



# Inorganic Chemistry Division NEWSLETTER Spring 2025

*Newsletter Editor: Jorge L. Colón*

## Message from the President – Lidia Armelao

Dear Division Members,

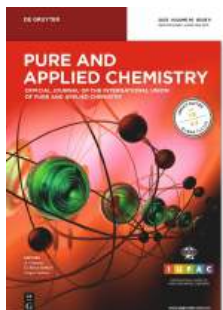
In July, the 53<sup>rd</sup> IUPAC General Assembly and the 50<sup>th</sup> World Chemistry Congress will take place in Kuala Lumpur (Malaysia). In preparation of the forthcoming 2025 GA and Division II meeting, an online divisional event is planned in June, which TMs, AMs, NRs and Young Observers will hopefully be able to attend.

In June 2024, the virtual Division II off-year meeting was held, and Young Observers were invited to participate. The members were encouraged to develop collaborative projects, also jointly with different divisions and committees, to extend networking opportunities. My gratitude goes to Robin Macaluso and Jorge Colón for their service as Division Vice-President and Secretary, to Daniel Rabinovich for his contribution to the Division as Project Coordinator, and to all members for their important contributions and continuous support.

In this Spring newsletter you will find a description of some divisional initiatives and announcements of forthcoming conferences of potential interest to our members. A strong encouragement is given to participate in the 2026 edition of the IUPAC Global Women's Breakfast which promotes gender equity in science. Our newsletter traditionally includes a stamp celebrating Inorganic Chemistry. The Japanese postage stamp here reported recognizes the discovery of element 113 (nihonium, Nh) at the RIKEN research institute by a team led by Prof. Kosuke Morita from Kyushu University. Indeed, one of the most exciting and visible activities of the Inorganic Chemistry Division is the naming of new elements after their discovery has been validated.

I thank all members of Division II for their valuable contributions to IUPAC and I wish everybody a productive period ahead.

## *Pure and Applied Chemistry* special issue on “Avogadro Colloquia”



A special issue proposed by Division II and dedicated to the 5<sup>th</sup> Avogadro Colloquia - *From Water to Chemicals: Vision and Opportunities of a Sustainable Hydrogen Society* - was published on *Pure and Applied Chemistry* (2024, vol. 96, issue 4). The conference was held in Rome (Italy), under the auspices of IUPAC, to celebrate the Centenary of CNR, the Italian National Research Council (Guest Editors: L. Armelao, E. Giamello, G. Guerra, M.C. Carrozza). Highlights of the conference were also included in the IUPAC newsmagazine *Chemistry International* (2024, 46(3), 34).

## Report from the online Division's Off-Year Meeting: 12<sup>th</sup>-13<sup>th</sup> June 2024

### Agenda – June 12<sup>th</sup>

1. Welcome (Z. Mester, L. Armelao)
2. Introduction (L. Armelao)
3. Approval of the agenda (everybody)
4. Appointment of a volunteer to make a list of "Action Items" for the meeting (J. Colón)
5. Approval of the minutes from the Division II meeting (August 19<sup>th</sup>–20<sup>th</sup>, 2023) at the 49<sup>th</sup> IUPAC World Chemistry Congress in The Hague (everybody)
6. Presentation of Division II members (everybody)
7. Information Package for new Division members (L. Armelao)
8. Emeritus Fellows (L. Armelao)
9. Status of Action Items approved at the 2023 meeting in The Hague (J. Colón)
10. Reports from Division II representatives in other bodies (ICTNS, ICGCSD, CIAAW, others)

### Agenda – June 13<sup>th</sup>

11. Presentation of Division II projects (D. Rabinovich)

Division II projects at the IUPAC website:

- 2024-009-2-200 - The Periodic Table of Elements in Italian
- 2023-014-2-200 - Terminology and definitions of quantities relating to isotopic analyses
- 2020-022-1-200 - Gold Book Update of Terms for Inorganic Chemistry
- 2020-013-1-200 - Assessment of absolute isotope ratios for the international isotope delta measurement standards
- 2019-024-1-200 - Statistical Models and Data Reductions to Estimate Standard Atomic Weights and Isotopic Ratios for the Elements, and to Evaluate the Associated Uncertainties
- 2018-030-2-200 - Toward a comprehensive definition of valence
- 2017-023-2-200 - Collection, compilation and evaluation of elemental and isotopic data of calcium carbonate and hydroxyapatite materials
- 2017-017-2-200 - Evaluated Published Isotope Ratio Data (2013-2018)
- 2015-053-1-200 - Survey of Definitions and Use of Common Solid-State Chemistry Terminology
- 2015-037-2-200 - IUPAC Molecular Weight Calculator
- 2014-016-2-200 - Compilation of the variation of the isotopic composition of the elements via crowdsourcing
- 2014-002-1-200 - Assessment of Stable Isotopic Reference Materials
- 2014-001-2-200 - Terminology guidelines and database issues for topology representations in coordination networks, metal-organic frameworks and other crystalline materials
- 2012-036-2-200 - Recommendations for Isotope Data in the Geosciences-II
- 2009-046-2-200 - Terminology and definition of quantities related to the isotope distribution in elements with more than two stable isotopes

Projects where Division II is a partner:

- 2024-014-2-500 - Naming naked and monolayer protected atomically precise metal nanoclusters
- 2024-006-3-100 - Terminology and Classification of Per- and Poly-Fluoroalkyl Substances (PFAS)
- 2023-028-1-500 - Brief guide to metrological terms in chemistry
- 2022-016-1-021 - Effective teaching tools and methods to learn about e-waste
- 2021-016-1-024 - Standardized reporting of gas adsorption isotherms
- 2021-027-2-600 - The global scenario and challenges of radioactive waste in the marine environment
- 2020-011-2-041 - Assessment of the contribution of IUPAC projects to the achievement of the United Nations Sustainable Development Goals

- 2020-016-3-020            The gender gap in chemistry – building on the ISC Gender Gap project
- 2019-020-2-024 -        Machine-accessible periodic table
- 2019-016-3-800 -        Nomenclature and associated terminology for inorganic nanoscale particles
- 2017-036-2-800 -        Graphical representation standards for chemical reaction diagrams
- 2017-030-2-041 -        Metrics for green syntheses
- 2011-035-1-800 -        Terminology and nomenclature of inorganic and coordination polymers

12. Technical Reports, Recommendations and special issues on IUPAC journals (F. Meyers)
13. Toward 53<sup>rd</sup> IUPAC GA and the 50<sup>th</sup> World Chemistry Congress in Kuala Lumpur (Y. F. Abdul Aziz)
14. Other conferences planned and projects (everybody)
15. Division newsletter planning (D. Rabinovich)
16. Any other items (everyone)
17. Approval of the Action items (everyone)
18. Adjourn

