



**SIMULATION OF DUAL MULTIJUNCTION  
SOLAR CELL (InGaP/GaAs) USING SILVACO  
ATLAS SOFTWARE PACKAGE**

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## ABSTRACT

The purpose of doing this project is to model and simulate the InGaP/GaAs dual multi-junction solar cell in two dimensions. A computer with the installation of Silvaco ATLAS software was used to carry out this experiment. Three experiments were carried out to obtain the results, including building an InGaP/GaAs multi-junction solar cell structure, simulating it, and analyzing the result and comparison between the devices. The structure of the InGaP/GaAs multi-junction solar cell was defined and specified using the ATLAS command language and is simulated as well. The curve of I-V characteristic that obtained from this simulation is compared to dark current characteristic curve of published graph result. The ATLAS command languages that used in this simulation are shown. The structure of each individual cell and InGaP/GaAs multijunction solar cell are obtained with different thickness and doping concentration. The simulation of an InGaP/GaAs cell with its dark current characteristic curve was considered to be partially successful.

