



**IUPAC Division VI  
Chemistry and the Environment (DCE)**

Division Meeting 28<sup>th</sup>-29<sup>th</sup> May 2016

The Royal Society of Chemistry,  
Burlington House, London, UK



# Minutes

## Confirmed Division and Subcommittee Member Attendees

Prof. Petr Fedotov (PF) – Division President and meeting chair  
Prof. Rai Kookana (RK) – Division Vice President  
Dr Laura McConnell (LM) – Division Past President  
Prof Hemda Garelick (HG) – Division Secretary  
Dr Heinz Rüdell (HR) – TM – Subcommittee Co-Chair  
Prof. Baoshan Xing (BX) – TM - Subcommittee Co-Chair  
Dr. John Unsworth (JU) – TM - Subcommittee Chair  
Dr. Gijs Kleter (JK) – AM - Subcommittee Secretary- by GotoMeeting  
Prof. Manos Dassenakis (MD) – TM  
Prof. Philippe Garrigues (PG) – TM  
Prof. Roberto Terzano (RT) – AM  
Prof. Edgar Resto- (ER) - NR  
Prof. Ana Aguiar-Ricardo (AAR) - NR

Dr Peter Kearns- OECD

Dr Diane Purchase

Dr. Jian Zhao

## Apologies received:

Dr. Bradley Miller - AM  
Dr. Stefka Tepavitcharova.- AM  
Prof. Guibin Jiang - AM  
Dr. Nelly Mañay - NR  
Prof. Yong-Chien Ling - NR  
Dr. Pradeep Kumar - NR  
Prof. Doo Soo Chung - NR  
Dr. Annemieke Farenhorst – NR  
Dr. Luke Chimuka – NR  
Prof. Nadia Kandile (NK) – AM  
Dr. Mohammad Din (MoD) – NR  
Dr. Anna-Lea Rantalainen- (ALR)  
Prof. Irina V. Perminova (IP) – TM

## Saturday May 28, 2016

### 1. MORNING SESSION – CURRENT STATUS AND ACTIVITIES - 09:00 – 12:00

- 1.1 Opening, welcome, members attending, introductions of new members, apologies –  
*Petr Fedotov (PF) and Hemda Garelick (HG)*

Members introduced themselves, their position, scientific activities and IUPAC project involvement (Appendix 1)

- 1.2 Overview of IUPAC, New Strategic Plan, Division Status – *PF*  
PF has introduced the IUPAC strategic plan (Appendix 2)

- 1.3 Outcomes of Bureau Meeting (April 2016, Montreal, Canada),
- *PF and HG* strategy for interdivisional/committee cooperation.
  - The creation of a new interdivisional sub-committee of Green and sustainable Chemistry was reported and PF has raised the need for cooperation with them.
  - RK suggested opening our project to other divisions

- 1.4 The new IUPAC website  
*PF and HG presented the new website on [www.IUPAC.org](http://www.IUPAC.org).*

- 1.5 Short reports from Division VI representatives on Standing Committees, sub-committees and other Divisions

- CHEMRAWN: Nadia Kandile- TM  
The important topics discussed in the meeting are:
  1. The prize on Green and Atmospheric Chemistry was awarded for the third time
  2. Conferences under development
    - i. Herbal Medicines
    - ii. Urban Solid Waste Management
    - iii. Green Catalysis
  3. Conferences under consideration  
Discussion of projects for new conferences.
- Committee on Chemistry and Industry (COCI) – *Hemda Garelick* (DCE Rep)  
HG reported on the meeting that have taken place in April in Montreal  
There is much interest in collaborating with our Div on projects.  
Anna Makarova presented her collaboration with SAICHEM which provided the scope for the Division involvement on chemical safety projects.
- Committee on Chemical Education (CCE) – *Manos Dassiankis* (DCE Rep);

- Starting from Jan 1, 2016, Prof. Dr. Mustafa Sözbilir from Turkey is CCE chairman. Mustafa has been serving for CCE as a TM for several years.
- The 24th ICCE (International Conference on Chemical Education), the biannual conference of CCE, is organised by Malaysian Chemical Society during August 15-20 in Kuching, Malaysia.

According to organisers, it shall be at forum for presentations of research findings or innovations in science education to science educators, education practitioners and decision makers from all over the world.

I shall not attend this Conference but I shall try to inform you about the abstracts, presentations etc that are relative to our Division

- Two of the very recent interdivisional project proposals that shall be probably funded may lead to collaboration between CCE and DCE. Their titles are:
  - Water4life - Global map of water quality and technologies- Task group chairs : Muhammad Akhyar Farrukh , Jean-Francois Masson, Luisa Whittaker-Brooks, Rajesh Pandit, Tae Hwan
  - Water Narratives: Providing Resources for Cleaner Water for All. Task group chair: Suri Iyer, Georgia State University

Prof. Rai Kookana and me shall help for the success of these projects

- Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS) – *Petr Fedotov* (DCE Rep)  
As a Representative of Chemistry and the Environment Division to ICTNS, in 2015-2016 Petr Fedotov has been asked to review a few technical reports submitted for publication in Pure and Applied Chemistry.

