Electrochemically Grown Palladium Nanowires for Hydrogen Detection

조송의, 라현욱, 최광성, 유철희[1], 임연호*
전북대학교 반도체화학공학부; [1]한국가스안전공사
(yeonhoim@chonbuk.ac.kr*)

Single Pd nanowires were fabricated by the combination of dielectrophoresis and electrochemical deposition in electrolyte between two electrodes patterned with conventional semiconductor technology for hydrogen gas sensing applications. The growth of nanowires using this technique would allow for easy integration with existing silicon technology. Here we present the hydrogen sensing behavior of the palladium nanowire sensor at room temperature, which have high sensitivity, selectivity and low power consuming. By measuring the resistance of these palladium nanowires as a function of the hydrogen concentration, we have attempted to understanding the hydrogen sensing mechanism of the palladium nanowires. The fabricated palladium nanowire sensor showed fast response time, high sensitivity, low detection limit, and operate at room temperature.