac.uk)).

A 12-month MSCRB pilot course had been set up with 12 students who visited all 6 partners within the course during the year. The stated aim of the course is “To maintain and expand the expertise within Europe in the radiobiological basis of radiation protection and of radiation oncology and to produce experts with a sufficient breadth of knowledge in all areas of “classical” and molecular radiation biology.”

The course includes a 14-week research project, has external examiners and one academic institute grants the diploma (MSCRB). It is intended to develop the course to follow the Bologna Declaration.

In reply to a question from Georges Van Goethem it was stated that private companies and foundations, own money and student loans funded the current students.

EURAC (Securing European Radiological Protection and Radioecology Competence to meet the Future Needs of Stakeholders) presented by Nick Priest ([N.Priest@mdx.ac.uk](mailto:N.Priest@mdx.ac.uk)).

The project decided to concentrate on three areas namely radiological protection, radiochemistry and radioecology accepting that other areas had been covered by other projects. They established a series of tasks to perform an exercise to establish existing courses and the need for training by the stakeholders. Reports to be given in March/April 2005. Clearly some of the questionnaires to be circulated may overlap with other projects particularly RP. Agreement was reached to combine efforts and seek central recording of data available to all projects. It was recognised that 50% of EU countries did not have nuclear power but were interested in the topic areas. It was hoped to establish a core curriculum and consider a master’s degree. No title was proffered at this stage. Final report to be submitted to EU in October 2005. Georges Van Goethem stressed the need to identify stakeholders. It was to them that the final report should be directed seeking their support, including finance for future E&T.

CETRAD (Co-ordination Action on Education and Training in Radioactive Waste Management) presented by Marjatta Palmu 9 ([Marjatta.Palmu@posiva.fi](mailto:Marjatta.Palmu@posiva.fi)) initially and then Peter Cleall ([www.grc.cf.ac.uk](http://www.grc.cf.ac.uk)).

Project covered all long-lived waste from whatever source. Need to manage this waste and to ensure replacement of existing staff with adequately trained personnel. They intended to establish need for E&T and to review existing courses. They posed an unanswered question “What is the driving force behind project?” Is it Regulation? The project will terminate with a final Workshop on 9/10 March in Prague. It was envisaged that each country with requirement waste disposal would need 60 specialists. There are modules on Radioactive Waste Management in many general courses but these are often infrequent. The project identified E&T to include MSc & PhD programmes to supply specialists in RWM and “Continuing Professional Development” courses. I.e. Specific courses / modules to provide training during professionals career to build specialist expertise. It was felt that Countries with “young” programmes were generally keen to have common framework for provision. A European Masters through ENEN will be considered.

EUTERP (European Training and Education in Radiological Protection Platform)

In 1998 a basic syllabus was prepared by Art 31 Expert Group and in 2000 a group of RP Societies recommended to start working on requirements for mutual recognition of RPEs (Radiological Protection Experts). A survey showed that the status of the RPE in the EU and Applicant Countries was varied and had a wide range of training systems. The Art 31 Expert Group recognised that the mobility of RPEs needs to be facilitated and advised the Commission to initiate the establishment of a European Platform on Training and Education in Radiation Protection.

The Objectives of the EUTERP Platform are to better integrate education and training into occupational RP infrastructures in the EU, to facilitate the transnational access to vocational education and training infrastructures, to harmonise the criteria and qualifications for and mutual recognition of RP Experts and to remove obstacles for the mobility of these experts within the EU. EUTERP will cover all Member States and Applicant Countries encouraging participation of National RP authorities, National bodies responsible for E&T, providers of E&T in RP, professional organisations, International organisations and associations and operators and employers. It is likely to be constituted on the lines of ENEN and to restrict the number of participants to 2 per country and one per international organisation. A coordinator and coordination board will be established in 2005.

PETRUS (Program for Education, training and Research on Underground Storage) presented by Behrooz Bazargan-Sabet ([B.Bazargan-Sabet@brgm.fr](mailto:B.Bazargan-Sabet@brgm.fr)). Currently it takes one whole year to give students basic knowledge to allow them to undertake PhD in radwaste. Aim is to educate students and train engineers/workers. Subjects for courses will be identified and educational program will seek “labelling” by ENEN. A question was asked with regard for the need of specific educational courses in such a limited topic.

MSc in Radioactive and Hazardous Waste presented by Kurt Mengel ([kurt.mengel@tu-clausthal.de](mailto:kurt.mengel@tu-clausthal.de)) and Sven Hardersen ([Sven.hardersen@tu-clausthal.de](mailto:Sven.hardersen@tu-clausthal.de)). They described a pilot course that was already operational. Clearly it could meet some of the needs of PETRUS and CETRAD and would be recommended to both. Course involved teaching at several universities and used live Internet connections for lectures and distance learning. There was discussion on copyright of material placed on the web and the accessibility to e-learning packages.

