

CODATA/VAMAS Working Group on the Description of Nanomaterials

Next Steps November 2013 to October 2014

The CODATA/VAMAS Working Group (WG) released a revised Draft Framework for the Uniform Description System for Materials on the Nanoscale on October 3, 2013. The Framework is available on the WG's web site at www.codata.org. The Framework defines the major categories of information important for describing materials on the nanoscale as well as the detailed descriptors used in some of the categories. Groups actively working on defining a more complete set of descriptors were also identified. The next and final stage of the WG's effort is to continue to improve the Framework and to define an initial Uniform Description System (UDSnano) in as much detail as possible. The paper outlines the work plan for the next 12 months.

The plan consists of four major elements.

1. Define an initial UDSnano, using a small group of international experts
2. Engage expert organizations to work on specific categories within their domain of expertise
3. Hold three international workshops (one each in Europe, North America and Asia) to consolidate progress and establish long-term responsibility for expanding and maintaining the UDSnano
4. Produce the final report and recommendations

Each of these elements is discussed in detail below.

1. Define an initial UDSnano, using a small group of international experts

The purpose of this effort is to review each of the categories and subcategories defined in the 3 Oct version of the Framework and develop as complete a list of descriptors, or groups of descriptors as possible. Whenever feasible the descriptors would be taken from existing approaches such as those of ISO 229, IEC 113, and ASTM E56, international unions such as IUCr and IUPAC, and nanoinformatics efforts such as RTI's NanoRegistry and the Nordic Quantum Computing Group.

Team Members

Steve Freiman (Lead)

Clayton Teague (Lead)

2. Engage expert organizations to work on specific categories within their domain of expertise

The CODATA/VAMAS WG was envisioned as a two year effort to develop an initial UDSnano as a pre-standardization activity. After two year, if the work was successful, other groups would take ownership of part or all of the UDSnano. Potential candidates include standards development organizations such as ISO TC 229, IEC TC 113, and ASTM E56. In addition, international scientific unions might be interested in taking responsibility for maintaining and enhancing parts of the UDSnano. Finally other organizations such as national laboratories and research institutions might have an interest in specialized parts.

The effort of our work plan is aimed at working with such organizations to make sure they (1) understand the work of the CODATA/VAMAS WG, (2) identify areas for which they have a significant long-term interest, and (3) begin preparations for longer term activity in those areas.

Team

John Rumble (Lead)

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3. Hold three international workshops (one each in Europe, North America and Asia) to consolidate progress and establish long-term responsibility for expanding and maintaining the UDSnano

It is important that a larger set of the nanomaterials become involved in these next steps for the UDSnano, both to gather additional insights and to validate the approach. To achieve this the WG will organize three workshops (50-60 attendees each), one each in Europe, North America, and Asia. The present plan is to hold these fairly close together time wise once a draft initial version of the UDSnano has been completed (element 1 above). Each of the Workshops will have three components over two to two and one-half days: (a) Filling out the UDSnano with input from disciplines; (b) Input from SDO, regulatory organization, and industry; and (c) Nanoinformatics.

Logistics will be handled by the CODATA Secretariat and the Workshop Leader. The WG still has some funding to support these activities.

A possible schedule for the Workshops is as follows

June-July 2014	Europe (University College Dublin)
August-September 2014	North America (Washington DC ?)
October-November 2014	Asia (China, Japan)

Organizing Teams

Europe

John Rumble (Lead)

North America

Steve Freiman (Co-Lead)

Clayton Teague (Co-Lead)

Asia

John Rumble (Lead)

4. Produce the final report and recommendations

The WG goal is to consolidate the results from these three efforts and produce a draft of the final report and recommendations in time for the next CODATA Conference being held in New Delhi, India, in early November 2014. Some additional work will be required to complete the final report and transmit it to its intended audience of standards development organizations, international scientific unions, and other organizations interested in nanomaterials. The work of the original CODATA/VAMAS Working Group on the Description of Nanomaterials will be completed by December 31, 2014.

CODATA is now a member of a consortium ***FutureNanoNeeds*** (full title: Framework to respond to regulatory needs of future nanomaterials and markets) led by University College Dublin, National University of Ireland. This project is funded under the European Union's Seventh Framework Programme, *Theme NMP.2013.1.3-3 - Development of a systematic framework for naming and assessing safety of the next generations of nanomaterials being developed for industrial applications*. An application to extend the CODATA/VAMAS Working Group on the Description of Nanomaterials will be submitted to CODATA and VAMAS in early 2014. The WG will then be responsible for executing CODATA's work under the FutureNanoNeeds project.