

DANGO

(DOINGS AND GOINGS ON)

Updates from the Students



From Erik Ringle:

“Greetings from Los Alamos,

Things are going well here. As the days go on, we are beginning to delve deeper into understanding the software and hardware which supports the TPC and allows for data acquisition. We have been supplementing our work time with C++ tutorials and Linux command practice. Although it is difficult to transition from a Windows oriented mind, I can see the value in understanding the Linux framework. Dr. Qu help Ryan and I install the necessary software on our computers to allow us to work on the project. This was slightly frustrating, but eventually things worked out.

It looks as if I can finally say that one of our chief responsibilities will be to work with the slow control system, testing, troubleshooting, and installing hardware. This will involve working with the Midas interface.

Outside of work, I have been able to get a lot of reading done which I am enjoying immensely. I can also say that my diet is heavily built around the consumption of green and red chile sauce. One of the pluses of working in New Mexico.

Have a good weekend,
Erik Ringle”

From Ryan Castillo:

“My adventures at LANL this week have consisted of learning to code in C++ and stumbling about in a Linux command terminal until things happen, which is a pretty effective way to learn in my opinion. For fun, Erik and I went to a picnic with

about a hundred other interns at LANL on Monday, which was completely awesome. We played lava monster on the playground, volleyball, and grilled hamburgers. Otherwise, I've been playing a lot of board games and reading. Today I went searching for the next book in the series I'm reading and happened to come across a signed, first edition of the exact book I was looking for. The crazy part is that I bought it for a dollar at a used bookstore! Turns out its worth about \$130 on amazon. It's been a great week and a fantastic learning experience so far and I look forward to rest of the summer..

Ryan”



A walk in Idaho Falls, ID, along the Snake River

From Sarvagya Sharma:

“Dear Dango,

This week I have mostly been working on plots and other material for my ANS talk later this month. I have also been helping the other grad students here understand the NIFFTE code and work with the preamp test stand hardware.

Sarvagya”

From Tyler Thornton:

“Dear Dango,

This week I was able to continue work on the analysis of the track spread in z. After making a few different plots, Mike Heffner agrees that although by eye a fission fragment event looks to have a greater spread than an alpha, the two types of tracks have a comparison p-value of greater than 0.05 most of the time. When we look at a plot of the difference of the averages of the spreads the fission fragment looks a little longer, but no more than a millimeter. The next time is compare the longitude and transverse spread of a given track along its track direction. This plot will check if diffusion in the simulation is agreeing with experiment.

I have also worked on updating the NIFFTE Geant4 code to be able to use both the old and new electromagnetic low energy functions depending if the user is using a version greater than and equal to or less than 9.3.

At the moment the new code is working for using the old functions, but when I upgrade to the newer version of Geant4 I get a seg. fault. Which I have asked Shon to see if he gets the same thing.

When I have free time I have been able to work on my ANS talk. That is it for me.

Till next time,
Remington Tyler Thornton”



The flooded Snake Rive.

From Holly Thornton:

“Hello all!

This has been a wonderful week. Last weekend, Tyler, Sarvagya, and I went up to Idaho Falls for better shopping. Sarvagya found and purchased a new laptop and has been getting it set up all week.

Anyway, I spent the majority of this week continuing to learn how to program in C++ and extending a literature search on scanning electron microscopes.

On Thursday, Dr. Burgett got back from his trip to

Europe and a flurry of activity ensued. I was assigned to work with two other students, Micah and Sam, on getting the “new” Engineering building ready for habitation. Unfortunately, the blueprints of the building are lacking, so we spent all of Friday afternoon finding what the prints were missing and adding them in the Autocad program.

Well, that's about all for this week. Fare well everyone!

-Holly”



From Dasith de Silva:

“The last week was a pretty tiring one. Shift finally ended which meant a normal sleep schedule resumed (which is always a good thing). I got to learn a lot while on shift about the PHENIX experiment and the different detectors and their functions. After that we started work at the factory. Soldering the transition cards for the RPCs and getting the database for the temperature/humidity equipment functional again were the tasks we took care of this week. There are a few things that need working on, which means variety. This is shaping up to be a great summer. Alright, y'all have fun wherever y'all are!

