ANSI-NSP Meeting on Advanced Materials

Should Nanotechnology SDOs Expand Their Scope to Include Advanced Materials?

A Perspective from ASTM E56 (Nanotechnology)

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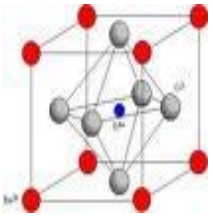
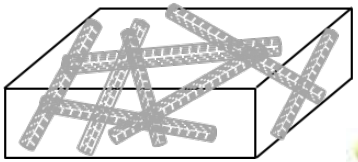
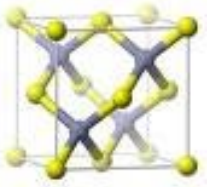
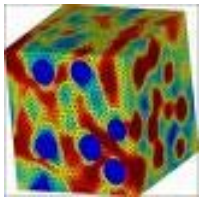
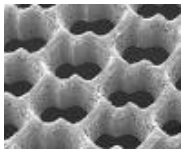
ASTM INTERNATIONAL
Standards Worldwide

Advanced Materials

Condensed phases, including

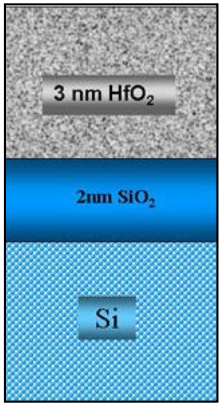
- Ceramics
- Metals
- Polymers
- Composites
- Semiconductors
- Biomaterials
- Hybrids
- Fluids

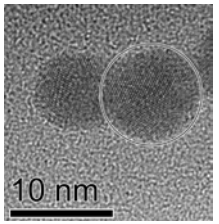




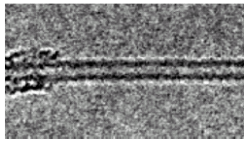
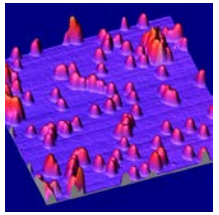



…in all forms, including

- Bulk, porous
- Multilayer
- Tube, rod
- Particulate

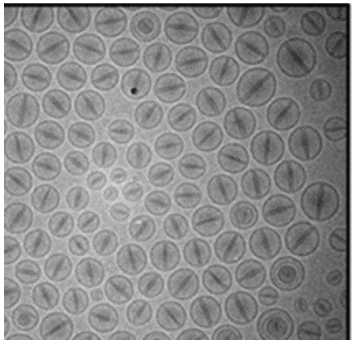



…at all length scales

nanoscale ⟶ microscale ⟶ mesoscale ⟶ macroscale

Considerations

- Nanomaterials are a subset of advanced materials
- Most E56 standards and work items are not extensible to other types of advanced materials
  - Material-specific, *e.g.*, *liposomes*
  - Size-limited measurement method, *e.g.*, *Nanoparticle Tracking Analysis*
  - Specific sample preparation: *AFM*
- Initiate new standards applicable to advanced materials
  - What advanced materials?
  - For what purpose? *Regulatory, manufacturing*
  - Experience with nanomaterials indicates that *test methods* are often materials-specific
  - Challenging to recruit individuals to work on standards



Liposomes:
ASTM E3143-18b

https://imgs.xkcd.com/comics/standards.png