

April 6, 2021

IUPAC DivV report to the Council

By Zoltan Mester, DivV President

Division V Vision:

Division V provides objective scientific expertise and develops essential tools of analytical chemistry that enable IUPAC to accomplish its mission in sustainable development, creating and promoting a common language, providing evaluated data and advocating free scientific exchange, in collaboration with others.

Division V Goals:

- Provide the highest level of unbiased analytical chemical science expertise
 - Publishing technical reports
 - Publishing recommendations on terminology
 - Evaluating of chemical data
 - Making its products available in modern digital forms
 - Contributing to international standard development
 - Providing scientific expertise and advice to relevant international organizations

- Promote and foster the growth of analytical chemistry as a scientific discipline
 - Reinforcing divisional relationships with other IUPAC bodies
 - Organizing / sponsoring international scientific events
 - Contribute to issues related to analytical chemistry education
 - Awarding outstanding contributions towards IUPAC Analytical Chemistry Division's vision

- Ensure the vitality of the Division
 - Evaluating Divisional outputs and setting associated targets
 - Engaging with stakeholder communities that can benefit from, and contribute to, the work of the division
 - Leveraging external resources to enhance divisional activities

Technical reports and recommendations published in 2020-2021

Takeuchi, Takae, McQuillan, A. James, Shard, Alexander, Russell, Andrea E. and Hibbert, D. Brynn. "Glossary of methods and terms used in surface chemical analysis (IUPAC Recommendations 2020)" *Pure and Applied Chemistry*, vol. 92, no. 11, 2020, pp. 1781-1860. <https://doi.org/10.1515/pac-2019-0404>

Kuselman, Ilya, Pennechi, Francesca R., da Silva, Ricardo J. N. B. and Hibbert, David Brynn. "IUPAC/CITAC Guide: Evaluation of risks of false decisions in conformity assessment of a multicomponent material or object due to measurement uncertainty (IUPAC Technical Report)" *Pure and Applied Chemistry*, vol. 93, no. 1, 2021, pp. 113-154. <https://doi.org/10.1515/pac-2019-0906>

Chai, Zhifang, Chatt, Amares, Bode, Peter, Kučera, Jan, Greenberg, Robert and Hibbert, David B.. "Vocabulary of radioanalytical methods (IUPAC Recommendations 2020)" *Pure and Applied Chemistry*, vol. 93, no. 1, 2021, pp. 69-111. <https://doi.org/10.1515/pac-2019-0302>

Pingarrón, José M., Labuda, Ján, Barek, Jiří, Brett, Christopher M. A., Camões, Maria Filomena, Fojta, Miroslav and Hibbert, D. Brynn. "Terminology of electrochemical methods of analysis (IUPAC Recommendations 2019)" *Pure and Applied Chemistry*, vol. 92, no. 4, 2020, pp. 641-694. <https://doi.org/10.1515/pac-2018-0109>

Labuda, Ján / Bowater, Richard P. / Fojta, Miroslav / Gauglitz, Günter / Glatz, Zdeněk / Hapala, Ivan / Havliš, Jan / Kilar, Ferenc / Kilar, Aniko / Malinovská, Lenka / Sirén, Heli M. M. / Skládal, Petr / Torta, Federico / Valachovič, Martin / Wimmerová, Michaela / Zdráhal, Zbyněk / Hibbert, David Brynn

[Terminology of bioanalytical methods \(IUPAC Recommendations 2018\)](#)

Pure and Applied Chemistry, Volume 90, Issue 7. Pages 1121-1198

Camões, Maria F. / Christian, Gary D. / Hibbert, David Brynn

[Mass and volume in analytical chemistry \(IUPAC Technical Report\)](#)

Pure and Applied Chemistry, Volume 90, Issue 3. Pages 563-603

Maryutina, Tatiana A. / Savonina, Elena Yu. / Fedotov, Petr S. / Smith, Roger M. / Siren, Heli / Hibbert, D. Brynn