Dasith”

From Kyle Gainey:

“Hey folks,

Our first fullish week of work here has come to an end. We all finished up on shift this Tuesday, for which we were all thankful. I'm still not back on a normal sleep schedule, but the weekend will bring about great changes, I hope. We are in full production mode at the PRC factory. We are alternating between work on transition cards, mylar cutting, and coating the transition cards with plastic stuff. Dr. Daugherty, Dasith, and I have been working on getting the factory temperature and humidity recorded so that we can later contribute to analysis of cosmic ray data and have our work used once the RPC station 1 modules are in the tunnel. The weather has been rainy here for a couple days and I love it. We plan to enjoy the beach tomorrow. Have a great week, everyone!

Regards,
Kyle”



Walker, Dasith, Dr. Towell, Kyle and Ramsey

From Ramsey Towell:

“Hello DANGO,

I finally started work this week building transition cards. I found out that the work my dad does isn't as researchy or sciencey as I thought it was my whole life. It's more of cutting cables, stripping cables, and soldering cables... for 8 hours. Since I've only had one physics class and this is the first time I've ever worked on a lab doing "research", I have no idea what's going on. I just do what I'm told and build cards, so I feel more like a manual laborer than a physics researcher. It's pretty fun though! I learned how to solder and I have the burn wounds to prove it, and today was the first day that I successfully completed a card without having any shorts or other problems with it, so I'm pretty pumped about that. It only took me about 46 cables, two practice cards, and two cards that are supposed to go on the detector, or whatever it is we are building these for, to get it right.

Hopefully next week I will come back enlightened about the situation here at BNL and I will have no more problems with the transition cards.

-Ramsey Towell”

From Walker Nikolaus:

“Wazzzzup!!

So I started off the week with more shift, continuing in my double duties. Tuesday however was supposed to be an overlap shift where I train the new shifter in their new duties. I was excited to not have to do anything but then they did not have enough staff so I worked full time then too. Haha.

Wednesday we moved to the factory. We learned what to do and spent the rest of the day practicing. Thursday and Friday, we moved on to production, consisting of wire cutting, stripping, picking and tip stripping. Then we would solder the wires on to make transition cards. It is not difficult but it is the type of

thing that you can always improve on so it is kind of fun. We finally made it to Sam's so now I have meat. Awesome! I am now enjoying some hot tang. So a pretty good week.

Peace.

Walker Nikolaus”



Walker, Dasith and Ramsey working at soldering.

Walker thinks Kyle's elbow on the far right.



From Andrew Miller:

“Hello everyone,

This week has gone by quickly. During the first half of the week, Kristin and I learned how to attach HV connectors and then ran almost 3,500 feet of cable. Most of it was HV cables going from the counting house to various stations, but we also ran a few signal cables for the target as well. On Tuesday we had a great lunch at a pizza buffet in honor of one of our collaborators who was leaving. On Wednesday we finished running the cables, and today (Thursday) we began to measure the voltages at various points in the PMT bases so that we will be able to repair them quickly once we start running (whenever that may be...). Now the power is out for the rest of the day, so it's a perfect opportunity to write this!

Anyway, the work has been tedious, and tiring at times, but we haven't yet had the problem of having nothing to do. One of the jobs we have coming up will be to measure the output of all the PMTs on the hodoscopes, and set the voltages accordingly... it sounds like it will be quite a task.

Until next time,

-Andrew Miller”

From Brandon Bowen:

“Dear Dango,

This week I had the great pleasure of working for the majority of the week with Mandi on communicating to and reading out measurements via ethernet from a Keithley 2701 multimeter. The multimeter is programmable by SCPI (pronounced "skippy") to be able to read out AC/DC voltage, current, resistance, frequency, period, and most importantly, temperature from thermocouples. We were successful in writing a C program to detect voltage drops in 240V AC power lines to help determine the causes behind collaborators HV supplies failing. The multimeter(s) will eventually be used to take temperature, pressure, and humidity measurements inside the hall while the experiment is running through the use of 20 and 40 channel multiplexers which plug into DMM. On Tuesday we got to hang out with the college group in downtown Naperville which has a river walk. It was really fun and nice to be out and about.

Have a great week,
Brandon Bowen”

From Mandi Crowder:

“Hello All!

We’ve been busy up here in Illinois. Half of the crew cut and ran HV cables from one floor of the experiment hall to another, while the other half programmed a multi-meter with added multiplexer module. This instrument will be used to measure the temperature, humidity, and pressure of the hall. It is also going to be used to monitor a HV power supply at the Station 1/2 Hodoscopes. The PMT voltages randomly drop to zero and we are trying to figure out why.

