



**Interdivisional Committee on Green Chemistry
for Sustainable Development, ICGCSD
Virtual Meeting
Monday 22 March 2021, 15:00-17:00 CET (Central Europe Time)
Minutes of meeting**

(Thanks to Aurelia Visa, who managed the virtual meeting thru GoToMeeting site and prepared the Minutes of meeting).

1. Welcome and apologies for absence

The Chair Professor Pietro Tundo welcomed the committee members and division representatives. He conveyed apologies from absent members.

IN ATTENDANCE: ICGCSD titular members, associate members and division representatives:

Prof. Pietro Tundo (PT), STC-Chair, Italy	Prof. Pierangelo Metrangolo (PM), DR I, Italy
Prof. Buxing Han (BH), STC-Secretary China/Beijing	Prof. Jorge Colón (JC), DR II, Puerto Rico
Prof. Natalia Tarasova (NT), TM, Russia	Prof. Liliana Mammìno (LM), DR III, South Africa
Dr. Jonathan Forman (JF), TM, Netherlands	Prof. Ana Aguiar-Ricardo (AAR), DR IV, Portugal
Prof. Jane Wissinger (JW), AM, USA	Prof. Nadia Kandile (NK), DR VI, Egypt
Prof. Florent Allais (FA), AM, France	Prof. Konstantinos Triantafyllidis (KT), Greece, <i>invited</i>
Dr. Aurelia Visa (AV), AM, Romania	Prof. Anna Makarova (AM), Russia, <i>invited</i>

APOLOGIES:

Prof. Klaus Kümmerer (KK), TM, Germany	Prof. Zhimin Liu (ZL), AB, China/Beijing, <i>invited</i>
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2. Call for additional agenda items

PT stress on the need of connections between divisions and committees. Invite all representatives to express specific needs. No additional items were added to the Agenda. ICGCSD information and reports will continue to be upgraded on the IUPAC website.

3. Report by the Chair

The ICGCSD website was updated, special thanks to ZL for the work. PT asks to check the webpage and if we find that something is missing or necessary to be included/uploaded, please contact ZL (liuzm@iccas.ac.cn) in this regard.

The budget of our committee was discussed and was stressed the need of new project proposals to use the left money wisely!

4. ICGCSD prizes and awards (PhosAgro/UNESCO/IUPAC, NHU and Chemrawn VII)

Huizhen Liu (China) and Banothile Makhubela (South Africa) have been awarded the 2020 IUPAC-CHEMRAWN VII for Green Chemistry in recognition of their outstanding contributions to the field of green chemistry. The Jury was composed by Pietro Tundo (Chair), Francesca Kerton (CHEMRAWN), and Aurelia Visa (ICGCSD). Official letters have to be sent to the winners.

The PhosAgro/UNESCO/IUPAC Partnership in Green Chemistry for Life aim is to generate and apply new scientific knowledge in green chemistry through the support of the activity in this area by young scientists. 6 X 30k\$ Research supports are given to each PhosAgro/UNESCO/IUPAC Grants. About 140 applications for this current call were received. Awarding Ceremony is planned to be in October-November 2021.

The NHU award is financed by the corresponding Chinese chemical industry with 20k\$. The objective of NHU award is to encourage young professional chemists and experienced chemists of the importance of advancements in Green Chemistry. The awards will be given during the IUPAC Congress in Montreal 2021. Till now were received 16 applications, but the deadline for submitting the applications is 30 April 2021.

5. Proposed restructuring of IUPAC

PT presented the old and new Organigram and explain it in details.

The Officers propose to operate in 3 groups to work in parallel, each group to have a chair person, and they will start working this week. Each group will report on their suggestions to Officers.

Regarding this restructuration will be a meeting of the Council, during the General Assembly held in Montreal in August 2021, for getting directions how to go further. The final decision will be taken most probably next year.

Structure of the officers will not change, the council will be in better connection with other bodies. The concern is that the volunteers have no direct contact with the Council. A Survey was sent thru the NAO's but only 6 replay to it.. Another question is how to reduce the costs with the personnel?

PM, JC, LM, AAR and NK had no updates from their divisions.

JC asked who will be the chair of SB? PT answered that will be elected by the members.

Development of proposals for IUPAC Governance Structure. The presence of the IUPAC President in the SB is needed, the presence of a scientific voice is absolutely necessary.

