

Al-Mustaqbal University-College

Department of medical physics

The Second Stage



Second lecture

History and Future of Nano- materials

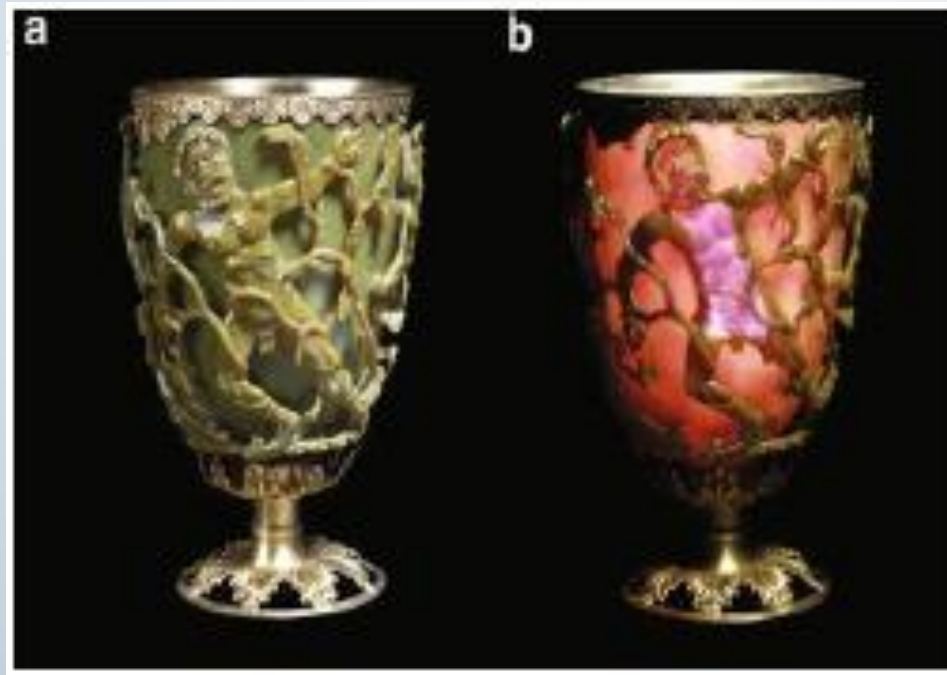
By:

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October 2021

CHAPTER Two

- ✓ **Question:** What is the first time that the nanomaterials have been used?



The Lycurgus cup in reflected (a) and transmitted (b) light

CHAPTER Two

✓ **Question** ; What is the first time that the nanomaterials have been used?

The use of nanostructured materials dates back at the fourth century AD when Romans were using nanosized metals with Lycurgus cup that was fabricated from nanoparticles (NPs) of gold and silver that were mixed in the glass.

Lycurgus cup

Question: What are the main materials used in the making of Lycurgus cup?

Answer: Lycurgus cup was fabricated from nanoparticles (NPs) from gold and silver which mixed with glass material during the fabrication process.

Lycurgus cup

Question: What are features of Lycurgus cup?

Answer: Features Lycurgus cup is changing its color with changing the incidence angle of light on the cup.

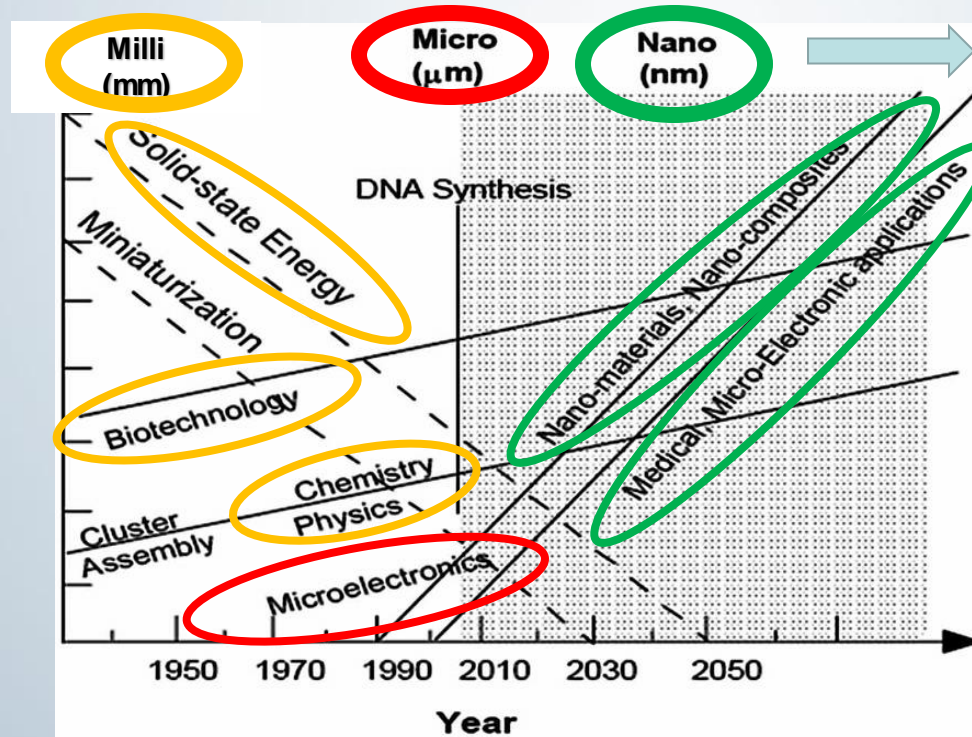
Development Phases of Nanoscience and Nanotechnology

The idea of nanotechnology appeared for the first time by the physicist **R. Feynman in the America-1959**. Feynman described a process by which the ability to manipulate atoms and molecules maybe developed.

Development Phases of Nanoscience and Nanotechnology

The **term of nanotechnology** was originally defined by **Norio in 1974** as follows: “Nano-technology mainly consists of the processing of separation and consolidation of materials by one atom or by one molecule.”

Evolution history of science and technology and expectation in the future



Angstrom
(\AA)

المستقبل المرتقب

Nano-materials applications and uses

(Where are nanomaterials found?)

- ✓ Medicine and Pharmacy
- ✓ Bio-sensor
- ✓ Electronics
- ✓ Engineering operations
- ✓ Construction materials
- ✓ Food
- ✓ Energy
- ✓ Sunscreens and Cosmetics
- ✓ Paints
- ✓ Displays
- ✓ Batteries



Thank
You

