

## Project Place

D.D. Dionysiou, K.D. Hristovski, and B.G. Loganathan (eds). Water Challenges and Solutions on a Global Scale. Chapter 10, pp 185-219. ACS Symposium Series, Vol. 1206. <https://doi.org/10.1021/bk-2015-1206.ch010> (online 3 Dec 2015); <https://iupac.org/project/2008-003-3-600>

For further information, contact Task Group Chair Yehuda Shevah <[ysheva@gmail.com](mailto:ysheva@gmail.com)> <https://iupac.org/project/2017-018-3-600>

### Chemical and Biochemical Thermodynamics Reunification

According to the IUBMB-IUPAC joint commission on biochemical nomenclature (JCBN), two categories of thermodynamics based on different concepts and different formalisms have been established: i) chemical thermodynamics that employs conventional thermodynamic potentials to deal with chemical reactions; ii) biochemical thermodynamics that employs Legendre-transformed thermodynamic potentials to deal with biochemical reactions based on the formalism proposed by Alberty [1].

With this recently approved project, a task group lead by Stefano Iotti will attempt to show that the two worlds of chemical and biochemical thermodynamics, which so far have been treated separately, can be reunified within the same thermodynamic framework.

#### References

1. R. A. Alberty, A. Cornish-Bowden, R. N. Goldberg, G. G. Hammes, K. Tipton, and H. V. Westerhoff, *Biophys. Chem.*, 155 (2011) 89-203; <https://doi.org/10.1016/j.bpc.2011.03.007>

For further information, contact the Task Group Chair Stefano Iotti <[iotti@unibo.it](mailto:iotti@unibo.it)> [www.iupac.org/project/2017-021-2-100](http://www.iupac.org/project/2017-021-2-100)

### Chemistry Teacher International

As part of IUPAC's publishing partnership with De Gruyter, the Committee on Chemistry Education (CCE) will launch a new open access journal, *Chemistry Teacher International (CTI)*, in summer 2018.

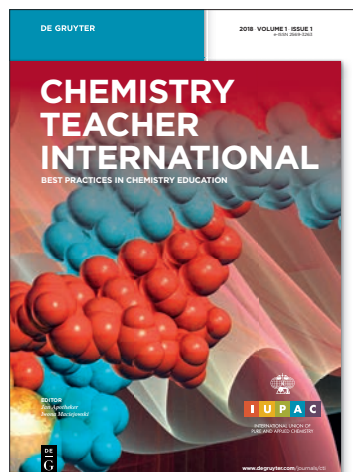
This open access journal will be published biannually, with the inaugural issue released in June 2018 and the second issue in December. The online journal will be peer reviewed and focused on good practices. The target groups are teachers in secondary education, as well educational researchers. CCE expects about 24

articles per year from different sources, in part from selected proceedings of the International Conference on Chemical Education, which the Committee organizes every two years.

Jan Apotheker will function as the executive editor, together with Iwona Maciejowska of the Division of Chemical Education of EuCheMS.

For further information, contact the Task Group Chair Jan Apotheker <[j.h.apotheker@rug.nl](mailto:j.h.apotheker@rug.nl)> [www.iupac.org/project/2016-002-4-050](http://www.iupac.org/project/2016-002-4-050)

<https://www.degruyter.com/view/j/cti>



### Human Health Risk Consideration of Nano-Enabled Pesticides for Industry and Regulators

Previous IUPAC Nanopesticides projects (e.g., projects 2012-020-3-600 and 2016-016-2-600) have developed risk assessment frameworks and key criteria that could help risk assessment processes for nano-enabled pesticides (especially for ecological risk assessments) [1,2].

While the approach elucidated in the above IUPAC projects is now being considered by regulatory agencies internationally (e.g., USEPA, Environment Canada, APV-MA Australia, EFSA Europe), there is a need to expand our thinking and provide more practical information to answer some key questions, such as those listed below:

1. When a new product is presented to regulators, what are the key questions that they would like to ask? This essentially defines the problem formulation step in the health risk assessment framework.
2. What are the key characterization and analytical requirements for the specific product that may be necessary to answer the questions posed as part of Question 1 for a specific product type?
3. What are the specific methods or approaches for human health effects that are readily available and appropriate to answer the questions for the specific product under consideration?

4. What are the current knowledge gaps and uncertainties that the regulators and industry need to consider for a pragmatic approach to decision making?

This project would consist of three phases.

Phase I – Bring together a core group of task members to define the scope of the project, identify specific active ingredients and product types, and undertake problem formulation from the risk assessment perspective.

Phase II – Organize a workshop bringing together expertise from industry, regulatory bodies, and researchers on human health effects and the risk assessment of nano-enabled pesticides, as well as the characterization of nanomaterials that have been identified in phase I.

Phase III – Recommend a sound methodological approach for generating data that is likely to be needed by the regulators. Identify research priorities where current knowledge or methodology are found to be inadequate.

The overall objective is to assist industry, contract research organizations (CROs), and regulators in determining an acceptable and practicable approach for generating the data relevant to human health risk assessment required for the registration of nano-enabled pesticide formulations. Broadly speaking, a nano-enabled pesticide represents a product where nanotechnology is employed (e.g. delivery via a nano-carrier) to enhance efficacy, reduce the environmental footprint, or the enhance usability of a pesticide active ingredient.

### References

1. Rai Kookana *et al.* Nanopesticides: Guiding Principles for Regulatory Evaluation of Environmental Risks. *J. Ag Food Chem* 62:4227-4240. 2014. <http://doi.org/10.1021/jf500232f>
2. Glen W. Walker *et al.* Ecological Risk Assessment of Nano-enabled Pesticides: A Perspective on Problem Formulation. *J. Ag Food Chem.* 2017. <http://doi.org/10.1021/acs.jafc.7b02373>

For further information, contact the Task Group Chair Linda Johnston <linda.johnston@nrc-cnrc.gc.ca> or Rai Kookana <rai.kookana@csiro.au>

[www.iupac.org/project/2017-035-2-600](http://www.iupac.org/project/2017-035-2-600)

## IUPAC100 Periodic Table Challenge

The year 2019 marks the 100th anniversary of IUPAC and the 150th anniversary of the Periodic Table. The IUPAC Centenary is an opportunity to reflect on the value and work that is carried out by the IUPAC. While doing so, we can inform audiences worldwide of the variety of IUPAC activities—and do so in a manner that covers each and every decade, not just recent years.



Given the anniversary of the Periodic Table and its central role in chemistry, this project seeks to create an online global competition centered on the Periodic Table and IUPAC. The objective of the project is to promote IUPAC's role in shaping the global affairs of chemistry through a competitive online quiz. With this global activity, we aim to reach a global audience of young students in a way that will be attractive, cost-effective, and that will give visibility to the work that IUPAC has been doing over the last 100 years.

### This is your chance to contribute

While some questions have already been prepared, the Task Group needs your input to reach its goal: a question linked to each and every one of the 118 elements, with a full diversity of topics covered. We are looking for creative multiple-choice questions: the focus of the question is free for you to choose. Some obvious choices are questions regarding the name, the chemical or physical properties of the elements, or aspects surrounding the element's discovery.

For examples of questions and to submit your own now, please visit the project page.

For further information, contact the Task Group Chair Jan Apotheker <j.h.apotheker@rug.nl> or Juris Meija <juris.meija@nrc.ca>

[www.iupac.org/project/2017-031-1-050](http://www.iupac.org/project/2017-031-1-050)