

Three-Dimensional SnO₂ Nanowire Networks for Multifunctional Applications: From High-Temperature Stretchable Ceramics to Ultraresponsive Sensors

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Abstract

Stretchable ceramic networks built from quasi-one-dimensional (Q1D) structures are important candidates for various applications of nanostructures in real-world technologies. A flame transport synthesis approach is developed that enables versatile synthesis of interconnected SnO₂ nanowire networks. These SnO₂ structures exhibit interesting defects that are very relevant for the oxide-material engineering community. Devices based on Q1D SnO₂ structure networks show enormous potential for gas/UV sensing.