



# *International Union of Pure and Applied Chemistry*

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Analytical Chemistry Division:

Commission on Radiochemistry and Nuclear Techniques (V.7)

The even-year meeting of members  
of IUPAC Commission V.7  
in Pontresina, Switzerland,  
September 3, 2000

## MINUTES OF THE MEETING

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Attendance (14 persons): V. Kolotov (Chairman), P. Benes (Secretary), Chifang Chai, H.W. Gaggeler, J.V. Kratz, , Carol H. Collins, F. de Corte, J.J. de Goeij, Y. Nagame, A.R. Ware (arrived later), S. Yates, F. Macasek, S. Nagy, A. Vertes

Excuses: P. Vitorge, B.F. Myasoedov

Absent: N.E. Holden, Nak Bae Kim, J.M. Peixoto de Cabral, A. Plonka, A.V.R. Reddy, C. Testa

1. The meeting was opened at 10 a.m. by the Chairman of the Commission, V. Kolotov. He welcomed particularly the new members of the Commission, four of whom were present at the Commission meeting for the first time. The floor was then given to all present members who introduced themselves by a brief description of their current position and interests and, if applicable, a history of their work in IUPAC.
2. The Commission unanimously accepted the following Agenda, whose proposal had been distributed electronically prior to the meeting:

### **A g e n d a**

1. **Discussion and acceptance of agenda.**
2. **Approval of the last meeting Minutes.**
3. **Information on the Division V meeting held in May, 2000.**
4. **Radiochemistry and nuclear techniques in the future IUPAC activity in the frame of the project driven system, the role and composition of a corresponding advisory group (discussion).**
5. **Reviewing of the current status of the running projects.**
6. **Initiation of new projects in the field of radiochemistry and nuclear methods.**
7. **Information on the development of RADSITE project.**
8. **Miscellaneous.**
9. **Summary of the meeting and its closing.**

3. **Approval of the last meeting minutes**

Minutes of the last Commission meeting in Berlin (August 8-10, 1999) were approved. The Minutes were first distributed electronically in December, 1999, and after some amendments, particularly by C. Collins, they were placed on the Commission's web site.

#### **4. Information on the Division V meeting held in May, 2000**

V. Kolotov reported on the Analytical Division Committee (Commission Chairs) meeting held in Manchester, May 6 and 7, 2000 (Minutes of the meeting can be found on IUPAC web site). He highlighted particularly the aspects most important for the Commission:

A) The meeting resolved that the Division should promote the establishment of a world-wide index of "active analytical chemists". This index would assist in identifying possible contributors and reviewers for the future IUPAC projects. It is not quite clear who will be asked by IUPAC to supply the necessary information, in the Minutes of the Division meeting databases of National Adhering Organisations (NAO) are mentioned in this connection. The Commission came to the conclusion that the Commission members will have to be involved in the process anyway and it was therefore recommended that its members initiate preparation of the list of active nuclear- and radiochemists in their respective countries. This can be preferably done in collaboration with their NAOs or nuclear chemistry groups of their national chemical societies. The lists should be sent in electronic form to the chairman or secretary of the Commission and should include: name, affiliation and address (web site?), field of expertise/interests. If possible, the lists should be ready before the next Commission meeting at IUPAC General Assembly in Brisbane (end of June, 2001). The establishment of the world-wide index of nuclear- and radiochemists is important for the future representation of nuclear- and radiochemistry within IUPAC.

B) The meeting identified a number of improvements that could be made to the Project Submission Form. These are specified in detail in the Minutes and were communicated to the IUPAC Secretariat. The members are recommended to consider the improvements when preparing new projects.

It was also proposed that for Division V:

(a) Two types of project will be considered: those with a zero budget and those requesting funding.

(b) Project submissions for funding will be assessed twice each year; the 'closing dates' will be published on the web.

(c) There will be three categories of funded project: small (funding up to ca. \$3,000), large (funding up to ca. \$8-10,000) and above \$10,000 (requiring referral to the Program Committee).

(d) Projects will be ranked in each funding period to determine those that will be funded.

Further changes will be made to the Flowchart of project management. These, as well as the procedure for submission of new projects, are described in the Minutes of the Division Meeting.

