

ABSTRACT:

In this work, the structural and gas sensing properties of an electropolymerized, polyaniline (PANI)/multiwall carbon nanotube (MWNT) composite based surface acoustic wave (SAW) sensor are reported. Thin films made of PANI nanofibers were deposited onto 36 lithium tantalate (LiTaO₃) SAW transducers using electropolymerization and were subsequently dedoped. Scanning electron microscopy (SEM) revealed the compact growth of the composites which is much denser than that of PANI nanofibers. The PANI/MWNT composite based SAW sensor was then exposed to different concentrations of hydrogen (H₂) gas at room temperature with a demonstrated electrical response.