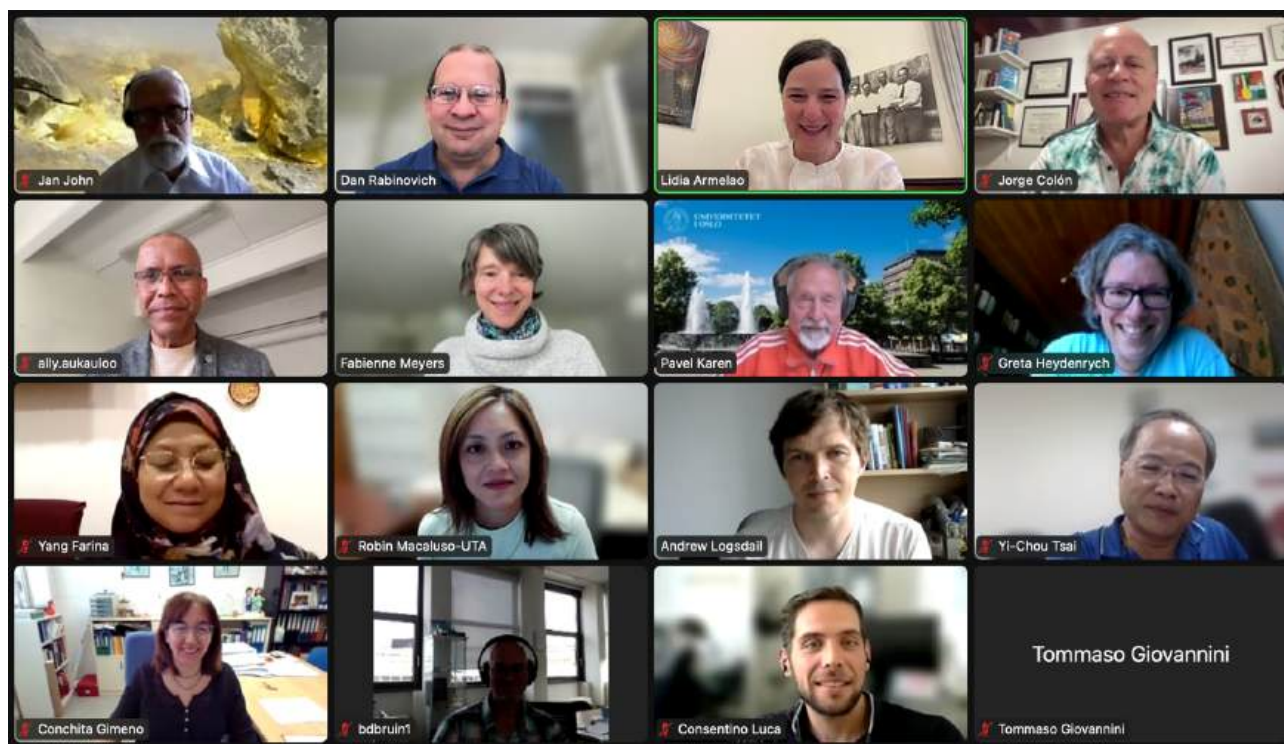
### **Action Items of the online Off-Year IUPAC Division II meeting, June 12<sup>th</sup>-13<sup>th</sup>, 2024**

1. Suggest to Lidia Armelao Young Observers to be invited to Div. II meetings.
2. Send the IUPAC introduction document presented by Lidia Armelao to all Div. II members. Also send the welcome package to all the members. Dan Rabinovich will update the welcome package.
3. Send the slides presented by Dan Rabinovich about the organization of IUPAC (organizational chart, Divisions, Committees) to all Div. II members.
4. Contact Keith T. Taylor, Chair of the project 2017-036-2-800 *Graphical representation standards for chemical reaction diagrams*, to check the progress of the project and the possible involvement of a Div. II representative. Ally Aukauloo might be interested (contact Robin Macaluso).
5. Contact Juris Meija to check his willingness to represent Div. II in IUPAP. Notify Fabienne Meyers and IUPAP (Lidia Armelao).
6. When the Call for Nominations for new Divisional Members is issued, propose new members considering the necessary balance in geographical areas, scientific areas (Div. II three areas are: atoms, molecules, and materials), and gender balance. Notify the nominations to Fabienne Meyers and Lidia Armelao.
7. Remember to report to your NAO what you do at the divisional meetings and the outputs.
8. Send news and announcements of future conferences of interest to inorganic chemists (Atoms, Molecules, Materials) to Dan Rabinovich for inclusion in the Div. II annual newsletter.
9. Inform Lidia Armelao and Fabienne Meyers of future conferences asking for IUPAC endorsement with enough time. Propose a concise presentation of IUPAC at the conferences.
10. New project ideas: listen to your community and think about possible projects that fall within the IUPAC scope.
11. Dan Rabinovich sends everybody an introduction about the IUPAC projects and submission guidelines.
12. Project 2012-036-2-200 - Recommendations for Isotope Data in the Geosciences-II. Dan Rabinovich contacts the monitor (Thomas Walczyk) to check if he is still in charge.
13. Need to identify volunteers to become monitors for projects:
  - 2019-024-1-200 - Statistical Models and Data Reductions to Estimate Standard Atomic Weights and Isotopic Ratios for the Elements, and to Evaluate the Associated Uncertainties
  - 2020-013-1-200 - Assessment of absolute isotope ratios for the international isotope delta measurement standards
  - 2023-014-2-200 - Terminology and definitions of quantities relating to isotopic analyses
14. Project 2020-022-1-200 - Gold Book Update of Terms for Inorganic Chemistry. Lidia Armelao, Robin Macaluso, Jorge Colón, Dan Rabinovich, and Pavel Karen will form a group to communicate with the task team. Sadhna Mathura and Andrew Logsdail offer as volunteers. It would be possible to contact Div. VIII about this project as this is a multi-divisional project.

