## **ABSTRACT**

This research studied the effect of gold paticle inserted in TiO<sub>2</sub> solar cells. Insertion of gold particle in TiO<sub>2</sub> layer using electroplating method. TiO<sub>2</sub> material is mixed with distilled water and then deposited on FTO using doctor blade method. TiO<sub>2</sub> layer inserted gold particle with electroplating method to form a metal contact layer electrons to flow faster to the electrode (FTO). Polymer electrolyte was dedicated as a hole transport is composed of a mixture of LiOH and PVA. Structure of solar cell has been characterization by using a Keithley 617 meter to determine the performance of solar cell. I-V characteristic showed an increase in the efficienncy of solar cell with TiO<sub>2</sub> inserted gold particle using electroplating method at 0,08%.compared with solar cell TiO<sub>2</sub> without inserted gold particle at 0,002%.

Keywords: Solar Cell, TiO<sub>2</sub>, Electroplating.