

# 2006 SPS Undergraduate Research Award

## Solar Cells

### Second Interim Report

January 1, 2008

SPS National  
One Physics Ellipse  
College Park, MD 20740

Idaho State University  
Department of Physics  
Society of Physics Students (SPS)  
Pocatello, ID 83209

Dear Undergraduate Research Award Council:

Recently, we received our second check in the amount of \$2,000. Our first check, as Dr. White and Lydia both know, was not deposited in a timely fashion last year and consequently, another check has been issued and deposited into our research account. As of today, the full amount of our research award, \$2,000, remains in our account. We have spent some money, however, on supplies needed to begin our research. The funds used to purchase these supplies were taken from our SPS chapter account and we intend to replace these funds with money from our research grant award. An accounting of the money we have used heretofore is provided on the third page of this report.

As for the status of our solar cells research project, we are significantly behind our intended timeline. We had several lectures between March and May 2007 regarding the theory behind what we were researching. Once the spring 2007 semester ended, with four people involved in the project, it was not possible to get everyone together to work on the project during this past summer. We began the fall 2007 semester by having a few discussions, some of which were lectures, and during this time decided exactly how we were going to obtain the data we needed to measure the atmospheric optical thickness. During the summer, however, we did attempt to move our project forward by requesting that the ISU physical facilities personnel allow us to

access the roof of our physical science building in order to setup solar cell arrays that could be used to obtain data. We waited several weeks for the facilities personnel to clear some rock from the roof and provide a means to connect wires to our multimeters from the solar cells. The fall semester began and nothing had been done on the roof. We decided that it would be in our best interest to find another location that we could use to obtain our data. We elected to use the home of a physics faculty member because this area offered acceptable Southern exposure, which is required by the solar cells we are using. We setup the solar cells as well as our other equipment to obtain the desired data. We were checking it daily and discovered that the setup was not taking enough data; we would get an hour's worth of data and the system would shut down. We attempted to diagnose and correct the problem, but due to the fact that the academic semester was bearing down on all of us, and that our experimental setup was in a location that was not within walking distance from our university, we were not able to diagnose the problems preventing the collection of data. At this point, which was near the end of November 2007, we determined that the best course of action was to attempt to gain access to the ISU physical sciences building roof again. Our second attempt at gaining access to the roof was much more successful, and at this time we have been provided access to the roof and have reset our experimental setup on the roof. We have not been successful in obtaining data, lately, however. We have been in the midst of typical Idaho winter weather and the first clear days we have had in the last three weeks have been just very recently (yesterday and today).

Our spring semester does not start until January 14, but my colleagues and I are convening prior to the start of the academic semester to address any issues we are having with our experimental setup. My schedule for spring has lightened significantly from my fall schedule and I will have sufficient time to dedicate to this project. It should also be noted that this semester that my colleagues and I will be receiving academic credit for this project and consequently, we will all be working more hours on the project.

Currently, we have a revised completion date of approximately April 1, 2008. I am using this project as my senior thesis project, and this is my last semester at Idaho State University. SPS has my assurance that we will complete this project. We intend, of course, on giving a complete report of our findings and a complete accounting of expenditures at the conclusion of this project.

Thank you for understanding and patients in regard to this project. We look forward to providing the council our final reports.

Zeb Graham  
Solar Cells Project Lead  
ISU SPS President  
AZC Zone 15

Expenditures Accounting  
Solar Cells Project  
Idaho State University SPS

<u>Item</u>	<u>Quantity</u>	<u>Cost</u>	<u>Total Amount</u>
Multimeter with USB capability	2	\$75	\$150
Shipping/handling For multimeters	N/A	\$20	\$20

\*At the present time, these above costs are the only costs that have been incurred and that we plan on deducting from our research award. We can provide receipts now if needed; we do plan to provide receipts along with our final expenditure report.