**Div. II review of inorganic Gold Book entries** - At the off-year meeting in June 2024, Division II established a dedicated Gold Book subcommittee for the progress of the project Gold Book Update of Terms for Inorganic Chemistry (L. Armelao, J. Colón, R. Macaluso, S. Mathura, A. Logsdail, P. Karen). The subcommittee has thoroughly considered the Division-II relevant Gold Book definitions, notes, and internal links in two Excel overviews with links to the Gold Book entries and their IUPAC source papers. One overview concerned 304 existing Gold Book entries, the other one concerned 52 newly published IUPAC sources for update of existing entries or for possible new ones. The overviews were submitted to JSIGB and ICTNS on February 28<sup>th</sup>, 2025.

15. Fabienne confirms that it is possible to propose special issues in IUPAC journals individually and invite experts in the topic. She encourages to publish in CTI to benefit teachers, especially with outcomes of IUPAC projects, and also to support PAC.
16. IUPAC 2025 World Chemistry Congress. It is possible to propose the organization of symposia and international speakers until 15<sup>th</sup> July. Contact Yang Farina Abdul Aziz and Lidia Armelao.
17. A new project is proposed by Pavel Karen "Heuristic quantities and rules in inorganic and structural chemistry". Pavel asks for members from this Div. II or other divisions. Jorge Colón and Lidia Armelao inform of their interest to participate in the Task Group.
18. Dan Rabinovich proposes a new project "Metalloids: definition, properties, and classification". Dan asks for volunteers of Div. II. Andrew Logsdail, M. Concepción Gimeno and Jorge Colón inform that they would like to participate in the Task Group.

### Online off-year Division II meeting, 12<sup>th</sup>-13<sup>th</sup> June 2024



1<sup>st</sup> row (L to R): Jan John (Czech Republic), Dan Rabinovich (USA), Lidia Armelao (Italy), Jorge Colón (Puerto Rico). 2<sup>nd</sup> row: Ally Aukauloo (France), Fabienne Meyers (USA), Pavel Karen (Norway), Greta Heydenrych (Germany). 3<sup>rd</sup> row: Yang Farina Abdul Aziz (Malaysia), Robin Macaluso (USA), Andrew Logsdail (UK), Yi-Chou Tsai (China/Taipei). 4<sup>th</sup> row: Maria Concepción Gimeno (Spain), Bas de Bruin (Netherlands), Luca Consentino (YO Italy), Tommaso Giovannini (YO Italy).

# Project Highlights

*Summarized by Robin Macaluso & Dan Rabinovich, Project Coordinators*

## **2018-030-2-200 (P. Karen) *Toward a comprehensive definition of valence***

The Technical Report *Toward a definition of valence as a quantity* has been published (<https://doi.org/10.1515/pac-2023-0402>). The corresponding Recommendation is close to be finished. It summarizes results that identify the two main areas of the relatively infrequent current use of valence as a quantity: organic chemistry and the chemistry of metals. Besides the definition that covers the duality of the current use, the manuscript discusses when the two approaches yield two different quantities and when not. One of the explanatory notes that follow the definition suggests how to avoid ambiguity when using the valence quantity.

## **2020-022-1-200 (M. Drabik) *Gold Book Update of Terms for Inorganic Chemistry***

The Recommendation *Definition of materials chemistry* has been published (<https://doi.org/10.1515/pac-2023-0215>). It defines the term “materials chemistry” as the “scientific discipline that designs, synthesizes, and characterizes materials, with particular interest on processing and understanding of useful or potentially useful properties displayed by the materials designed and synthesized for specific applications”. The project has been concluded by the Division II subcommittee established at the 2024 Division meeting. A hyperlinked Excel overview of 304 Division-II related already existing Gold Book entries with their sources and reasoned suggestions for approval or disapproval, and for amendments or error corrections (in about 50% of them) was submitted on February 28<sup>th</sup>, 2025, to the JSIGB. The color-marked suggested edits will be evaluated by ICTNS and those approved will be edited in the Gold Book. A similar hyperlinked Excel overview was likewise submitted for 52 possible new Gold Book entries, also with suggested approval or disapproval and with marked correction edits of wording or typos, where needed.

