The Optoelectronic Characteristic of Metal-Oxide-Semiconductor(MOS) Structure with Nano Oxide

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ABSTRACT

Silicon dioxide layer with nano-particle has been spin on Si thin film for the first time. In material analysis, the field emission scanning electron microscope(FE-SEM), energy dispersion X-ray element spectrometer(EDS),and electron spectroscopy for chemical analysis(ESCA) were measured to analyze grain-size, composition, and chemical bonding of silicon dioxide. In addition, silicon dioxide was annealed at 300 ~ 500 0C for 30 minutes. We found that annealing can harden the silicon dioxide and decrease leakage current; then, the metal-oxide-semiconductor photodetectors (MOS-PDs) were fabricated. The electrical- and photo-response (850nm；632nm) were investigated for our MOS-PDs.

Keywords : Si ; spin coating ; nano particle ; annealing ; photo-to-dark ratio

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