JF highlighted that in *APPENDIX 4 - Abstracts of Papers from Colleagues of Prof. Zhigang Shuai on Emerging Areas in the Chemical Sciences*, Green chemistry is present. The Report of the Review group on the Organizational IUPAC Structure (APPENDIX 4, Abstract) says that, from on Emerging Areas in the Chemical Sciences, "...novel efficient and green synthetic methods for important molecules and complex structures..." is a growing direction for future front of Chemistry.

6. Election for the next biennium 2022-2023 (for information).

BH, chair of the Nomination Committee, report on the election status. The members of the Nomination Committee are Professors David Black (Sydney, Australia), Neil Coville (Johannesburg, South Africa), Ferruccio Trifirò (Bologna, Italy). Were received 15 nominations for ICGCSD. The Nomination Committee is going to approve the TM and AM. In the future is expected to make the elections in ballot on Friday 9th of April and on the 13th of April will be the elections of the TM.

7. ICGCSD Report to the IUPAC Bureau (to be held middle of April)

PT informed us about the report to the Bureau has to be made till 29th of March 2021 about ICGCSD *activities; projects: ongoing, submitted, new proposals; conferences and summers schools organization, publications, website, and other materials.*

We sent a request to Richard Hartshorn, IUPAC-Secretary General, to include in agenda of next Bureau virtual meeting 16-17th April 2021 two items. The request was successful and the following items were included in the Bureau Agenda: 10.7-Support and advice to the project no. 2020-011-2-041, Assessment of the contribution of IUPAC projects to the achievement of the United Nations Sustainable Development Goals and 10.8-National Representatives for ICGCSD.

8. 51st IUPAC General Assembly and 48th IUPAC World Chemistry Congress will take place on August 13-20 2021, in Montréal, Canada.

The 51st IUPAC General Assembly and 48th IUPAC World Chemistry Congress will be held 100% online. JW asks about our involvement in some symposia during 48th IUPAC World Chemistry Congress. PT together with BH tried several times to include one symposium. Till now nothing happened in this respect.

9. Projects

a. Report on Current projects:

- Metrics for Green Syntheses- Project No.: 2017-030-2-041), Chair: Pietro Tundo

Regarding the project Metrics for Green Syntheses https://iupac.org/projects/project-details/?project_nr=2017-030-2-041, PT who is the Chair of the related Task Group, announced that the project was completed 1 week ago. The glossary and data base was sent for publication, there are 15 pages with mathematic formulas, and did not contain recommendations. It is necessary to proceed to the Project proposal Metrics No. 2 which will deal on Recommendations. PT thanks to: John Andraos, Fabio Aricò, James Clark and Marco Eissen, the project members.

- Systems thinking in chemistry for sustainability: toward 2030 and beyond (STCS 2030+)- Project No.: 2020-014-3-050, Chairs: Peter Mahaffy, Stephen Matlin, Marietjie Potgieter, Bipul Behari Saha, Aurelia Sorina Visa

AV report on Systems thinking in chemistry for sustainability: toward 2030 and beyond (STCS 2030+) project progress. At this moment the members are divided into two working groups (WG) one on Sustainability and one on Education. Every two weeks WG1-Sustainability composed by Aurelia Sorina Visa, Peter Mahaffy, Stephen Matlin, Jane Wissinger, Klaus Kümmerer, Sarah Cornell and Bipul Behari Saha, organized group meetings discussing the next steps in project development. The Working Group focus is on *connecting understanding in chemistry to sustainability*. The members of WG1 submitted an editorial to J. Chem. Educ, entitled: ***Integrating Sustainability into Learning in Chemistry***, on April Issue dedicated to Earth Day 2021. This year the Earth Day theme of "Restore our Earth," which provides a rich opportunity to reflect on the extent to which we integrate sustainability into chemistry education. This editorial highlights how the interdisciplinary work of integrating sustainability into chemistry education can be guided by systems thinking, and by the United Nations Sustainable Development Goals and Planetary Boundaries frameworks. Such systematic approaches can energize educators and learners to situate chemistry within a broader landscape of knowledge and thus tap chemistry's potential to enhance sustainability. JW is the corresponding author of this editorial. JW added that one of the objectives is to propose system-thinking informed activities, approaches and programming in the lead up to the International Year of Basic Sciences for Sustainable Development in 2022

- Assessment of the contribution of IUPAC projects to the achievement of the United Nations Sustainable Development Goals (IUPAC and UN17SDGS)- Project No.: 2020-011-2-041, Chair: Pietro Tundo

JW report on the progress of this project. JW made a google drive folder, in order to facilitate easier interaction between members and to work easier together. The project achieved Task II: Survey of all IUPAC Projects and categorize them according to the SDGs. JW prepared a task document which asked division and committee

representatives to further narrow their associated SDG for each project to ONE primary SDG. Also JW stressed the need to narrow the SDGs to targets, where possible. The task document was placed in the google drive folder along with the Xcel file with sheets to be edited. JW assisted to the colleague's needs and question.