## **2024-009-2-200 (M. Guidotti) *The Periodic Table of Elements in Italian***

On November 4<sup>th</sup>, 2024, the public event *The IUPAC Periodic Table in Italian: new and old names for the chemical elements* was held in Rome (Italy) at the CNR headquarters, organized by the Italian NAO and the CNR Department of Chemical Sciences and Materials Technologies (<https://iupac.org/etoc-chemistry-international-jan-mar-2025/>). On December 20<sup>th</sup>, 2024, a Christmas Lecture on the Periodic Table, was organized by the Italian section of the Royal Society of Chemistry in Milan (Italy). Two talks, delivered by Margherita Venturi and Matteo Guidotti, Task Group Members, covered the topics of the role of women in the definition of the modern Periodic Table and the evolution of shapes and size of the table in the last 150 years. The project results were also presented to the Italian scientific community in a video on the CNR WebTV (<https://www.cnrweb.tv/presentazione-versione-italiana-tavola-periodica-degli-elementi-chimici/>).

## New Projects & Ideas

*Summarized by Dan Rabinovich, Coordinator of Projects*

## **2025-002-1-200 (P. Karen) *Heuristic quantities and rules in inorganic chemistry***

This new Division-II project was presented at the Division II virtual off-year meeting in June 2024, where some division members expressed interest to participate.

**Task Group Chair:** Pavel Karen (University of Oslo, Norway)

**Task Group members:** Lidia Armelao, Jorge L. Colón, Richard M. Hartshorn

**Website:** <https://iupac.org/project/2025-002-1-200>

**Start date:** March 1<sup>st</sup>, 2025

The project shall focus on optimal formulations of the composition- and bonding rules, definitions of related dimensionless quantities, and creation of bonding schemes. It will provide related heuristic algorithms that aid human understanding and predictions of composition and structure in inorganic chemistry. Based on <https://doi.org/10.1515/pac-2022-1118> and other IUPAC papers, the project will proceed as a writeup of a Recommendation glossary of terms separated into four categories: 1) Heuristic bonding and composition rules, 2) Subordinate more focused bonding rules, 3) Heuristic bonding formulas/schemes, 4) Heuristic definitions and algorithms for electron-count bonding quantities. The entries will contain an explanatory wording of the rule, notes, an algorithm when relevant, examples, and a short history overview with references. After publishing, the main paragraphs of the glossary entries will be ready for the IUPAC Gold Book that lacks inorganic-chemistry rules and algorithms about composition and bonding, yet some related nomenclature is already there.



# Upcoming Conferences

**AsiaChem2025**  
**20<sup>th</sup> Asian Chemical Congress**  
23 - 27 June 2025  
Bangkok, Thailand



*"Responsible Chemical Sciences  
for World Sustainability"*

*Organized by the Chemical Society of Thailand  
under the Auspices of The Federation of Asian Chemical Societies (FACS)  
In conjunction with  
The 22<sup>nd</sup> FACS General Assembly on **June 22, 2025***

Registration [link](#)

For information contact: [acc2025thailand@gmail.com](mailto:acc2025thailand@gmail.com)

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**22<sup>nd</sup> International Symposium on Intercalation Compounds**  
6 - 10 July 2025  
Clermont-Ferrand, France  
<https://isic22.sciencesconf.org>



For information contact: [isic22@sciencesconf.org](mailto:isic22@sciencesconf.org)

## IUPAC 2025

53<sup>rd</sup> IUPAC General Assembly (53GA), 12<sup>th</sup> - 16<sup>th</sup> July 2025  
50<sup>th</sup> World Chemistry Congress (50WCC), 14<sup>th</sup> – 19<sup>th</sup> July 2025

Kuala Lumpur Convention Centre, Malaysia

<https://iupac2025.org>

**Chemistry for Sustainable Future**  
[iupac2025.org](https://iupac2025.org)

**IUPAC2025**  
Kuala Lumpur Convention Centre, Malaysia  
**53rd IUPAC General Assembly (53GA)**  
12th - 16th July 2025  
**50th World Chemistry Congress (50WCC)**  
14th - 19th July 2025

