Effect of the Mixed N2/O2 Oxidation Process on Improvement of the Sensitivity of the SiGe Nano-Wire

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Abstract

Ge condensation has been reported to improve the hole mobility of the SiGe-on-insulator (SGOI). Our previous studies have shown that the higher Ge fraction of Si1-xGex nano-wire exhibits higher sensitivity. In this work, we investigated the effect of different oxidation recipe to provide information on the sensitivity of SiGe nano-wire. The 3-amino-propyltrime-thoxy-silane (APTMS) is used to modify the nano-wire's surface potential. Induced sensitivity characteristics of the samples were preformed to estimate the improvement effect. The mixed N2/O2 oxidation process with optimization ratio can be an effective technology to improve the sensitivity of SGOI nano-wires.

Keyword：SGOI, biosensor, sensitivity