



## ANSI-NSP Newsletter

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The ANSI-NSP Newsletter provides information on nanotechnology standards and related topics of interest. Stakeholders are encouraged to submit information to the [ANSI-NSP](#) that they feel would be of interest to the larger ANSI-NSP Community.

For further information and updates on the Panel, please visit the [ANSI-NSP Website](#).



[www.ansi.org/wsweek](http://www.ansi.org/wsweek)

## WELCOME

Welcome to the first issue of the ANSI-NSP Newsletter. We hope that this newsletter will be a resource for the nanotechnology community on the various standards activities taking place not only in the United States, but across the globe, as well as provide greater visibility of the various activities and standards that are already developed relative to nanotechnology.

“The nanotechnology standards community is very active with ongoing projects led by experts under the auspices of ANSI, ASTM, TAPPI, and others. We hope that this newsletter will serve to increase awareness among the experts working with each of these bodies and the nanotechnology community at large,” explained ANSI-NSP Co-chair Shaun Clancy (Evonik Corporation).

“Furthermore,” noted ANSI-NSP Co-chair Dr. Ajit Jillavenkatesa (NIST), “we hope that ANSI-NSP participants will consider actively contributing to the newsletter and leverage this communications channel to further strengthen nanotechnology standards related cooperation and collaboration. Such enhanced interactions and information sharing are a key element to continued US leadership in nanotechnology standardization.”

While ANSI will be providing some of the content to be included in this newsletter, we anticipate that this will be a community-driven project, with developers and organizations providing updates on any documents published or upcoming meetings that may be of interest to the ANSI-NSP. If you do have any information you would like to share, please feel free to forward it to [hbenko@ansi.org](mailto:hbenko@ansi.org).

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## GUEST COLUMNIST: Lynn Bergeson

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### The Essentiality of Standards in Emerging Nanotechnologies

By Lynn L. Bergeson<sup>1</sup>

The concept of knowledge is fascinating. How is it that we as human beings can intuit and know things, and then translate that knowledge into verbal expressions that can be understood and shared with others? Epistemological debates aside, the invisible enabler, the connective tissue underpinning virtually all social discourse is the “standard.” Standards provide common means to define, express, understand, and communicate effectively. So fundamental are standards that we seldom think about their pervasiveness and essentiality.

Standards are core to the fabric of legal and governance policies. Without standards, there is no hope of developing a coherent or defensible basis for defining terms, establishing prudent practices, or developing measurement standards, to name a few. All are necessary in developing reproducible, clear, and transparent measures that help ensure legal, regulatory, and governance provisions are harmonized to the greatest extent practicable.

The work of the American National Standards Institute's (ANSI) Nanotechnology Standards Panel (NSP) and the development of voluntary consensus standards are essential and urgently needed, as emerging nanotechnologies offer significant promise for a better, more sustainable future, and legal and governance policies are central to their legitimacy, acceptance, and credibility. As a lawyer, such standards, developed by ISO for example, with U.S. input through the ANSI-Accredited US TAG to ISO/TC 229 *Nanotechnologies*, have been invaluable in helping to formulate a defensible basis upon which responsible behaviors can be measured and rewarded, and irresponsible behaviors can be defined and blunted. These and other consensus standards, some of which are described later in this newsletter, are essential, and make possible the promise of coherence in emerging nano regulatory and governance measures.

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## NEWS & INFORMATION

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### **IEC TC 113 Issues New Publications for Nano-electrotechnology Standardization**

The IEC TC 113 Programme of Work continues to grow with new standardization activity in areas such as graphene, luminescent nanomaterials, nanoelectronics and nano-enabled energy storage. In 2014, IEC published the following:

#### **IEC 62607-3-1 Ed. 1, *Nanomanufacturing - Key control characteristics - Part 3-1: Luminescent nanomaterials - Quantum efficiency***

This standard is the first international product specific nano-electrotechnology standard. It provides a standard methodology for determining the quantum efficiency of luminescent nanomaterials such as quantum dots and nanophosphors, and will provide customers the ability to make apples-to-apples comparisons of performance of differently sourced nanomaterials. Go [here](#) to purchase.