**In general**, it seems reasonable if Division VI finds possibilities to collaborate more actively with ICNTS. Such a joint work may promote elaborating comprehensive interdisciplinary approaches to terminology that is used in different fields. This may help to avoid numerous mutual misunderstandings that often occur until now. Besides, ICTNS has agreed to make preliminary comments on Divisions VI materials to be submitted to IUPAC.

- Pure and Applied Chemistry Editorial Advisory Board (PAC-EAB) – *Laura McConnell* (DCE Rep).
- Interdivisional Subcommittee on Materials Chemistry – Need to identify representative - *Rai Kookana* (DCE Rep)
- Division VII Chemistry and Human Health Division – *Bradley Miller* (DCE Rep) –
- ISMC Materials subcommittee – *Rai Kookana* (DCE Rep) –

RK attended the meeting of this committee in Busan in 2015. The two developments that were identified relevant to our Division were:

- New website for the Materials subcommittee is being developed. Our division members may be able to contribute materials or links to their website – Environment tab. I have not been able to find the link to the new website.
- A workshop to be organized in Sao Paulo in 2017. I have checked the latest on this from the president of the committee, Dr Chris Ober. He has informed the following to me; essentially more details are awaited on this. It will be good for our division to get involved. I will keep everyone informed.
- *“When we figure out how that will work, then I will work to further the workshop between divisions to be organized by the ISMC. I plan to follow up on this in the next couple of months. What I imagine is a meeting between divisions where each division provides some thoughts about where materials fit into each division and then we hold a discussion about how to best make use of that. At the same time a new interdivisional organization related to sustainability and green chemistry is being formed and this might also play a role.”*

1.6 Short Subcommittee Report - Chemical and Biophysical Processes in the Environment –*Heinz Rüdell and Baoshan Xing*

(Appendix 3)

1.7 Short Subcommittee Report - Subcommittee on Crop Protection Chemistry – *John Unsworth*

(Appendix 3b)

1.8 Current projects. Review of progress reports. Status/Needs/Accomplishments.

- 2011-060-1-600 (*Rüdel*) Consideration of bioavailability of metals/metal compounds in the aquatic environment

HR reported on the good progress .

Rüdel H, Díaz Muñoz C, Garelick H, Kandile NG, Miller BW, Pantoja Munoz L, Peijnenburg WJ, Purchase D, Shevah Y, van Sprang P, Vijver M, Vink JP  
 Environ Sci Pollut Res Int (2015) 22, 7405-7421

Website established [www.metal-bioavailability.org](http://www.metal-bioavailability.org).

- 2012-018-5-600 (Parker) - DEVELOPMENT OF IUPAC GOOD MODELING PRACTICE (GMP) GUIDELINES FOR PESTICIDE AQUATIC ECOLOGICAL EXPOSURE ASSESSMENT AND RISK MANAGEMENT.

- 2013-024-2-600 (Molyneux) – RECOMMENDED METHODS FOR THE STRUCTURAL IDENTIFICATION OF BIOLOGICALLY ACTIVE COMPOUNDS IN FOOD AND FLAVOR CHEMISTRY.

*LM has asked for update which was received on 15-6-2016*

a draft of the document on Compound Identification and Characterization in Food Chemistry is almost completed, using the input that members of the task group have contributed on individual spectroscopic and spectrometric techniques (for which, much thanks A draft to the team shortly for comments and/or corrections.

Project members may attend the upcoming ACS Meeting in Philadelphia (August 21-25, 2016) would be a good opportunity for those attending to meet.

- .2013-029-2-600 (Kleter) – INVENTORY OF DEVELOPMENTS IN THE FIELD OF RNAI-BASED PESTICIDES AND POTENTIAL NEEDS FOR INTERNATIONAL HARMONIZATION OF REGULATORY SAFETY REQUIREMENTS.

*GK has reported to the meeting on the progress and hope for an update in a couple of months*

- 2014-023-2-600 (Letcher) – Climate Change: Observed Impacts on Planet Earth, 2nd Edition. This project seeks to provide an updated Edition of the original book with new chapters and updated information in other chapters. All chapters have been reviewed and submitted to the publisher.

*The book has been reviewed and finalized. Project closed*

- 2014-031-3-600 (Purchase) - The Environmental and health challenges of E-Waste and its management: an emerging 21st century global concern.

The project is ongoing and on track.

A satellite workshop was organised for the ICCE2015 conference on 20 Sept 2015 by the task group, several members for task group presented in the workshop. The project also attracted attention from the local radio station and DP was interviewed by a journalist.

