

IUPAC
Activities' Report - Year 2024
Lidia Armelao

1. Introduction

The participation of Italy to IUPAC in 2024 is very positive, characterized by the active involvement of scientists from CNR and Academia, including young researchers as Young Observers. The activities for 2024 consist in the publication of scientific papers, participation to IUPAC projects, dissemination events and conference organizations. The commitment of the NAO Italian Commission and the efforts of Italian scientists are leading to an increasing reputation of the national chemical community.

2. Main activities carried on by IUPAC during 2024 relevant for Italy and for CNR

- Organization of the 53rd IUPAC General Assembly and 50th World Chemistry Congress to be held in Kuala Lumpur (Malaysia) in 2025. Italian senior and young researchers from CNR are invited as lecturers at the different scientific sessions. A delegation of Italian Young Scientists will attend the 53rd IUPAC General Assembly.
- Preface by the IUPAC Vice President Mary Garson of the special collection of invited papers by recipients of the 2023 IUPAC Distinguished Women in Chemistry and Chemical Engineering Award. Pure Appl. Chem. 2024, 96 (1), 1-4 (<https://doi.org/10.1515/pac-2024-0022>).
- Editorial on the Avogadro Colloquia Conference held at CNR (From water to chemicals: vision and opportunities of a sustainable hydrogen society), published on the IUPAC journal Chemistry International 2024, 46(3), 34-35 (<https://www.degruyterbrill.com/journal/key/ci/46/3/html>).

3. Activities carried on by Lidia Armelao within the Union during 2024 and impact on the Italian scientific community

- Attendance to the periodic meetings of the Italian NAO Commission for the participation to IUPAC.
- Guest Editor of the special issue Pure Appl. Chem. 2024; 96(4) for the 5th edition of Avogadro Colloquia "From Water to Chemicals: Vision and Opportunities of a Sustainable Hydrogen Society". The conference was held at CNR in Rome under the auspices of IUPAC to celebrate the Centenary of the Italian National Research Council (Guest Editors: L. Armelao, E. Giamello, G. Guerra, M.C. Carrozza. Preface: <https://doi.org/10.1515/pac-2024-0229>).
- Scientific Committee Chair, Inorganic and Bioinorganic Chemistry Session, 50th World Chemistry Congress of IUPAC (activity started in 2024).
- Task group member of a collaborative project of the Italian NAO led by Matteo Guidotti "The translation of the IUPAC Periodic Table of Elements into Italian" (<https://iupac.org/project/2024-009-2-200>). The results of the project were presented on November 2024 in a public event held at CNR and on the CNR webTV (<https://www.cnrweb.tv/presentazione-versione-italiana-tavola-periodica-degli-elementi-chimici/>). The translated Periodic Table finds immediate applications in educational institutions and in technical agencies. Periodic table issues are essential for the core value "We serve humankind by advancing chemistry worldwide".
- Preparation of the annual Inorganic Chemistry Division Newsletters that was released in Spring 2024 (<https://iupac.org/inorganic-chemistry-division-feb-2024-newsletter/>).
- Publication of the paper "Bridging two worlds: (DABCO-H)CuKI₃ a hybrid copper iodide phosphor with a perovskite structure" Pure Appl. Chem. 2024, 96(1), 69-80 in a special issue of invited papers by recipients of the 2023 IUPAC Distinguished Women in Chemistry and Chemical Engineering Award (<https://www.degruyterbrill.com/document/doi/10.1515/pac-2023-1023/html>).
- Publication of the paper "Definition of materials chemistry (IUPAC Recommendations 2024)" Pure Appl. Chem. 2024, 96(12), 1693–1698 (<https://www.degruyterbrill.com/document/doi/10.1515/pac-2023-0215/html>) in the framework of the IUPAC project "Gold Book Update of Terms for Inorganic Chemistry" (<https://iupac.org/project/2020-022-1-200>).
- Component of the task group of the collaborative project "Terminology and Classification of Per- and Poly-Fluoroalkyl Substances (PFAS)" (<https://iupac.org/project/2024-006-3-100>). PFAS substances have become an issue of global environmental concern and involve values and ethics in science through responsible practice. The outcomes of the project will benefit the global scientific, regulatory and industrial communities, by means of a common terminology and a harmonized communication on

PFAS. Moreover, this project could be bridged with the European Commission regulatory activity on PFAS, aiming to set a common starting platform for future decisions.

4. Evaluation of the participation in terms of benefits and membership cost

The benefits are very concrete, the Italian chemical community has increased its visibility and strengthened the relationships with worldwide partners. This is documented by the participation to IUPAC projects, both as project chairs and task group members, to the organization of meetings under the aegis of IUPAC, to the publication of papers and reports on IUPAC publications (PAC, Chemistry International) or other editors. The presence of Italian experts in IUPAC leading roles is important to contribute to cooperation, to the future strategies in chemical research and applications.

5. Evaluation of Italians' attendance and how to improve interest and involvement

The Italian attendance is very good, represented by researchers covering different chemistry disciplines from CNR and Academia. In addition, an active community of Young Observers (YOs) is involved in the activities of the IUPAC Divisions and Standing Committees, promoted and supported by the Italian NAO.

6. Italian experts with important roles within the Union or within related Commissions and Programs (if known)

Italy has experts in important roles within IUPAC bodies and involved in programs. In 2024, M. Guidotti is Task Group Chair of the collaborative project "The translation of the IUPAC Periodic Table of Elements into Italian" (<https://iupac.org/project/2024-009-2-200>), L. Armelao is President of the Inorganic Chemistry Division (Div II) and member elected of the IUPAC Science Board, R. Terzano is Past President of the Chemistry and Environment Division (Div VI), P. Metrangolo is Past President of the Physical and Biophysical Chemistry Division (Div I).

7. If Union with CNR Commission, short summary about the 2024 CNR Commission activities

The CNR commission for participation to IUPAC is a very active body, with three virtual or in person meetings in 2024 (9 April, 23 July, 4 November) and the organization of events and dissemination initiatives. As an example, with reference to the Italian NAO project "The translation of the IUPAC Periodic Table of Elements into Italian" (<https://iupac.org/project/2024-009-2-200>), the results were preliminarily presented to the Italian scientific community during the National Congress of the Italian Chemical Society (SCI 2024) (Milan, August 26th -30th 2024), and the official launch event entitled "the Italian version of the IUPAC Periodic Table: new and old names for the chemical elements" took place in Rome, on November 4th, 2024, at the headquarters of CNR. The aims of the Project were also presented to the broad public at the Milan venue of the "European Researchers Night 2024". The final version of the IUPAC Periodic Table in Italian was shown and explained to more than 300 visitors and students (Milan, September 27th, 2024). A film recording was finally reported on the CNR webTV (<https://www.cnrweb.tv/presentazione-versione-italiana-tavola-periodica-degli-elementi-chimici/>).

8. Notes (if any)

The overall evaluation of Italy participation to IUPAC is excellent and worth to be fully supported in the future.

9. Conclusions

The participation of Italy and CNR to IUPAC is highly appreciated and has a very positive impact on the growth of the chemical national community, including young researchers, with concrete scientific results, higher enthusiasm and reputation, and improved relationships worldwide.

Signature

Roma, September 12th, 2025