Incorporating **LabAsia2025**  
<https://www.lab-asia.com/>

Organised by  
**IUPAC**  
INTERNATIONAL UNION OF  
PURE AND APPLIED CHEMISTRY

Supported by  
**AKADEMI SAINS MALAYSIA**  
**Malaysia Convention & Exhibition Bureau**  
**Meet in Malaysia**  
BE Greater, Together.  
*Malaysia Truly Asia*

HRD CORP CLAIMABLE

Registration [link](#)

For information contact: [secretariat@iupac2025.org](mailto:secretariat@iupac2025.org)

## ICBIC 21

**21<sup>st</sup> International Conference on Biological Inorganic Chemistry**

28 July – 1 August 2025

Long Beach, California | USA

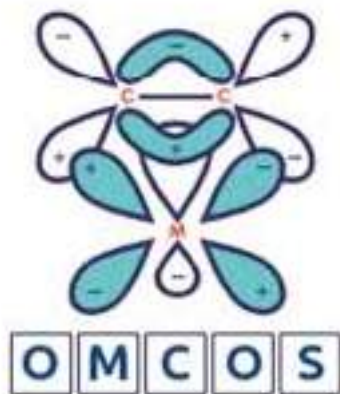
<https://www.icbic2021.org>



Registration [link](#)

For information contact: [aileen.l@asnevents.net.au](mailto:aileen.l@asnevents.net.au)

**OMCOS XXII**  
**22<sup>nd</sup> International Symposium on Organometallic Chemistry**  
**Directed Towards Organic Synthesis**  
**Kyoto, Japan**  
**September 1-5, 2025**  
<https://omcos22.org>



Registration [link](#)

For information contact: [omcos22@org.kuchem.kyoto-u.ac.jp](mailto:omcos22@org.kuchem.kyoto-u.ac.jp)



**7<sup>th</sup> EuChemS Inorganic  
Chemistry Conference**

September 7-11, 2025  
Belgrade, Serbia

**HF** Faculty of Chemistry  
University of Belgrade



**EuChemS**  
European Chemical Society

<https://eicc7.com>

Registration [link](#)

For information contact: [eicc7@congrex\[p.co.rs](mailto:eicc7@congrex[p.co.rs)



# 5th International solar fuels conference

2-5 September 2025, Newcastle, United Kingdom

Oral abstract deadline – 24 March 2025  
*ECR* Oral abstract deadline – 7 April 2025

Poster deadline – 23 June 2025  
*ECR* Poster deadline – 7 July 2025

Early bird deadline – 21 July 2025  
Registration deadline – 11 August 2025

[rsc.li/isf2025](https://rsc.li/isf2025)



Including a programme for early-career researchers  
1-2 September 2025

Abstract submission [link](#)

Registration [link](#)

E-mail [link](#)

## FEMS 2025 EUROMAT

### 18<sup>th</sup> European Congress and Exhibition on Advanced Materials and Processes

Granada, Spain

14<sup>th</sup> – 18<sup>th</sup> September 2025

<https://euromat2025.com>

# FEMS2025 EUROMAT

18<sup>th</sup> European Congress and  
Exhibition on Advanced Materials and  
Processes

Granada, Spain  
14 – 18 September 2025

Discover our plenary speakers



Registration [link](#)

For information contact: [euromat2025@bcocongress.com](mailto:euromat2025@bcocongress.com)

## ICOPHOS-5

### 5<sup>th</sup> International Conference on Phosphonate Chemistry, Science and Technology

Perugia, Italy

17<sup>th</sup> – 19<sup>th</sup> September 2025



Registration and Payment deadline, early: June 15, 2025 and [link](#)

Registration and Payment deadline, late: June 30, 2025





**NATIONAL CONVENTION**  
CHEMISTRY: A WINDOW FOR CHANGE



## "Chemistry: A window For Change"

The 45<sup>th</sup> National Convention of the South African Chemical Institute (SACI-45) will be held at the University of The Witwatersrand, Johannesburg, South Africa from **30 November – 05 December 2025**.

Held triennially, SACI-45 will showcase the vibrancy and diversity of chemical sciences in South Africa and beyond. This unique event is a testament to the innovative and collaborative spirit of the chemical sciences community on the continent. We anticipate 400 – 450 participants at SACI-45.