C) In the discussion of current projects, the meeting determined that projects with poor prospects for completion must be terminated at or before the Brisbane GA. It adopted the following criteria: any approved Commission-based project (with project number) for which a draft has not been circulated for Commission review before the Brisbane GA meeting will be terminated by the Division. It is the intention that any draft be fully reviewed by the Commission before the GA so that informed debate on the continuation or termination of each project can occur. For projects that are to continue beyond the 2001 GA a new project submission will be required; such applications will be fast-tracked by the Division.

Commission chairs will be asked for a report on all projects prior to the Brisbane GA. These will be discussed at the meeting of the Division Committee prior to Commission meetings in Brisbane.

D) The meeting agreed on its proposal for Division membership, which assumed an executive of four (President, Vice-president, Past President and Secretary) plus 8 TM. A transition period (2002-2003) with 11 TM (including 8 present Commission Chairs) was envisaged by the meeting, but this does not seem to be acceptable to IUPAC, according to recent news.

## **5. Radiochemistry and nuclear techniques in the future IUPAC activity in the frame of the project driven system, the role and composition of a corresponding advisory group (discussion)**

Several members expressed their concern about representation of our field on the Division Committee (DC). J.V. Kratz mentioned that the absence of our representative on the DC would result in a decreased participation of radiochemists in IUPAC activities. His opinion was supported by S. Yates who pointed to an example from USA, where the absence of radiochemists on the Research Council strongly undermined the position of radiochemistry in competition for research grants, etc. C. Collins proposed that the members of DC executive should also represent their own fields and the remaining TM positions should be distributed among other fields (covered by former Commissions). She asked about the mechanism of election of the DC members. Kolotov explained that the mechanism was generally proposed by the DC but details are neither clear nor accepted. He stressed the special role and position of radiochemistry in the Division and its interdivisional character. This should be repeated again in a letter to the Division with the aim to strengthen our position in the election of our representative as TM and in establishing a suitable Advisory Group. It was agreed that Collins and Ware will modify the Recommendation to ACD written at our Berlin meeting (see the Minutes from that meeting) and prepare a letter to ACD, which will be sent after approval by our members. Benes suggested to support their action by the proposal of new projects, as the coordinators of the future projects will probably have significant influence in the formulation of Division activities. He also suggested that the Commission propose names of our representative to DC and of 3-4 members of his Advisory Group (AG). This latter suggestion was opposed by C. Collins, who thought that the AG should be larger to have broader expertise. The work of the AG can be carried out through electronic communications and through occasional meetings during topical conferences.

H. Gaggeler commented that the long procedure of project evaluation by IUPAC retards publication of the results thus diminishing their value. V. Kolotov and P. Benes replied that simplification and shortening of the procedures is planned. C. Collins noted that nomenclature projects should be treated in a different way than other projects.

## **6. Review of the current status of the running projects**

Project 12/89 – completed, submitted for publication in PAC.

Project 13/89 – available on internet, not yet approved by the Nomenclature Committee, must be published in PAC.

Project 15/91 – completed, published in PAC.

Project 18/93 – completed, transmitted to PAC, step 14 of the Flowchart.

Project 19/93 – running, extended till 2001, step 8 of the Flowchart.

Project 21/93 – running, soon will be finished, step 8.

Project 22/93 – transmitted to ACD, step 13.

Project 24/95 – reviewed, step 12.

Project 26/98 – running, expected completion in 2000, step 7.

Project 27/98 – project is delayed and will not be ready for review before Brisbane GA meeting as required by ACD (see above). Thus the project will be cancelled (terminated by ACD). The coordinator was asked by the Commission to consider restarting the project under the new system (see below).

## **7. Initiation of new projects in the field of radiochemistry and nuclear methods**

Several members of the Commission suggested that the topics covered by the cancelled project 27/98 (see above) should form the basis for a new project dealing with the effect of humic substances on the speciation and migration of radionuclides in the environment. Benes, who was coordinator of the cancelled project, noted that he found the scope of the topics included in the project too broad for a report acceptable for publication in PAC. In the ensuing discussion it was suggested that the topic be divided into two or three projects such as: database of (equilibrium and kinetic) parameters characterizing the complexation of radionuclides with humic substances; modelling of the effect of humic substances on the interaction of radionuclides with natural solid surfaces; and the migration of radionuclides in surface/ground waters. Gaggeler and Kratz proposed that contributors to the projects should be sought among participants of the MIGRATION'01 conference scheduled for September, 2001. Yates suggested Prof. G. Choppin and Dr. Sue B. Clark as possible contributors from USA. Benes commented that the proposed topics overlap to some extent with the database being prepared by NEA and with the project considered by P. Vitorge and discussed in two preceding meetings of our Commission. He promised to discuss the possibility of preparing the new project(s) with potential contributors.

