

... THE NEW DEAL
FOR THE NANO WORLD ...

Invited scholar

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Metal oxide nanomaterials: Properties and applications

The lectures will cover the description of the main properties of metal oxides. In particular, the focus will be put in the role that this broad family of materials may play in the frame of the Sustainable Development Goals, as established by UNESCO in the Agenda 2030.

Metal oxides and metal oxide based nanomaterials are gaining importance due to the broad range of applications associated to the variability of their properties: sensors, fuel cells, piezoelectrics, ferroelectrics, pyroelectrics, photocatalysis, batteries, etc.

First week is focused on the basics aspects of metal oxide systems, while the second part of the course will be devoted to revise some applications that could play the most relevant role in the frame of the UNESCO SDG.

First week: Basic aspects of metal oxide-based materials

November 21-23, 2023

- 1.- Introduction to metal oxides. Description and main properties
- 2.- Review of main synthesis processes
- 3.- Main metal oxide families
- 4.- Review of the main characterization techniques

Second week: Applications with major relevance in the Agenda 2030 frame

November 27-28, 30, 2023

- 1.- Sensing
- 2.- Water treatment: photocatalysis and adsorption of heavy metals
- 3.- Energy applications
- 4.- Drug delivery systems