



VIRTUAL SEMINAR

Thursday, 23.12.2021 at 13:00

Semiconductors for Photocatalysis

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Some semiconducting materials, when illuminated, can initiate catalytic processes on their surface. The process which triggers the cascade of catalytic chemical reactions is the formation of a surface charge on the outer layer of the semiconductor. The surface charge is maintained by a steady photoexcitation of valence electrons into the conduction band of the semiconductor. In this seminar I will present the physical mechanisms involved in this process: photoexcitation of electrons, charge recombination, relaxation, as well as the material properties that govern these processes - charge localization through crystal lattice defects and quantum confinement in nanosized crystal grains. In the second part, these basic principles will be applied to thin zinc oxide (ZnO) films prepared by the atomic layer deposition (ALD) technique and to their structural, optical and photocatalytic properties.

Kindly invited.