



# Doctorado en Ciencias

## Seminario Permanente

“Yuri Alexander Poveda Quiñones”

**Bismuth based materials: Environmental remediation, alternative energies, and smart ceramics**

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2:15 p.m

Bismuth is an element scarcely present in Earth's crust and it is known that the most important ores (bismuthinite and bismite) are concentrated China, Australia and México. One of the main research lines of the Mexican Laboratory for Thermal Spray (CENAPROT) is the development of novel materials and processes to use the Bismuth available in the country. In this presentation, a summary of the most important applications of bismuth-based ceramic compounds that include environmental remediation, smart ceramics and piezo-alternative energies are presented and discussed. Apart from the general properties of bismuth-based ceramics including polymorphism, the general strategies followed in each current project that practically cover the whole value chain, from the processing of metallic Bismuth to the preparation of functional devices. The polymorphism of bismuth oxide and solid solutions compounds with other metallic oxides are currently being used to enhance the intrinsic photocatalytic properties for applications in environmental remediation. Optimization efforts are currently being done to obtain the  $\beta$ -Bi<sub>2</sub>O<sub>3</sub> tetragonal phase, which is a p-type semiconductor that exhibits a remarkable photoconductivity, photoluminescence, high oxygen ion conductivity, a narrow band gap and a positive flat band potential.

**Sala presencial:** Edificio de formación avanzada Sala 15C-312.

**Sala virtual:** [Google Meet](#)