

Electrical properties of single core-shell metal oxide nanowires

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Metal oxide materials are the focus of many researchers being often used due to their abundance in nature and low environmental impact. Topics have been going recently towards the nanoscale because of the diverse, yet unique characteristics given by the low dimensions together with reducing the amount of employed material. The particular properties of nanowires make them suitable for applications such as high sensitivity sensors, catalysis, power generators, etc. ZnO nanowires have a high surface to volume ratio and exhibit special electrical properties with applications in field effect transistors, diodes. However, they are interacting with the surroundings, even dissolving in the presence of more acidic environment and in order to affect this occurrence a shell material is proposed. The ZnO nanowires are prepared by thermal oxidation in air at 500°C on zinc foils and on top of it a thin layer of CuO is deposited by magnetron sputtering. The structural, morphological, optical and electrical properties of the prepared nanowires are investigated before and after the shell deposition. Moreover, the nanowires were transferred in alcohol and single nanowires were contacted using photolithography and e-beam lithography and their electrical response was measured at various temperatures. Differences between

the bare ZnO nanowires and their core-shell counterparts are evidenced.

Biography

Florica C has completed her PhD at University of Bucharest, Romania. She is a young researcher with over 25 publications that have been cited over 75 times, and her publication H-index is 5. She is currently leading a national research project on the topic of core-shell nanowires.

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