



INTERNATIONAL UNION OF
PURE AND APPLIED CHEMISTRY

DIVISION OF PHYSICAL AND BIOPHYSICAL CHEMISTRY

Progress Report for 2024
Prof. Frances Separovic, President
2 January 2025

This report contains a summary of the aims, activities, and priorities of Division I for the year 2024 and follows the format set out by the IUPAC Secretary-General.

I. EXECUTIVE SUMMARY

The total budget for Divisional projects for 2024-25 was 8,876.00 USD with 2,000 USD are allocated for operations. Three new projects were started in 2024 with \$7k from Division I and additional funding of \$7k supplied by Div II, III, VII & VIII. Most projects are on track with four completed in 2024 and four scheduled to end 31 Dec 2024, for which extensions may be applied.

Division I met online on 19 March, 23 July, and 5 November 2024, and next meeting is planned for March 2025 to prepare for the General Assembly. Attendance has been excellent, with overall > 90% participation. Activities during the year related to project up-dates and approvals, election procedures for the 2026-27 election of officers, as well as planning for IUPAC 2025.

The Division has also given its support to the endorsement of several conferences: 2nd International Conference on Frontiers in Chemical Technology (Sri Lanka), Pesticides and Related Emerging Organic Pollutants Impact on the Environment & Human Health and Its Remediation Strategies (India), 3rd International Conference on Noncovalent Interactions (Serbia), 8th International Soft Matter Conference (USA), 21st International Symposium on Solubility Phenomena and Related Equilibrium Processes (Serbia), 9th International Workshop of Layered and Nanostructured Materials (Italy), 39th International Conference on Solution Chemistry (Tunisia), EPF European Polymer Congress (The Netherlands), Intl Conf. on Sustainable Chemistry for Net Zero (UK), Solutions in Chemistry (Croatia), and 27th Intl Conf Chemical Thermodynamics (Portugal).

II. PLANS AND PRIORITIES

A priority for Division I is to promote a common language in science and engineering *via* the IUPAC Colour Books, which are authoritative resources for chemical nomenclature, terminology, and symbols. Terminology definitions published by IUPAC are drafted by international committees of experts in the appropriate chemistry sub-disciplines, and ratified by the Interdivisional Committee on Terminology, Nomenclature, and Symbols (ICTNS). Commission

I.1 coordinates IUPAC activities related to defining, formulating, and disseminating good practice on physicochemical symbols, terminology, and units, and ensuring their long-term continuity. The Commission presented the first draft of the Green Book 4th Edition late this year.

III. Overall Report of Division I and Commission I.1 activities during 2024.

Division I Aims

The objectives of the Physical and Biophysical Chemistry Division have not changed since the last report and are listed on the Division's webpage: <https://iupac.org/body/100/>

The main goal of the Division is to organize and promote international collaboration between scientists in physical and biophysical chemistry and related fields. Collaborations are encouraged that address problems and formulate recommendations on nomenclature, symbols, units and terminology, as well as conventions in physical and biophysical chemistry.

Projects are supported that:

- establish and stimulate the use of methodologies, standards and reference materials in physical and biophysical chemistry;
- foster the dissemination of the recommendations, monitor their translations and their acceptance by the chemical community;
- encourage the compilation and documentation of critically evaluated physico-chemical data;
- recognize new developments in physical & biophysical chemistry and their applications; and
- promote future-oriented activities important for the contribution of physical and biophysical chemistry to science, technology, and the world community.

Membership (2024-2025)

Officers: **President** – Frances Separovic
Vice President – Jeremy Frey
Secretary - Joaquim Luís Faria
Past President – Pierangelo Metrangola

Titular Members (6): Modou Fall, Hirenda Ghosh, Renata Orinakova, Alison Rodger, Tim Wallington, and Witko Malgorzata

Associate Members (6): Kwok Feng Chong, Terry Frankcombe, Emiko Kazuma, Igor Schapiro, Matti Rissanen, and Ilja Voets

National Representatives (10): Nikolai Bregovic, Claudia Contini, Khashayar Ghandi, Elina Golubina, Lei Liu, Peter Nelson, Vadhuchai Parasak, Igor Pasti, Bogdan Rangelov, and Chien-Lung Wang

The Division is also supported by an **Advisory Subcommittee** to advise on project proposals and is composed of former Division members and scientists outside IUPAC: Christopher Brett, Lucy Carpenter, Supa Hannongbua, Kalina Hristova, Roberto Marquardt, Gerard P. Moss, Michel J. Rossi, Bonnie Ann Wallace, and Ronald Weir.

In addition to the Commission on Physicochemical Symbols, Terminology, and Units (Commission I.1- Secretary: R. Marquardt, Ex Officio Member: F. Separovic), Division I is also

involved in the Interdivisional Committee on Green Chemistry for Sustainable Development (ICGCSD - M. Fall), Interdivisional Committee on Terminology, Nomenclature and Symbols (ICTNS – J. Frey), Interdivisional Subcommittee on Critical Evaluation of Data (ISCED - T. Wallington), Interdivisional Subcommittee on Materials Chemistry (ISMC - T. Francombe). M. represents Division I on the Committee on Ethics, Diversity, Equity and Inclusion (CEDEI) and J. Faria is on the Committee on Chemistry Education (CCE) and the Editorial Advisory Board of *Pure and Applied Chemistry*.

DIVISION I/COMMISSION I.1 PROJECTS

A significant part of the activities is devoted to the identification of and support for projects.

Ongoing projects listed in the October 2024 Financial Report are:

- 2011-037-2-100** Bazyleva: *Recommended reference materials for phase equilibrium studies*
- 2012-044-1-100** Metrangolo: *Basic terminology of crystal engineering*
- 2014-010-1-100** Froba: *Recommendation for the definition, preferred symbols for all transport properties*
- 2019-001-2-100** Frey: *Preparation of the 5th edition of the IUPAC Green Book*
- 2021-006-2-100** Resnati: *Categorizing Interactions Involving Group 11 Elements*
- 2021-019-1-100** Frey: *Gold Book update of terms from the Glossary of Terms Related to Physical and Bio-Physical Chemistry*
- 2021-033-2-100** Wallington: *Evaluated Kinetic Data for Atmospheric Chemistry*
- 2022-009-1-100** Frey: *Digital representation of units of measurement (DRUM)*
- 2023-001-4-100** Etim: *Redefining Proton Affinity for Molecules with Asymmetric Proton Binding Sites*
- 2023-034-2-100** Colacino: *Terminology and Symbolism for Mechanochemistry*
- 2024-006-3-100** Metrangolo: *Terminology and Classification of Per- and Poly-Fluoroalkyl Substances (PFAS)*
- 2024-004-2-100** Bruns: *Molecular Machine Terminology*



Frances Separovic, President