### THEMES/TOPICS

- Analytical (General, Chromatography, Mass spectroscopy and Electrochemistry)
- Education
- Environmental
- Green
- Industrial
- Inorganic (including materials and catalysis)
- Organic
- Polymer and Macromolecules
- Physical (including Computational, Supramolecular, Crystallography, Thermal, AI)
- Quantum Sciences

### SPECIAL SESSIONS

**Chemistry Entrepreneurship:** SACI-45 will host at least one special session dedicated to young scientists, including a session on Chemistry Entrepreneurship to be led by **Dr David Fine** (who invented airport explosives/narcotics sensors, etc.). This session will feature successful young chemistry entrepreneurs who will share their insights on transitioning from the laboratory to building a thriving commercial enterprise.

**Quantum Sciences:** In honor of the International Year of Quantum Science and Technology, SACI-45 will host a special session dedicated to quantum sciences. This session will explore a range of topics, from fundamental quantum processes to advanced quantum tools applied in chemistry, including imaging, sensing, computational techniques etc.

Workshops will also be given at the Convention on other topics (see later)

### KEY DATES

**1 April, 2025**

Registration and abstract submission opens

**30 July, 2025**

Abstract submission closes

**30 August, 2025**

Early bird registration closes

**15 September, 2025**

Registration closes

### PLENARY SPEAKERS

**Prof. Amanda Bryant-Friedrich**  
Wayne State University, US

**Prof. Mags Blackie**  
Rhodes University, SA

**Prof. Christian W. Klampfl**  
University of Innsbruck, AT

**Prof. Gregory Scholes**  
Princeton University, US

**Prof. Peter Wasserscheid**  
University of Erlangen-Nuremberg, DE



Email: [saci.chem@wits.ac.za](mailto:saci.chem@wits.ac.za)

Please visit: [www.saci.co.za/SACI2025/](http://www.saci.co.za/SACI2025/)

Hosted by:



# Inorganic Chemistry Stamp

by Daniel Rabinovich



One of the most exciting and visible activities of the Inorganic Chemistry Division has been the naming of new elements after their discovery has been validated (and temporary names and symbols proposed by their discoverers).

The Japanese postage stamp illustrated above, issued in 2017, recognizes the discovery of element 113 (nihonium, Nh) at the RIKEN research institute by a team led by Prof. Kosuke Morita from Kyushu University. It shows that nihonium was produced by the bombardment of a bismuth target with accelerated zinc ions, and that the new element quickly decays by releasing alpha particles in a series of six steps that eventually yields mendelevium.



# Inorganic Chemistry Division

## Membership 2024-2025

Name	Status	Term	NAO
Lidia Armelao	President	2022-2025	Italy
Jorge Colón	Secretary	2024-2027	Puerto Rico
Robin Macaluso	Vice President	2024-2027	USA
Yang Farina Abdul Aziz	TM	2024-2025	Malaysia
M. Concepción Gimeno	TM	2022-2025	Spain
Miki Hasegawa	TM	2024-2025	Japan
Pavel Karen	TM	2024-2025	Norway
Andrew Logsdail	TM	2024-2025	UK
Juris Meija	TM	2022-2025	Canada
Onder Metin	TM	2024-2025	Turkey
Ally Aukauloo	AM	2024-2025	France
Bas de Bruin	AM	2024-2025	Netherlands
Mayoro Diop	AM	2022-2025	Senegal
Lukáš Krivosudský	AM	2024-2025	Slovakia
Alessandra Sanson	AM	2022-2025	Italy
Xiangkun Zhu	AM	2022-2025	China/Beijing
Jitendra Bera	NR	2024-2025	India
Suchada Chantrapromma	NR	2024-2025	Thailand
João Galamba Correia	NR	2024-2025	Portugal
Maja Gruden	NR	2024-2025	Serbia
Rosalie Hocking	NR	2022-2025	Australia
Jan John	NR	2024-2025	Czech Republic
Sadhna Mathura	NR	2024-2025	South Africa
Vladimir Stilinović	NR	2024-2025	Croatia
Radostina Stoyanova	NR	2024-2025	Bulgaria
Yi-Chou Tsai	NR	2024-2025	China/Taipei

P term 4Y, no PP