

## Abstract

TiO<sub>2</sub> nanoparticles (TiO<sub>2</sub> NPs) were deposited on porous silicon (PS) by drop casting technique after prepared TiO<sub>2</sub> NPs by pulsed laser ablation in liquid (PLAL) and PS by photoelectrochemical etching (PECE). The structural and morphological measurements were investigated the formation anatase phase TiO<sub>2</sub> NPs with size of 14–16 nm and mesoporous silicon at 14–16 nm average pore diameter. Reflectivity of PS was decreased after coated with TiO<sub>2</sub> NPs leading to much light trap. As a result, successful UV detector synthesis with 0.04 A/W responsivity and 1.9 × 10<sup>11</sup> W<sup>-1</sup> cmHz<sup>1/2</sup> specific detectivity.