[Terminology of separation methods \(IUPAC Recommendations 2017\)](#)

Pure and Applied Chemistry, Volume 90, Issue 1. Pages 181-231

Marquardt, Roberto / Meija, Juris / Mester, Zoltán / Towns, Marcy / Weir, Ron / Davis, Richard / Stohner, Jürgen

[Definition of the mole \(IUPAC Recommendation 2017\)](#)

Pure and Applied Chemistry, Volume 90, Issue 1. Pages 175-180

Possolo, Antonio / van der Veen, Adriaan M. H. / Meija, Juris / Hibbert, D. Brynn

[Interpreting and propagating the uncertainty of the standard atomic weights \(IUPAC Technical Report\)](#)

Pure and Applied Chemistry, Volume 0, Issue 0. Pages –

Evaluating of chemical data

Making its products available in modern digital forms

Div V operates two subcommittees dedicated exclusively to chemical data evaluation. Detailed descriptions and latest updates could be found under the links below

- [Subcommittee on Solubility and Equilibrium Data](#)
- [Interdivisional Subcommittee on Critical Evaluation of Data](#)

Contributing to international standard development

Providing scientific expertise and advice to relevant international organizations

Division V contributes to standardization efforts world wide specifically:

International Committee on Weights and Measures/Consultative Committee on the Amount of Substance (CIPM/CCQM)

ISO-Committee on Reference Materials (ISO/REMCO)

CITAC

Joint Committee for Guides in Metrology (JCGM)

EuChemS (European Chemical Society)

EURACHEM

CODATA

Organizing / sponsoring international scientific events

Div V has sponsored/co-organized two scientific conferences in the analytical chemistry domain.

Colloquium Spectroscopicum Internationale XLI (CSIXLI) and first Latin-American Meeting on Laser Induced Breakdown Spectroscopy was held in Mexico City in June 2019 with IUPAC presentation in keynote lecture format.

15th Rio Symposium on Atomic Spectrometry, Mendoza, October 2019, high profile conference
300+ attendants
<https://www.15riosymposium.com/>

Contribute to issues related to analytical chemistry education

Because of the perceived loss of knowledge, research and teaching capacity in the analytical chemistry domain Div V has launched a major project on documenting and current status of analytical chemistry education world wide, along with a needs analysis from educators, students and industry

Project # 2019-039-3-500

A Review of Current Status of Analytical Chemistry Education There is plenty of anecdotal evidence for the erosion of analytical chemistry as a discipline. This is impacted by faculty appointments, funding structures and perception of the field as being a service function. Additionally, as instruments become easier to use there is a mistaken belief in some industrial organisations that there is a reduced need for highly trained analytical specialists. There have been warning signs that the current, university chemistry curriculum, often with a does not address the needs of chemistry graduates and future employers and does not enable analytical practitioners to maximise the value of their work. The project will reflect on the interdisciplinary curriculum development efforts which has been the trend in many universities worldwide. This is a significant economic cost, considering that in many economies the most used practical skills of graduates is actually related to chemical analysis. A deep and fundamental understanding of analytical chemistry is required to foster the next generation of analytical scientists who have the insight and capacity to contribute to fundamental new developments in this field as well as the generation of new disruptive technologies.

The project will document the status quo in various regions of the world regarding the health of the discipline, proportion of professorships, funding and quality of analytical chemistry

Awarding outstanding contributions towards IUPAC Analytical Chemistry Division's vision

Analytical Chemistry had no high profile international prize. Division V has decided to create one along with an early career innovation award.

The first round of nomination and review process was completed and in 2021 we will be naming the first recipients of this award

Engaging with stakeholder communities that can benefit from, and contribute to, the work of the division

Leveraging external resources to enhance divisional activities

Analytical industry is not present at IUPAC at any level. The division has started a planning and outreach and establishing an industry sub group within the division to provide a space for industry input. Also it is expected this group would take a leading role in driving non academic project development / selection and funding process. It is expected that by Montreal we will have new sub committee in place.