Synthesis and Study of Modified Nanostructure Porous Silicon Layers for Chemical Gas Sensing

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1. Introduction
Porous silicon (PS) is a nanostructured material, which offers abundant advantages to first rate the produce nano structure size material area. As the name suggests PS is similar to a quantum sponge, including a net like construction consisting of nano crystallites and pores [1]. Not only Porous Silicon but Si has an important and valuable material. Any device contains silicon is bound to be a doing well device as silicon is common offered, not expensive and without difficulty attained with the recent IC manufacturing. There are some exclusive characteristics of silicon which are clear when its structure decrease to nano-size. These modify in properties are the result of Quantum Confinement Effect. Therefore PS demonstrate better surface to volume ratio, high surface reactivity and luminescence properties at RT due to its flexible character, Porous Silicon has a large number of applications in sensing, optoelectronics, micromachining, biotechnology, wafer technology etc. [2][3]. Porous silicon get significant interest for sensor applications, its luminescence properties, large surface area and compatibility with silicon based technologies have been driving force for this technology development [4]. Moreover, porous silicon gas sensor exhibit important properties for broad purpose they could be run over abroad range of environmental temperature, pressure and humidity fluctuation as it is possible to eliminate response variations due to such environmental factor by operating in gas pulsing mode [5]. The important characteristic of sensing for the responsive detection of biological or chemical is the surface features of the substance itself such as huge porosity, topography, surface area, morphology and surface textures which effect on the detection capability of detection template and its interface with the adsorb media. One of the detection requirements must be chemically attaché the bio-active sample on the Porous silicon surface. chemical modification on porous surface is very important. For achieving good selectivity [6]. That control of the high surface area within a small volume of the pore sizes given an increase in sensor characteristics. The ability to modulate dielectric constant as a

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