

The α -Si/SiGe Core/Shell Nano-Wire as Highly Sensitive Bio-Sensor
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Abstract

Reducing the width of a nano-wire increases its surface to volume ratio, increasing the sensitivity of its conductivity to charges on its surface. Our previous studies have shown that increasing the Ge fraction in Si_{1-x}Ge_x nano-wires improves their sensitivity as biosensing. In this work, an α -Si/SiGe core/shell nano-wire is successfully fabricated using side-wall spacer method. The maximum sensitivity of a nano-wire bio-sensor with an optimized α -Si/SiGe thickness ratio is investigated.

Keyword : nanowire