BNEN (Belgium Nuclear Education Network)

5 Belgium Universities cooperated to run a 1-year course. Modules include nuclear fuel cycle, applied radiochemistry, radiological protection and nuclear measurements. As students are pooled the numbers on course are greater. Teaching resource can come from any of the participating universities hence leaving staff more time for research. They have found that Euro mobility grants can be obtained even though travel is in one country.

EuCheMS WP on Nuclear and Radiochemistry presented by Tony Ware (tonyware@compuserve.com).

Many of the projects discussed previously had a requirement for E&T in radiochemistry. The WP could help in establishing a specific project to determine the content of a radiochemistry module. This would be coordinated by one of the leading European Universities. During 2005 EuCheMS will become a legal entity and as such the WP will also be a legal body. The WD consists of representatives nominated by any of the Chemical Societies and Associations affiliated to EuCheMS. It also has associate members of relevant national and international bodies.

Its current activities are to extend and improve communication between radiochemists in Europe through a Newsletter, to maintain a diary of relevant international events, to set up an inventory of specialist equipment, facilities, and methodology and to put together a syllabus of radiochemistry for undergraduate and post-graduate students. Discussions have also been held with the FP6 projects to evaluate the contribution that the WP can make.

#### SUMMARY of DISCUSSION

All projects need to consider difference between education and training. During the meeting some 6-8 existing or potential Masters courses were mentioned but little about training.

Consideration should be given to a single database for course identification and content. This to cover Radwaste, nuclear power, radioecology and radiological protection.

CETRAD felt that it should join ENEN and link in with radiochemistry in the future. ENEN was prepared to receive applications given details of any courses/modules relevant to all the project areas. This could include RP and radiochemistry but reluctant to include nuclear medicine at this time.

ENETRAP wished to retain separation of RP (with the establishment of EUTERP) and ENEN. There is an overlap between many of the suggested Masters courses and exchange of modules should be encouraged.

EU representative stressed the need for support from stakeholders particularly with regard to finance. He also asked who would recognise the qualifications.

EURAC need to collaborate with NEPTUNO and offer course components to ENEN. They confirmed difficulties with regard to credit systems, language, financial structures etc and will consider regional solutions to E&T rather than Europe wide. (See example of BNEN)

It was still considered necessary for the EU to provide finance to "oil the wheels."

Those present realised that no decisions could be made but did express a wish to hold a similar meeting again.

(Reviewer: tonyware@compuserve.com)

#### **Workshop "The Radiometric Surveillance of Tap Waters"**

Under the terms of Directive 98/83/EC, European Community Member States should define appropriate surveillance programs to assess the actual level of total indicative dose of water intended for human consumption. Proper monitoring strategies should therefore be defined. Sampling points, monitoring frequencies and analytical methods must be chosen; results of the monitoring programs should be properly analysed.

In order to give useful hints to all those in charge of assessing compliance with Directive 98/83/CE, the Environmental Protection Agency of Lombardia (ARPA Lombardia) organised a workshop on "The Radiometric Surveillance of Tap Waters". The workshop was held in Milano October the 12<sup>th</sup>.

Some relevant aspects of the following topics have been treated:

- Present international documents and guidelines
- Network and strategies for the surveillance of public water supplies
- Methods and results of the radiological monitoring of tap waters in Lombardia
- Analytical methods, both for normal and for emergency situations (standard methods, liquid scintillation counting based procedures, ICP-MS applications)
- Hydrogeology and radioisotopes
- Quality assurance and statistical treatment of analytical data

Lessons have been held by researchers of ARPA Lombardia, University and Polytechnic of Milano, National Institute for Health (ISS), Lombardia Health Agency, National Research Council (CNR). In the morning all general aspects were discussed. The afternoon was devoted to technical problems such as radiochemical and measurement techniques, evaluation and treatment of experimental data, emergency procedures.

More than 250 people, from all over Italy, attended the workshop. During the final discussion many participants expressed their satisfaction for the very "practical tone" of the meeting and for the consideration given to some usually neglected problems, such as the complete evaluation of analytical uncertainties.

Clearly emerged the necessity of a stronger cooperation, both on national level (comparison of screening programmes, proper intercalibration exercises) and international one. It would be very useful to exchange opinions, data, monitoring criteria within EU researchers in this field.

Proceedings (summary and pps presentations will be soon available on ARPA Lombardia website ([www.arpalombardia.it](http://www.arpalombardia.it)).

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## · CONFERENCE AND WORKSHOP DETAILS

### **7<sup>th</sup> International Conference Actinides 2005**

Conference to be held 4<sup>th</sup> – 8<sup>th</sup> July in Oxford, England. This conference brings together researchers in the physics and chemistry of the actinides and superheavy elements. Topics will include actinide materials science; fundamental chemistry and physics; environmental science and nuclear fuel processing. The conference will comprise plenary lectures across all these disciplines given by leaders in the field, plus invited and contributed presentations, the latter in both oral and poster formats.