To date, the task group has met up three times via Go-To-Meeting. The group has clarified the objectives of the project to engage stakeholders from different sectors. Five subgroups has been set up to address related issues:

- a. chemical analysis - the main focus will be to review the chemical components, identify potential pollutants, means of detecting these pollutants in different environmental compartments and the availability of more environmentally friendly alternatives.
- b. environmental and health challenges – also a state-of-the-art review of reports from different countries (case study approach) so as to compile a global picture of e-waste hot spots and the associated risk assessment.
- c. economic, law and governance – to compare the economic contributions by formal and informal recycling in developed and developing country; establish any

correlations (e.g. % informal recycling vs. deprivation index, GDP); critical review of the schemes of encouraging e-waste minimisation and recycling to be adopted by the industry/government, the reasons for their success/failure to feed into *part d* (see below); examine the current provision in e-waste legislation in different countries and identify any shorting comings and produce recommendations for policy makers.

d. Recycling and treatment of e-waste - explore the approaches of e-waste management/recycling as part of the integral solid waste management systems in different countries. Input from ICT and waste industries will be sought.

e. Recommendations – based on the findings from the above 4 areas, final recommendations on associated with e-waste will be made.

The next meeting should take place in Jun/Jul 2016 for update of progress and also planning for the symposium for 2017.

- 2014-032-1-600 (Karpouzas) – Advances on the Assessment of Pesticides' Soil Microbial toxicity: New research and regulatory aspects in light of the recent methodological advances. Thus the project aims to review the current knowledge on soil microbial ecotoxicity of pesticides and propose a regulatory scheme on how pesticide soil microbial ecotoxicity should be assessed.

- 2014-026-3-600 (Obare) - Chemical speciation of anthropogenic nanoparticles. The objective of this project is to develop guidelines and provide a framework for understanding the chemical speciation of nanoparticles and the associated environmental health and safety issues.

*Report submitted to LM by Sherine Obare 2-2-2016.*

We are going to organize a workshop at the 252nd American Chemical Society and Exposition, August 21-25, 2016 in Philadelphia, Pennsylvania, USA. We are inviting materials scientists and analytical environmental chemists involved in nanoscale science and engineering. The goal of this workshop is to have the participants work together on defining 'Chemical speciation and transformation of nanoparticles' for IUPAC. Once we have our list of complete participants I will send it to you.

We will also host a symposium targeted toward the characterization methods for measuring speciation and transformation of nanomaterials in the environment. This symposium will be organized at the 46th IUPAC World Chemistry Congress, August 2017 in Sao Paulo, Brazil.

The purpose of the symposium will be as follows:

- Engage industrial and government scientists with academic researchers to provide the current state of knowledge of sustainable nanoparticles design, preparation and associated environmental health and safety.
- Develop guidelines for characterization, toxicology and analysis protocols to reflect the current state of knowledge and identify gaps for future research.
- Determine principles to help guide uses and regulatory agencies of policies of proper usage, handling and disposal of nanoparticles from a global perspective.

- Demonstrate the importance of interdisciplinary approaches and need for collaborations between chemists, toxicologists, computational scientists, ecologists and engineers to address the need for safe and sustainable design of nanoparticles.
- 2014-038-2-600 (Unsworth) - Global Framework for Implementing Consistent Ecological Risk Assessment of Pesticides for Sustainable Agriculture: Workshop in Chile. This project is designed to organize an Ecological Risk Assessment Workshop in Chile as part of the 4th Latin American Pesticide Residue Workshop in Chile.
- 2015-048-1-600 (Unsworth and Lalah) - Ecological Risk Assessment Workshop for East Africa. The objective of this project is to conduct a focused workshop on Ecological Risk Assessment for scientists, students and government officials who will be attending the 3rd International Conference on Innovation and Technology for Development in Nairobi, Kenya on February 23-25, 2016 (<http://conference.tukenya.ac.ke>).



## 2. AFTERNOON SESSION – PROJECT PROPOSAL REVIEW; PLANNING, BRAINSTORMING FUTURE PLANS 13:00 – 17:00

2.1 the Division has welcomed Dr Peter Kearns (PK) from OECD who presented his ideas about possible future collaborations.

PK has introduced the structure of the organization (34 member states)

He also presented special interests that being developed such as the regulation for nano-materials

There is a one day workshop in September

LM presented the vision for the IUPAC centenary celebrations in Paris and a discussion ensued whether this can include collaboration with OECD

LM is on the organizing committee (chaired by Mary Garson) for the centenary celebration,

2.2 Review of new project proposals

2.3 Brainstorming of ideas for new Project Proposals

2.4 Brainstorming on ideas for enhancing interdivisional cooperation

2.5 Activities for the 49th General Assembly and 46<sup>th</sup> World Chemistry Congress in Sao Paulo, Brazil, 2107. HG reported on the progress

2.5.1 Proposed symposia and Poster award –

HG reported that a few emails were sent to the organisers declaring an interest in organizing two symposia at the congress but little response came back. During the bureau meeting HG has requested the help of the IUPAC executive director who tried to contact the organisers.

