

Introduction to nanometrology

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Nanometrology is a subfield of metrology and in particular it is the science of measurement at the nanoscale ($10^{-9}m$). Metrology has evolved for a long time incorporating key advantages of physics and technology and progressed to the point of defining the basic units independent of artefacts. On the other hand nanometrology has started recently to take shape and although it is based on the core ideas of metrology it faces many challenges which has to overcome. These are due to the smallness of the dimensions of the nanostructures, the very small values of the physical properties and also the inevitable interaction of the nanostructures with the measuring instruments. There is much road ahead to be covered. Aspects of nanometrology are dealt with in everyday research practice and therefore it is important to know the big picture. The aim of the present seminar is to present the basic concepts of metrology, to make an introduction to the various nanostructures and their properties, present the essential measuring instruments of nanometrology and underline the role of simulations in nanometrology.

Topics:

1. Importance and relevance of metrology and nanometrology
2. Basic concepts of metrology
3. Forms of nanostructures and their properties
4. Key measuring instruments for nanometrology
5. Simulations and nanometrology

The course consists of 5 two hours lectures and hands-on activities

Time : 10, 11, 12, 13 of April from 16:00 to 18:00

13 april 10:00 from to 12:00 salle 70, Institut de Physique et Chimie des Matériaux de Strasbourg

Place: Auditorium, Institut de Physique et Chimie des Matériaux de Strasbourg, 23 rue du Loess, 67034 Strasbourg.

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