

My Personal Experience

at SCIPP/QuarkNet Internship 2007

by Ben Jolitz

There are integral times of growth vital to young men and women hoping to join the ranks of the worlds scientists. Although growth is never guaranteed, many of us still try for it. Some are even lucky enough to be selected, out of many applicants or groups, to valuable internships, like the one at the Santa Cruz Institute for Particle Physics in UC Santa Cruz. The privilege of working on college level experiments before attending college expands the experience of many interns lucky enough to get the internship. Even if people split off into semi-isolated groups, a complaint I heard this year, it is interesting to note that everyone must work together to make both of the highlight experiments work.

Although this year, the Muon Lifetime Experiment did not run, the Aerial Detector of Muons (ADOM) did. The days leading up to the launch of ADOM required teamwork and feedback never seen in this years group. And that teamwork appeared, with each member reporting back to an appointed leader or manager, and the end run result was the launch of ADOM.

I am one of the lucky, talented interns here with others at the SCIPP 2007 Quarknet Internship. We all applied the same way, along with other applicants, but this group fit the mold needed to make a more successful year. During the first week, it was chaos. Not one intern really felt that they had an area of expertise. At the end of the week, Steve Kliewer, the head teacher of the program, held lengthy interviews with each intern, and assigned them to different projects, with or without a partner.

I am the theorist. It is my job to be able to interpret the data, and be able to hash it out to others in a meaningful way. Although it sounded simple in the beginning, I found that to explain data, I needed to find a way of collecting and analyzing it. Looking at previous years methods, I saw the potential for fast analysis programs written in Python. I discussed with Mr. Kliewer what I planned to do, and with some advice from Professor Terry Schalk, I set out on the quest of analyzing data.

Instead of writing a program straight out of my head, I consulted professional programmers I knew, and learned of a certain magical document, the Specification. Within this, I would be able to hash out the data format, the rules, and the suggested logic. Frequently, I would consult Mr. Kliewer and confirm the logic of the yet to be written program. After a few weeks, I had a working specification and could now write the program. I had never written a specification before, and learned the use of it.

I wrote both analysis programs the weekend before ADOM's launch, and tested the ADOM program. The Muon Lifetime program, sadly, is still in beta stage due to the fact that the Muon Lifetime Experiment never happened. But the ADOM balloon analysis program worked well, with a few minor bugs. Both programs are sitting on the SCIPP webserver, in two places: On the Internship 2007 website and in the 2007 Interns Stuff directory, as `muon.py` and `balloon.py`.

Working here is definitely an experience I will never forget. Despite the friction, the stress, and the panic of living as an intern at UCSC, the privilege and quest of research is far more rewarding. I learned more about real research environments, the difficulties of meshing teams with individuals from different backgrounds, the stress of making a full scale experiment succeed, and the privilege of researching under the guiding hand of UCSC-SCIPP. The internship this year has steadily worked on researching, documenting, and experimenting with the many aspects of muon scintillators and the physics of them. The true gem lies in the experience we interns have earned , and our hopes wish that each successive year will be able to build on the success of each previous year.