

VO₂ nanostructures based chemiresistors for low power energy consumption hydrogen sensing

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Abstract

Mott-type VO₂ oxide nanobelts are demonstrated to be effective hydrogen gas sensors at room temperature. These nanobelts, synthesized by hydrothermal process and exhibiting the VO₂ (A) crystallographic phase, display room temperature H₂ sensitivity as low as 0.17 ppm. The nanobelts (ultralong belt-like) nanostructures could be an ideal system for fully understanding dimensionally confined transport phenomena in functional oxides and for building functional devices based on individual nanobelts.