

# CODATA

## Newsletter 103

**Committee on Data for Science and Technology**

### ICSU - CODATA WORKSHOP ON THE DESCRIPTION OF NANOMATERIALS

**May 2012**

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At the request of several groups involved in preparing standards for nanotechnology, the International Council for Science (ICSU) and CODATA organized a workshop addressing issues associated with developing systems for describing materials on the nanoscale (called nanomaterials for short).

The subject of describing nanomaterials is of great importance as nanotechnology progresses and becomes commercialized. Many recognized systems exist for naming

and describing "traditional" materials - from chemicals to metals and alloys to polymers to biological species. The distinctive characteristics of nanomaterials and the broad interest in them, from researchers to regulators to the general public, makes it imperative to develop a robust system to describe them accurately - meaning a system that will allow complete specification of each unique nanomaterial as well as determination that two nanomaterials are the same (equivalency).

*Workshop Co-Chairs*



*John Rumble*



*Françoise Roure*

If you want to publish a short article in a CODATA newsletter please contact Sally Davies at [codata.office@gmail.com](mailto:codata.office@gmail.com)

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**International Training Workshop for Developing Countries on Scientific Data Management and Sustainable Development, 15-31 July 2012 - Beijing, China**

Organized jointly by CODATA and the Chinese Academy of Sciences (CAS), the workshop aims to improve the ability of scientific data management, preservation and sharing application.

For more information contact LI Chang ([lichang@cnic.cn](mailto:lichang@cnic.cn))

.../... The ICSU-CODATA workshop was held on 23-24 February 2012 in Paris, with additional local support of the French government. 51 international experts attended, including representatives of ten international scientific unions, ISO Technical Committee 229 on Nanotechnology, industry, government, and academia, national standards development organizations, and the OECD.



*French Ministère de l'Enseignement Supérieur et de la Recherche, where the ICSU-CODATA workshop was held on 23-24 February 2012*

## MAJOR CONCLUSIONS

1. The workshop reinforced the fact that materials with dimensions on the nanoscale (approximately 1 nm to 100 nm) have structure, properties, and interactions that can be quite different from macroscopic materials.

2. Materials on the nanoscale are of interest to and involve many diverse scientific disciplines, with each discipline bringing many perspectives, some of which are unique to their discipline.

3. A wide variety of applications and technologies will take advantage of materials on the nanoscale in the future and these diverse uses will require different types and amounts of data.

4. Standards for describing materials on the nanoscale must be developed with the inclusion of perspectives from different scien-

tific disciplines and different user communities.

The workshop acknowledged a shared interest across disciplines and user communities for accessing and using information about materials on the nanoscale. It strongly supported the position that a discipline-independent description system was necessary as an enabler for many purposes, including informed interactions and decisions among and by stakeholders communities that must be based on meaningful scientific knowledge. Such a system would allow responsible research and innovation in novel materials in many areas, including bio-nano engineered materials.

The workshop pointed out the negative consequences of a "business as usual" scenario, in which the development of a nano-materials description system proceeds almost exclusively emphasizing only environmental, health, and safety (EHS) uses. In that scenario, the needs of other scientific disciplines and user communities would not be met in a timely fashion. Consequently, the workshop defined some principles for guiding the development of a robust and high impact description system. Such a project should have:

- A well defined governance for a project open to international cooperation

Mustapha Mokrane recently appointed Executive Director of ICSU World Data System (WDS) heads its newly established International Programme Office based in Tokyo.

Mustapha was previously Science and Information Technology Officer at ICSU's office in Paris. He holds a MSc and PhD from the Université de la Méditerranée, Marseille, France in the field of Biology/Bioinformatics.

For more information please check:

<http://www.icsu.org/news-centre/news/world-data-system-names-its-new-executive-director>

*Mustapha Mokrane*



- Incentives for contributions by researchers in many disciplines, perhaps through crowd sourcing
- Consideration of multi-lingual needs
- Early inclusion of general public and consumer needs
- Early inclusion of engineering and technological needs
- Early inclusion of public authority needs

The resulting system should possess the following characteristics:

- Establishment of the uniqueness of a specific nanomaterial and equivalency of two nanomaterials
- Accessibility and extensions to meet specific needs or those of interest groups
- Open access of the core characterization set, generic ontologies, and data sets for use by all
- Interoperable informatic formats
- Strong curation and high scientific quality
- Capability to respond to and include new knowledge and technology, that is, be dynamic
- Provision of a level playing field by international cooperation in research on nanometrology.