Concerning the project dealing with methodology of prediction of radionuclides migration in the environment earlier proposed by P. Vitorge (absent), it was stated that no project initiation form had yet been submitted. Benes was asked to contact Vitorge in this respect.

J.J. de Goeij reported on the preparation of the proposal for his project dealing with nomenclature for production of radionuclides and radiopharmaceuticals. He was waiting for promised suggestions of suitable contributors. The following contributors were suggested at the meeting: H.H. Coenen, F. Rösch (by Kratz), Dr. K.Kopicka from the Institute of Nuclear Physics, Czech Academy of Sciences, Rez near Prague, Dr. L. Leseticky, Dept. of Organic and Nuclear Chemistry, Charles University, Prague (by Benes) and Prof. Schreiber, Brookhaven (by Macasek). Yates will find somebody from USA. De Goeij will contact these people and prepare the proposal according to the new rules specified in Chemistry International, 1999, Vol.21, No.1, pp.8-12 or at the IUPAC web site. Collins commented that some relevant nomenclature is already contained in the Orange Book of IUPAC and in the Nomenclature for Isotopes, Nuclear and Radioanalytical Chemistry prepared by Prof. Karol (Project No.13/89). The new project should consider these documents and avoid contradiction with them.

Ch. Chai distributed at the meeting a draft proposal for the new project entitled “Speciation Study of Essential and Toxic Elements by Nuclear Analytical Techniques”. The proposal also contained comparison of nuclear and non-nuclear analytical techniques for speciation study. The proposal was accepted after a broad discussion (de Goeij, Collins, Benes, Kolotov, Macasek, Yates). Chai will prepare a project proposal form, where he will also specify the co-authors and timetable, missing in the draft.

No proposal was obtained as yet for the project on QA in radiochemical analysis (Ware) and its contributors from USA (Holden), discussed at the previous meeting in Berlin. The opinion was expressed by Kratz that QA is not so important from the scientific point of view. This view was contradicted by Macasek, who spoke about the importance of QA in isotope dilution and neutron activation analysis and mentioned a similar project of IAEA. His comment was supported by de Goeij, who proposed Dr. P. Bode for collaboration on the project. Ware, who came later to the meeting, promised to further follow the idea.

No proposals were obtained for two other possible projects discussed in Berlin (Myasoedov and Holden, both absent). Kolotov will contact the authors.

The last potential project discussed was on nuclear dating. Kratz reported that his colleague, Dr. Michel, was not prepared to become the coordinator. Gaggeler presented several arguments for the importance of such project, but he himself could not work on the project due to a heavy load of other work. Kratz will try again to convince Dr. Michel. Fortunately this was done later (during the Conference), a formal agreement from Dr. Michel was received, and the standard documents needed for initiation of a new project were given to him.

## **8. Information on the development of RADSITE project**

The information was presented by P. Benes, who recalled the basic aims of the SCOPE-RADSITE project which are to review and inventory the radioactive wastes generated in the development of nuclear weapons, to assess subsequent and potential radioactive releases into the environment and to assess associated potential risks to the environment and population health. Because the information sought in the RADSITE project was found interesting for the work of IUPAC, namely for the development of knowledge of the presence and chemical behaviour of radionuclides in the environment, and because the studies, realised and planned by IUPAC on environmental migration of radionuclides, were deemed potentially beneficial for the assessment of radioactive releases into the environment, planned in RADSITE, two observers from IUPAC (Benes and Myasoedov) were nominated to the RADSITE Steering Committee in 1998. In 1999, the Final Report of the Preparatory Phase of the RADSITE Project and Work Plan for 1999-2002 were approved. The Work Plan assumes the work of 50 source specialists, operating in four regional teams or branches: Europe, Former Soviet Union (FSU), USA and Asia (China, India and Japan). Each branch includes recognised experts in the areas of source term, environmental pathway assessment, radiation dose estimation, radiation health effects, environmental impacts and remediation/countermeasures.