#### **IEC/TS 62607-4-1 Ed. 1, *Nanomanufacturing - Key control characteristics - Part 4-1: Cathode nanomaterials for lithium ion batteries - Electrochemical characterisation, 2-electrode cell method***

This Technical Specification provides a standard methodology for characterizing the electrochemical properties of new cathode nanomaterials that will be employed in lithium-ion batteries. Following this method will allow comparison of different types of cathode nanomaterial and comparison of the results of different research groups. Go [here](#) to purchase.

#### **IEC/TS 62607-5-1 Ed. 1, *Nanomanufacturing - Key control characteristics - Part 5-1: Thin-film organic/nano electronic devices - Carrier transport measurements***

This Technical Specification provides a reliable method for evaluating carrier transport properties in thin film organic/nano electronic devices, and sets guidelines for making test sample structures so that materials information is clear and consistent throughout the research community and industry. Go [here](#) to purchase.

### **ASTM E56 Approves Airborne Nanoparticle Measurement Standard**

ASTM International's Committee E56 on Nanotechnology has recently published the first two consensus-based standards for nanotechnology education: ASTM E2996-2015, *Standard Guide for Nanotechnology Workforce Education in Health and Safety*; and ASTM E3001-2015, *Standard Practice for Workforce Education in Nanotechnology Characterization*. These standards are two of a planned suite of seven education standards on various subjects developed under the auspices of the Nanotechnology Applications and Career Knowledge Network, which is funded, in part, by the National Science Foundation. Each standard may be used to develop or evaluate an education program in the field of nanotechnology to be taught at an undergraduate college level. Such an education program should be sufficiently broad to prepare an individual to work in one of the many areas in nanotechnology research, development, or manufacturing.

Both E2996-2015 and E3001-2015 delineate key topics that should be covered in a nanotechnology education program on this subject; however, the standards do not provide specific course material. This approach is taken in order to allow workforce education entities to ensure their programs cover the required material while also enabling these institutions to tailor their programs to meet the needs of

their local employers. ASTM Committee E56 welcomes all interested parties to join the efforts of the task group as they continue to develop this suite of nanotechnology education standards.

Another new development in Committee E56 is work item WK48313, *New Guide for Standard Guide for Collection and Generation of Environment, Health, and Safety Information for Nanomaterials and Nanoenabled Products*, aimed at providing a consistent process for generating environmental health and safety (EHS) information for nanomaterials and nano-enabled products.

These topics will be some of the items covered at the upcoming Committee E56 meeting, which takes place April 9-10, 2015, at NIST Headquarters in Gaithersburg, MD. All interested parties are welcome to attend. Due to security procedures at NIST, all attendees are asked to preregister by April 1. More information and free meeting registration is available at <http://www.astm.org/MEETINGS/nextmeeting.cgi?+++E56>.

For more information on any of these items, contact Kate McClung at [kmcclung@astm.org](mailto:kmcclung@astm.org).

### **ISO/TC 229 to Publish Document on Economic and Science Indicators (ISO/TS 18110)**

U.S. experts provided significant input in the development of an ISO Technical Specification, ISO/DTS 18110, *Nanotechnologies – Vocabularies for Science, Technology and Innovation Indicators*. This document specifies definitions for key innovation indicators such as nanotechnology publications, patents, products, and enterprises. The terms and definitions in this document provide a common basis for understanding and articulating the impact of nanotechnology and the gains from investments in nanotechnology.

ISO/DTS 18110 was recently finalized, and publication of the document is anticipated very soon. Once published, definitions for the terms in this Technical Specification can be reviewed using the ISO Online Browsing Platform (<https://www.iso.org/obp/ui/>).

The key terms defined in this Technical Specification are: human resource for nanoscience and nanotechnology; nanotechnology job; nanotechnology publication; nanotechnology patent; nanotechnology product; nanotechnology tool; nanotechnology enterprise; nanotechnology service; and nanotechnology market.

**The American National Standards Institute's Nanotechnology Standards Panel ([ANSI-NSP](#)) serves as the cross-sector coordinating body for the purposes of facilitating the development of standards in the area of nanotechnology, including, but not limited to: nomenclature/terminology; health, safety and environmental aspects; materials properties; and testing, measurement, and characterization procedures.**

**For more information about the NSP, please contact [hbenko@ansi.org](mailto:hbenko@ansi.org)**