## RECOMMENDATIONS

The workshop strongly endorsed a vigorous effort to facilitate the development of a robust description system for materials on the nanoscale. To this end, the workshop made the following recommendations :

1. A two-phase, pre-normative project should be started as soon as possible. The first phase is to determine the requirements for a description system for materials on the nanoscale that takes into account the needs of as many scientific and technical disciplines and user communities as possible.

2. The second phase would develop a potential list of minimum characteristics that meet as many of the requirements defined in 1. above as possible.

3. The International Scientific Unions, and similar bodies for disciplines without an union, provide an ideal mechanism for bringing together the scientific knowledge necessary to complete the projects in points 1. and 2. successfully.

4. The results of these projects should be presented to international standards development organizations such as ISO TC229 on Nanotechnology to facilitate the development of standards on description systems for materials on the nanoscale.

5. CODATA as an official ICSU committee is ideally placed to

bring together different scientific knowledge through its access to International Scientific Unions.

6. VAMAS (Versailles Project on Advanced Materials and Standards), has ties to international standards development organizations such as ISO, and is ideally placed to provide strong leadership on pre-normalization research.

7. Consequently, CODATA and VAMAS should form a joint working group with the specific goal of developing a pre-normative White Paper presenting the requirements for a robust description system for materials at the nano-scale based on the needs of all scientific and technical disciplines on an international and multi-lingual basis.

8. The joint CODATA-VAMAS working group should seek funding from a variety of international and national funding agencies, as well as consider partial funding from industry.

9. Work should commence as soon as approval from CODATA and VAMAS is obtained.

*Submitted by Françoise Roure and John Rumble, Workshop Co-Chairs*

For more information on this workshop please check our website <http://www.codata.org/>



The International Council for Science (ICSU) recently appointed Steven Wilson as Executive Director. He took up his duties on 1 April 2012. He joined the Natural Environment Research Council (NERC) in 1998 where he held various positions which included Director of Earth Observation, Director of Science and Innovation, and Director of Strategy and Partnerships.

For further information please check <http://www.icsu.org/news-centre/news/icsu2019s-new-executive-director-appointed>

*Steven Wilson*



# OPEN DATA AND INFORMATION FOR A CHANGING PLANET

## 23rd International CODATA Conference

### Taipei 28-31 October 2012

### CALL FOR CODATA PRIZE NOMINEES

The CODATA Prize is a major biennial prize awarded by CODATA, which:

- Acknowledges outstanding achievement in the world of scientific and technical data (S&T)
- Is for a one time achievement or an achievement over time
- Is given preferentially to an individual
- Recognises work carried out in fields of importance to S&T data, such as data management, evaluation, dissemination, access issues, international cooperation, knowledge discovery, archiving or related subjects.

The CODATA award will be presented at the 23rd International CODATA Conference in Taipei. The recipient will be presented with a piece of sculpture and will also receive financial support to travel to Taipei to deliver an awards lecture at the CODATA Conference 2012.



Check our website for more details at:  
<http://www.codata2012.com/page/codata-prize-deadline-is-25th-may-2012>

**Deadline for Submissions: 25th May 2012**

For more information on the Conference, visit the website at:

<http://www.codata2012.com/>

You can also follow us on twitter:

<https://twitter.com/#!/CODATANews>

**Deadline for receipt of Abstracts and Session Proposals  
extended to June 15th, 2012**

### FORTHCOMING MEETINGS

**1st Global Thematic IASC Conference on the Knowledge Commons "Governing Pooled Knowledge Resources in a World of Rapid Social and Technological Change. Building Institutions for Sustainable Scientific, Cultural and Genetic Resource Commons",**

12-14 May 2012 - Louvain-la-Neuve, Belgium <http://www.codata.org/Louvain%20Conference.pdf>

**The 4th Qualitative and Quantitative Methods in Libraries International Conference (QQML2012),**

22-25 May 2012 - Limerick, Ireland <http://www.isast.org/>

**Forum on Science, Technology and Innovation for Sustainable Development,**

11-15 June 2012, Rio de Janeiro, Brazil <http://www.icsu.org/rio20/science-and-technology-forum>

**Rio 20+,**

20-22 June 2012, Rio de Janeiro, Brazil <http://www.uncsd2012.org/rio20/index.html>

**PICK-ME Conference 2012,**

21-22 June 2012 - Turin, Italy

[http://brick.carloalberto.org/index.php?option=com\\_content&view=article&id=90&Itemid=76](http://brick.carloalberto.org/index.php?option=com_content&view=article&id=90&Itemid=76)

**Interdisciplinary Conference on Digital Cultural Heritage,**

2-4 July 2012 - St Dié, France <http://intercarto18.net/>

**23rd International CODATA Conference,**

28-31 October 2012 - Taipei <http://www.codata2012.com/>