

## **Electrical characterization of single ZnO and SnO<sub>2</sub> nanowires**

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Metal oxides nanowires have been proposed as one of the most promising and interesting. They show outstanding properties that very often are difficult to prove using individual nanowires. However, to understand the basic mechanisms and properties as well as to have the knowledge of their characteristics, it is essential to perform analysis and measurement of individual nanowires. It becomes especially mandatory to study the transport mechanisms and sensing mechanisms that transforms magnitude variation in changes of the electrical signal. It requires direct electrical measurement of single nanostructures.

Up to now, only few works have been focused on the features arise for the electrical access to single nanowires, considering the problems concerning contact impedance. In this contribution we present a novel approach to perform electrical measurement of single nanowires which is based on the four probes method implemented using focused ion beam. ZnO and SnO<sub>2</sub> nanowires have been used due to their potential interest, optical excitation in the UV/Vis spectrum and surface reactivity. DC and AC electrical measurements will be discussed and presented. Especial emphasis will be paid on the effects produced by the surface absorption of gas molecules. Measurements using dry synthetic air, nitrogen, humidity, CO and NO<sub>2</sub> will be shown and analyzed.