The message to the organisers was as follows:

We have two very active subcommittees in our division. Each of these subcommittees is interested in organizing a symposium and the topics are listed below. We are also interested in sponsoring again the IUPAC Environmental Chemistry Prize for best poster. We have some ideas about the number of sessions for each symposium, but we would like to hear from you if these topics would be of interest. Our goal in organizing these symposia and the prize is to attract new scientists to become active in our division. We will be putting together IUPAC proposals related to the development of the symposia and poster prize, and we welcome the participation of scientists in your organization to participate in the proposal process.

### 1. Fate of Pesticides in Latin American Environments

Potential topics include:

Actual pesticide **usage** in Latin America,

Examples of pesticide **fate** in tropical and subtropical countries,  
**Regulatory** issues regarding pesticides in the environment,  
**Analysis** of pesticide residues in environmental samples,  
Use of **models** in predicting fate,  
Trends in usage with the advent of **genetically modified (GM) crops**,  
**Lessons** to be learnt in the use of pesticides, and  
Development of **environmentally friendly pesticides**.  
Pesticide impacts on beneficial non-target organisms including pollinators  
Usage of pesticides in minor crops (often not registered specifically for these crops)

## 2. **Environmental impact of emerging technologies**

**New trends in the determination of contaminants in various environmental compartments**

(new analytical methods for emerging pollutants, monitoring emerging pollutants in the environment)

**Bioavailability and risk assessment**

(bioavailability and risk assessment of emerging pollutants, risk of contaminants of emerging concerns)

**Reducing the environmental impact**

(alternative environmental-friendly technologies, alternative solvents, new technologies for soil/water remediation)

**A workshop on the Environmental impact of E-waste.**

At the Meeting the Div membership has proposed organising committees for each of the topics

### 1. **Fate of Pesticides in Latin American Environments**

John Unsworth, Gijs Kleter, Rai Kookana

### 2. **Environmental impact of emerging technologies**

Baoshan Xing, Irina . Perminova, Diane Purchase, Edgar Resto, Ana Aguiar-Ricardo, Sherine Obare

HG will continue to support the two organizing committee and the submission of a project proposal for additional funds as was done for Istanbul.

- WCLM- HG reported on the activities which happened in Busan and the project proposals which emerged from the WXML YO activities. Two of these projects were directed at the division and RK kindly agreed to mentor the YOs to developed the project proposal

HG also reported that she and Chris Ober have been nominated in Sao Paulo to coordinate the WCLM in Brazil and at the moment it looks like the main driver to the meeting will be interdisciplinary research.

**Saturday Night – Division Dinner**

## Sunday 30-5-1015

### 2.6 Brainstorming on new ideas for upcoming IUPAC Centennial in Paris, 2019

LM reported that she is on the organizing committee for the event. The committee is chaired by Mary Garson from Australia

LM presented the vision document which refers to the lesson from the International year of Chemistry.

Summary of the above

- History of the division in 100 years
- Environmental issues for the common language
- Periodic table

LM: raised the issue of webinars, referring to the ACS- hero of Env. Chemistry – call for lectures Scientists of influence.

DP : Suggested soapbox delivery

LM raised the issue of cost, presented an example o a webinar and suggested that advertising could be done through the mailing list.

GK: suggested that we may look for the next one hundred years.

### 2.7 Review of additional new project proposals

### 2.8 Upcoming Conference Opportunities for Outreach and Interaction

HPLC 2017 - Prof. Doo Soo Chung is organizing an HPLC conference on Je Ju Island (Korea) in 2017.

It was recommended that the symposium is sponsored by the division but that the title is change to “Analysis of chemicals of Concern in Environmental Compartments” or “Water and Environmental Matrices Analysis”

### 2.9 Subcommittee Meetings

The 2 subcommittees had their meetings.

2.10 Final Group Session 11.00 – 13.00

2.10.1 PG presented the ESPR journal to the group.

<http://www.springer.com/environment/journal/11356>

PG explained that he needs volunteers for the editorial team

**AOB**

ER announced the “Latin American Environmental Chemistry Conference” 2018

GK: raised the issue of proceeding with OECD and it was reiterated that a member of the division will be invited to the nanomaterials and risk meeting in Sep 2016.

GK is involved with RNIA

Discussion on identifying emerging issues for OECD:

- New materials
- Difficult substances
- How to identify and notice
- All important for innovation
- Water quality- analysis and harmonisation.

Meeting closed.