



ICSU - CODATA Workshop on the Description of Nanomaterials


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- Does your organization have any standards or guidelines (formal or informal) for nanomaterials description, either under development or already developed? If so, what are they and what aspects of nanomaterials are addressed?
 - In Mexico, we do not have any standards guidelines for nanomaterials description.

- What aspects of the description of nanomaterials are most important from your perspective? Why?
- First, one has to distinguish the dimensionality of the nanomaterial under study.
- The properties depend primarily on the dimensionality. The unique properties of nanomaterials are due to the large fraction of surface atoms. In the case of a thin film (2D) the number of atoms exposed are of macroscopic size; although the thickness may be of only some atomic distances .
- One of the most successful applications of nanomaterials is the use of magnetic thin films in hard disks.

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- Which properties are most important for characterizing a nanomaterial? Or stated differently, which properties must be reported to characterize a nanomaterial for applications or use within your discipline? Why?
 - The physicochemical properties of nanostructures are determined by:
 - Number of atoms
 - Geometrical structure
 - Chemical composition

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- Once these three properties are established, one has to specify a parameter that depend on the physicochemical property under study, which determine the size of the system.
 - For magnetic materials the length of magnetic domains determine the regimes of paramagnetic and magnetically ordered structures.
 - For optical applications the surface plasmon frequency is crucial, etc.

Maya blue (The paint contains metallic nanoparticles, Yacaman, et al Science, Maya Blue Paint: An Ancient Nanostructured Material. Science 273, 223 (1996).)