Organised in Working Groups, branch experts for each of the above-mentioned topics will co-operate and meet during the project to share information and experience. These specialised working groups will also attempt to develop a common, scientifically based set of assessment tools, comparison models and critical parametric evaluations.

Benes informed on the progress in the work of RADSITE, described in the first progress report from January, 2000. The work in the branches started with selection of experts and of the contaminated sites to be studied. Some problems relate to the financing of the work, which was not secured for all the branches (USA and Asia) in January. Several meetings have been planned for 2000 and 2001, the largest one is the International Conference on Radiation Legacy of 20th Century: Environmental Restoration, to be held in Moscow, 30 October to 3 November, 2000.

The Commission discussed participation of IUPAC observers in RADSITE. Myasoedov participated at the initial workshop of RADSITE in Brussels (1998) and is actively involved in the work of FSU Branch. Benes is continuously informed about the progress of RADSITE but

did not participate at its meetings as yet. It was proposed that he might help in evaluation of the data to be collected and serve as an outside reviewer of some documents that may be produced by RADSITE.

## **9. Miscellaneous**

Collins expressed her opinion that it is discouraging that Prof. Karol's project is on hold for 6 years. Kolotov responded that he has urged the IUPAC Secretariat to solve the problem and that he will continue to do so.

## **10. Closing of the meeting**

Chairman of the Commission, V. Kolotov, thanked all present members for their contribution to constructive discussions at the meeting and closed the meeting at 3.30 p.m.

V.Kolotov, Chairman

P.Benes, Secretary



During the NRC5 Conference after the V-7 meeting, a draft of the Commission's letter to ACD, prepared by Collins and Ware, was circulated among the members of the Commission and after minor corrections it was approved. Its text follows:

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LETTER FROM THE IUPAC COMMISSION ON RADIOCHEMISTRY AND NUCLEAR TECHNIQUES (V-7) TO THE ANALYTICAL CHEMISTRY DIVISION, APPROVED BY 14 ATTENDEES DURING THE EVEN-YEAR MEETING AT PONTRESINA, CH, ON 03 SEPTEMBER 2000

*In consideration of the important changes taking place in the overall structure of IUPAC, the Commission on Radiochemistry and Nuclear Techniques considers it crucial that the Analytical Chemistry Division has a titular member with substantial expertise in the nuclear and radiochemistry area. The ACD should also have titular members who represent the other important topics presently covered by the diverse commissions that make up the ACD.*

*These titular members should have access to widely based advisory committees who can act in an advisory capacity to aid in analyzing new projects, in selecting project leaders and participants in new projects and in acting as catalysts for the submission of new project proposals. It is anticipated that the work of these advisory committees would be carried out through electronic communications, with occasional meetings during appropriate topical conferences and thus should not be limited in number of members.*

*Since problems involving radionuclides and nuclear processes, in their widest sense, may be encountered in all fields of chemistry, the advisory committee on radiochemistry and nuclear techniques could also offer support for assessing projects for other divisions.*

*These suggestions, for the presence of a titular member on the ACD and for the institution of a related advisory committee, are justified, in the case of the subject area of Radiochemistry and Nuclear Techniques, by the increasing interest in these areas in recent years, principally through the growing use of radiotracers in organic and medicinal chemistry, the problems related to the nuclear fuel cycle and nuclear waste management, the presence of natural and man-made nuclides in the environment, and the search for and production of new chemical elements. Projects related to these topics should represent an ongoing effort of IUPAC and the Analytical Chemistry Division.*

*At this time, mention should be made of the following general topics which merit consideration as projects to be developed: radioecology (the study of artificial and natural radionuclides in the environment, including their speciation); radiochemistry related to nuclear power technology from mining through the entire nuclear fuel cycle to waste processing, including the geochemical aspects of waste storage or disposal; chemical aspects of remediation of polluted areas; application of isotopes, including radionuclides in chemical and biochemical investigation and the use of radioisotopes in medical diagnosis and therapy; radiation chemistry and radiation effects; and application of nuclear analytical techniques.*