Role of Grain boundary for ZnO Nanowire based gas sensor

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Now a day, there is strong current interest in the development of ZnO nanowire based hydrogen sensor with high sensitivity and good response time due to high surface to volume ratio. In particularly, ZnO nanowires have been effectively used as a gas sensor materials stability based on the change in resistivity on exposure to the proper gases and vapors. In this work, we present a new type of ZnO nanodevice, a hydrogen sensor using a single and multiple ZnO nanowire as a sensing unit. The multiple ZnO nanowire showed the higher performance with higher sensitivity and slower response time compared to the single ZnO nanowire. Hence, a comparative study of the hydrogen sensing of single and multiple ZnO nanowire was performed at various hydrogen concentrations in term of sensitivity, response and recovery time.