

**CATHODOLUMINESCENCE AND PHOTOELECTRON MICROSCOPY
STUDY OF SEMICONDUCTOR OXIDE MICRO- AND NANOSTRUCTURES
GROWN BY THERMAL TREATMENTS**

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During the last years considerable efforts are being invested in the synthesis and characterization of semiconductor oxides micro- and nanostructures with variable morphologies and tailored composition in order to spread their applications in different fields of technology. In this frame, our group has reached increasing experience in the controlled growth and doping of semiconductor oxides (In₂O₃, SnO₂ and TiO₂) micro- and nanostructures, such as wires, rods, tubes or arrows, by means of thermal treatments which avoid the presence of catalyst, templates or external substrates [1-3].

XPS microscopy studies at the ESCA microscopy provides a powerful technique to carry out the surface-sensitive structural and chemical analysis necessary to complete the characterization of these semiconductor oxides. By combining these XPS results with diverse microscopy and spectroscopy techniques, such as X-ray energy dispersive microscopy and cathodoluminescence, a deeper understanding of the micro- and nanostructures growth and the doping process can be achieved, which enable to spread potential applications in many fields of research, such as opto- and nanoelectronics.

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[3] D. Maestre, I. Martínez de Velasco, A. Cremades, M. Amati and J. Piqueras, *J. Phys. Chem. C* **114**, 11748 (2010)