I Iberian Meeting on MATERIALS SCIENCE

Symposium

Surface science and engineering for advanced applications

The modification of Materials surface is an excellent, and sometimes unique, alternative to optimize the final performance of a component. Many of the external requirements for a component application are related to the surface (e.g. wear and corrosion resistance, color, reflectivity, etc…); therefore, surface modification is a cost efficient way to provide add-value to materials making them multifunctional.

This symposium addresses current scientific and technological progress in the field of Surface Engineering, bringing together recent advancements and innovations in (i) coating and thin films, as well as surface modified materials, (ii) the methods and techniques for their processing / characterization and (iii) the myriad of cases where advantages are enhanced on their application.

Hot topics will include

S.1. Coatings and Thin Films for industrial applications

- Relations between synthesis conditions, microstructure and functional properties
- Coatings with advanced properties (self-cleaning, self-healing, wettability, smart coatings, thermal barrier coatings, bioactivity, anti-fouling, anti-microbial, anti-sticking, optical applications, etc)
- New coating concepts and designs (materials for high temperature applications, energy production, conversion and storage, sensors, supercapacitors, self-adapted, self-lubricating surfaces, materials for food packaging, …)
- Design and manufacturing of protective or decorative coatings (corrosion protection, oxidation and wear resistance, …)
- New frontiers in biocompatible materials (biomaterials, healthcare, …)

S.2. Advanced methods of materials deposition and surface functionalization treatments

- Plasma deposition and related technologies (diagnosis, modelling, deposition parameters, ….)
- Theoretical aspects of surface processing
- New coating technologies, pulsed plasmas, HiPIMS and industrial coating units
- Fabrication of nanoparticles and 3D nanostructures
- Non-plasma deposition of coatings and thin films (CVD, laser assisted, plating, electrodeposition, etc)
- Novel fabrication and surface functionalization routes
- Chemical methods for surface modification (electroless, anodization, sol-gel, …)
- Materials nano-modification and lithography
- Additive manufacturing and 3D printing

S.3. In-situ and in-operando characterization techniques

- Emerging technologies with focused beams
- Resolution enhancement of optical devices
- Investigation of initial phases of thin films growth
- In-situ characterization of coatings during deposition
- High resolution characterization techniques of thin films
- In-situ characterization of materials for high temperature performance
- In-situ characterization of materials in harsh environments
- Scaling up concepts: from lab to commercial

Symposium organizers

Prof. Sandra Carvalho

Prof. Albano Cavaleiro

Prof. Carles Colominas

Dr. Ramón Escobar Galindo

More information:

http://cnmat2018.com/1280-2/