NT suggest to discuss and organize a symposium in Montreal in order to report on this very important project.

Some questions arise: what actions need to be taken? We need money to organize the symposium? PT stressed that we need to be present in Montreal. PT, NT and JW will have a meeting soon to discuss all the details.

b. Report on applied projects:

- Green Chemistry in Sub-Saharan Africa, Chair: Prof. Liliana Mammino

LM report on Green Chemistry in Sub-Saharan Africa project. This was reviewed and will be soon approved.

- Green and Sustainable Chemical Processes, Chair: Pietro Tundo

PT report on Green and Sustainable Chemical Processes project. The status of the project is that was reviewed. The suggestion was to make a special issue of Pure Applied Chemistry. It is necessary to see if the industry will like to contribute in this manner. Is necessary to put the industry representatives in contact with IUPAC. PT thanked to AM for her involvement and link to the Japanese member on the task group. AAR suggested to involve also pharmaceutical companies.

c. New project proposals.

PT informed the ICGCSD have 9000\$ to be used for the new projects. PT invites all the divisions' representatives and core members of ICGCSD to propose projects.

AAR submitted a proposal entitled **PPE Disposal or Waste for yr 2050**. AAR presented the project specific aim which is to critically evaluate existing data to produce educational material (a series of videos) and a technical note; the first focus will be for the general public, but we will also write recommendations to inform scientists, policy makers and industry. AAR also described the objectives, stakeholders, dissemination plan and desired outcomes. From ICGCSD JW and JF are interested to take part on this very interesting proposal, and from ICGCSD budget 1000\$ will be contributed. All core members approved it.

JF drafted the project entitled: **Surveying the Green Chemistry Landscape From Research to Policy** and since there are no other items to be added will be submitted soon.

JF is interested in doing surveys on the policy side, the idea is how Green Chemistry and Sustainable Chemistry is looking from an industry point of view. Survey on international networks on green/sustainable chemistry (UNEP, OECD, OPCW, ISC3; etc). Policy, how many country knows about that? The language is a challenging problem. JW was curious to find out if industry is having some problems in showing the information? JF does not think that this is a problem to worry about.

JW is thinking to propose a new project on chemical education: **Safety education and practice through green chemistry**. The project aims to improve the safety education and practice through green chemistry, by minimizing the hazards. AAR was interested if JW is planning to make a survey on how safe or less safe are different protocols? JW considers it an interesting idea. JF and AV are interested in JW proposal.

10. Summer School on Green Chemistry in Venice (July 4-10, 2021)

In 2021 the Summer School on Green Chemistry will held in Venice, July 4-10, 2021 and also by remote for students who cannot attend for different reasons. On 15 March applications for scholarships was closed. For now we received 75 applications, from 27 countries, Male/Female ratio is 1. The Scientific Committee is currently reviewing the applications till 2nd April 2021. Results will be online on April 15th, 2021.

11. Congress in Athens postponed to 2022

KT presented the situation of the International Conference on Green Chemistry which should hold in Athens October 18-22, 2020. Due to pandemic situation the Congress in Athens could not be organized, therefore the ICGCSD conference will held in 2022, in Athens. Before the postponing news, were received about 200 abstracts from 50 countries. KT announced that the organizers planned to activate the website on September-October 2021.

AAR report that 5th EuChemS Conference on Green and Sustainable Chemistry – EUGSC-5, 26-29. September 2021 will be held online. AAR asks to ICGCSD members to be part of this event.

12. Communication and dissemination of the work of ICGCSD: Webpage; Newsletter; Brochure.

PT thanked AV and ZL for their support in the communications. The website of ICGCSD was updated. Please visit it and give suggest, if any. (https://iupac.org/who-we-are/committees/committee-details/?body_code=041)

13. Any other business

14. Venue and timing of next Committee meeting.

The next meeting will be in **June** with Core Members and Division Representatives.

Prof. Pietro Tundo
Chair, IUPAC ICGCSD