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Individual Bi2O3-Functionalized ZnO Microwire for Hydrogen Gas Detection

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Abstract

Individual micro- and nanostructures of metal oxides are known to be highly sensitive to surface phenomena due to their enhanced surface-to-volume ratio. In this work, an individual Bi2O3-functionalized ZnO microwire (Bi2O3/ZnO MW) with a diameter of ~2.2 μm was integrated into a sensing device using its direct transfer and placement in a focused ion beam (FIB)/scanning electron microscopy (SEM) equipment. The fabricated device was exposed to H2 gas at room temperature showing a detectable response. The gas response to 1000 ppm is ~28%.

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