Personal Experience

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This internship has been a great experience for me. I was able to run an experiment and learn about particle physics. Since I was assigned the balloon deployable detector or A.D.O.M (aerial detector of muons) I was able to calibrate the detector and launch.

I had already worked on my detector at school before this internship, but I was not present during the Balloon Fest Launch due to the SAT subject test. Also, at Balloon Fest, our detector had an extremely high count rate at 1000 ft and an extremely low count rate at ground. I was to continue the experiment and launch again. I started by plateauing the detector until I found a light leak so I had to wrap another layer of electrical tape around the scintillator panel and redo my plateauing. Then there was the scare of the low count rates when I took my detector's gondola apart and used the oscilloscope to see the signal. Eventually I finished plateauing and found my voltages:

PMT 1- 7.15V

PMT2- 7.30V

Discrim. 1- .300V

Discrim. 2- .185V

I went to Lu Lu's café downtown to take some sea level data, but was surprised to find an extremely high count rate of over 1000Hz compared to my lab data of 4Hz. Unable to explain the data, I went

back to Lu Lu's café and reran my experiment and found a count rate of 3.91 Hz outside on the patio which is logical because sea level is at a lower altitude then the SCIPP Building. At the balloon launch, a wind picked up and I was unable to get my detector to 1000 ft. There also was some transmitter problems which corrupted some of the data and the issue of the unstable gondola. However, I did collect some data and was able to analyze it.

From this internship I learned a lot about particle physics and my project. Since I was working alone, I had to learn how to divide the work up into manageable chunks and how to manage my time wisely. My perseverance was tested when I had to redo my plateauing. Also, I learned how to expect the unexpected and never to assume everything will work on the first try. I met a lot of people and professors and gained valuable experience working in a lab. The lectures taught me a new world that was not covered in AP Physics and helped my understanding of Quantum Mechanics and the universe. I especially enjoyed the nanotechnology presentation and am considering it as a major for college. Overall, I defiantly would recommend this internship to anyone because it was so much fun being in the lab and the experience and memories are priceless to anything else I could have done over the summer.