



**CALIFORNIA STATE SCIENCE FAIR
2009 PROJECT SUMMARY**

Name(s) Aymin Bedri	Project Number J1002
Project Title Space Solar Cells	
Abstract Objectives/Goals My objective is to increase the power efficiency of solar cells by changing the alloys of the solar cells. Based on my research, the hypothesis I formed, the solar cell efficiency generated energy can be improved by changing the alloys of the solar cells elements. This improves the generated energy efficiency for the solar cells. Methods/Materials I exposed different solar cell types such as Silicon, Indium Nitride, and Indium Gallium Nitide to different LED light types, and measured the output voltage and current from the solar cells. The materials I used were solar cells, light source, LED, and a voltmeter. Results The measurement results show that Indium Gallium Nitride produced the most power efficiency. Conclusions/Discussion I concluded that, more efficient solar cells can be produced and built by a mixture of semiconductor alloys of semiconductor elements from group III (Gallium, Indium) and V (Nitrogen). This is very suitable for space solar cells by improving the efficiency up to 40%. A good spectral match to sunlight, with a growth of multiple layers with different band gaps, makes the material InGaN suitable for satellites space solar cells.	
Summary Statement How to increase the power efficiency of solar cells by changing the alloys of the solar cells?	
Help Received Father helped in putting equipment together	