# Photoelectric properties of metal-semiconductor-metal photodetector based on porous silicon


## ABSTRACT

Metal-semiconductor-metal (MSM) photodetector was fabricated on a Porous silicon (PS) layer that was prepared using photo electrochemical etching (PEC). The surface morphology of the PS was carried out by field emission scanning electron microscopy. The I-V characteristics under dark and illuminated conditions and the responsivity of Pt-PS-Si heterostructures were investigated. The device exhibited that photogeneration in heterojunction happens in each of the regions of the porous Si film and Si substrate. The MSM photodetector exhibited sensitivity of 3.22×102 as well as inner gain of 4.22 when exposed to tungsten lamp at 5 V. The photodetector also shows good repeatability when illuminated with 460 nm (7 W/cm2 ) chopped light and the saturation current increased as the voltage increase.



**Keyword:** Porous silicon; Electrochemical etching; Photodetector sensitivity