### **LSC 2005 17 – 21 October 2005**

It is with great pleasure that the Central Mining Institute welcomes you to attend LSC 2005 Conference. It will be organized in Katowice, a capital city of Upper Silesia, Poland. The meeting will be held in October, 17<sup>th</sup> – 21<sup>st</sup> 2005. Come join us to present your achievements, to learn the latest developments of our colleagues and to enjoy the traditional hospitality of Polish people.

The main goal of the Conference is to provide a forum for all scientists, working in areas related to Liquid Scintillation Counting and Spectrometry (LSC). One of the objectives of the Conference is to enable and promote the exchange of information among scientists, develop future directions in LSC and give the opportunity to meet old and new friends. We would like to pay particular emphasis on the environmental studies and applications and the participation of young scientists.

Contact - Secretary of the Conference: Malgorzata Wysocka (+48-32) 2592382, fax (+48-32) 2585979  
[lsc@gig.katowice.pl](mailto:lsc@gig.katowice.pl) (preferably), [m.wysocka@gig.katowice.pl](mailto:m.wysocka@gig.katowice.pl),

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## •NEWS FROM THE INTERNET

### **IAEA PUBLICATION ON ANALYTICAL APPLICATIONS OF NUCLEAR TECHNIQUES**

The IAEA has compiled this new overview of current applications of nuclear analytical techniques with the assistance of more than 50 international experts. The contributions describe a variety of nuclear techniques and applications, such as those in the fields of environment and health, industrial processes, non-destructive testing, forensic and archaeological investigations, cosmochemistry and method validation.

The techniques covered range from classical instrumental neutron activation analysis (INAA), its radiochemical derivative RNAA, in-beam methods such as prompt gamma neutron activation analysis (PGNAA) and accelerator mass spectrometry (AMS), to X ray fluorescence (XRF) and proton induced X ray emission (PIXE) spectroscopy. Isotopic techniques to investigate elemental behaviour in biology and medicine, and also to validate other non-nuclear analytical techniques, are also described. Destructive and non-destructive approaches are presented, along with their use to investigate very small and very large samples, archaeological samples and extraterrestrial samples.

Several nuclear analytical applications in industry are described that have considerable socioeconomic impact wherever they can be implemented.

This IAEA publication is presented to the nuclear community, non-nuclear scientists, politicians, journalists, decision makers and students as a basis for them to critically assess the potential of nuclear techniques to benefit human development, to contribute to the needs of our society, and to help in solving some particular questions that might otherwise be difficult to attack. The publication may be ordered from the IAEA at a cost of 25 Euros (ref: STI/PUB/1181 (2004); ISBN 92-0-114703-1).

It may also be downloaded cost-free as a PDF file (2.7 MB) from the IAEA's website by means of a right mouse-click on the following link: [http://www-pub.iaea.org/MTCD/publications/PDF/Pub1181\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1181_web.pdf)

### **IAEA k-0 SOFTWARE PACKAGE**

A brand-new program for k-0 INAA has been prepared for free distribution by the IAEA, and is now available on request. The program calculates elemental concentrations from observed peak areas. To this end, it allows for the determination of the efficiency curve of the detector used, as well as for the characterisation of

the neutron spectrum the samples are irradiated with. The program performs blank correction and compares the results obtained for reference materials to the certified concentrations. The program will convert the efficiency determined by a calibration source to the efficiency required for a sample counting geometry by a Monte Carlo solid-angle approach. The program can determine the neutron spectrum parameters from any suitable combination of materials. It takes threshold reactions and uranium fission into account. The program is now available on request from the IAEA together with a set of calibration standards (Al-Au wire, Al-Lu wire, zirconium foil, nickel foil, etc.). **For more information, please contact Matthias Rossbach at the IAEA ( [m.rossbach@iaea.org](mailto:m.rossbach@iaea.org) \*)**

#### IAEA Research Project

A new CRP (coordinated research project) on "Art object identification using nuclear analytical techniques" has been launched and a first coordination meeting will be held in Damascus, Syria, 20-24 February 2005. Eleven research contract holders and 4 research agreement holders participate in this CRP. Historical artefacts and art objects are traded worldwide and represent a potential source of income to many developing countries. Certificates of authenticity based

on analytical results can enhance the market value and customer trust. Portable XRF instruments for rapid screening analysis are already available and have been demonstrated to be useful in analysis of paintings and small artefacts. Laboratory based techniques such as PIXE and INAA have been applied non-destructively to investigate the provenience of archaeological objects as well as neutron radiography was used to determine different layers of precious paintings. Preservation and restoration of museum objects as well as provenance studies profit from non-destructive element analysis. Nuclear techniques will be applied to art objects to demonstrate their suitability for authenticity studies of national heritage. This CRP will bring together experts from the relevant sectors to investigate possible expansions of existing technology to the field of art object identification on the basis of on-line trace analysis. Calibration tools and reference data will be collected for fieldwork to facilitate early identification of fakes and wrongly declared precious objects. The results of this CRP will be provided to Member States for preservation of national heritage and secure legal enforcement. A TECDOC should be published in 2008

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**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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