On Tuesday, we had a farewell lunch for Ting because he is going back home. That night we went with our church’s college group to Downtown Naperville. We walked along their river walk, ran down a massive hill, and ended with an Ice Cream place inspired by cookie dough!

Thursday was an unusual day. In the morning, half of the crew had to go to a Radiological Worker Practical Class (not as intense as the one Ryan took) and we had a scheduled power outage for half of the day. This weekend is when the Isenhawers leave for New Zealand, so who knows what will be in next week’s DANGO?! ;) I hope everyone is having a blast (but not literally lol) at their labs!

Till Next Week!
Mandi”

From Kristin Holtz:

“Hi everyone!

This week Andrew and I put connectors on several high voltage cables and made some HV patch panels to go with them. We ran the cables from the counting house to three different patch panels near the detectors. After finishing that we used our awesome cable-running skills again to run a few power cables downstairs. We also started measuring the voltages throughout the PMT circuits and recording them on the diagrams Brandon and I made. I have officially finished all my online training and I just have one more actual class to take. Woo hoo!

Well, I believe that covers everything for the week. I hope everyone had a productive week and has a great weekend ahead!

-Kristin Holz”

From Tyler Hague:

“Hey Dango!

This week has been filled to the brim with debugging. I was tasked with taking our reconstruction code and moving a few functions to a new file as well as tweaking how they function to make the code a bit more sustainable. When I first started thinking about it, I thought "oh, this shouldn't take me more than an hour or two". Lesson learned. I spent a day and a half trying to figure out why the value a function returned was not being stored as that value in the function that called it (the function returned 1, but the function that called it was getting negative 2 billion something) (I verified the return value using gdb (which I highly recommend anyone that codes learn to use, it is a magnificent debugging tool)). Turns out if I don't prototype the function, even if I create a variable of the return type (float) and store the return value in it, it won't work correctly. As soon as I wrote in the prototype the 1 stayed a 1. Yesterday and the day before I spent a while tracking down another bug that screwed up the chi squared calculation. Turns out I was unaware that the plane angle was given to me in degrees, so when calculating the sine and cosine, I was getting the wrong value due to not converting to radians first. This morning has been spent comparing the output of the changed code to the output of the old code to ensure that I didn't change the output (the changes were purely in method, not in output). Now that I am convinced that I have removed all bugs, I have committed the new code to the repository and am awaiting my next orders (aka writing Dango and

helping the other ACU students while waiting on an email). On Thursday morning we (Dr. Isenhower, Brandon, Mandi, myself, and a couple other SeaQuest people) had the Rad Worker Practical to ensure that we were still qualified to have a TLD.

We have also found out that there is a leak in the beam pipe, which happens to be under 20 ft of dirt and a road... The lab is going to try to line the pipe in order to fix this. We are keeping our fingers crossed for that to work so that we can get beam sooner than later.

Tomorrow Dr. Isenhower and his family head to New Zealand. This means that we (the students here) have begun discussions into how we will still ensure that there is food for us to eat with Mrs. Isenhower not here to cook for us after work. We are thinking that each one of us will be assigned one night a week to be in charge of food so that we don't waste away for 3 weeks.

Until next week (hopefully we won't have died from starvation),
Tyler Hague”

Other Projects

From Daniel Pamplin (intern at Ball Aerospace in Boulder, Colorado):

“Dear Dango,

This week was eventful. Ball likes to give the interns a tour of their facilities so on Thursday I was guided through some of the clean rooms where some very impressive satellites were being built. I got to see the beginnings of World View 3 (The Google Earth satellite) and a 4.4 billion dollar weather satellite that was canceled so it is now just sitting around. Then on Friday I was given a tour of the antenna manufacturing complex. Apparently Ball builds the antenna for the F-22, Airforce 1, Tomahawk Missiles, and the new stealth destroyers just to name a few.

As for the work that I have done this week, it has mostly been fine tuning an optical setup to get very precise measurements. I have to "eyeball" the measurements down to 0.2 mm. I am getting data out of the apparatus, and now I have to fine tune it some more. That may not sound very interesting, but the work that has to be done changes fairly rapidly from taking data, to analyzing the data, to readjusting the setup, to building something entirely new for it..

Finally, the rocket program that I am a part of is trying to decide what our payload should be. We are torn between a secondary rocket and a dirigible that launches paper airplanes.

Hope your week went well,
Daniel Pamplin”

Updates from Professors

From Dr. Rusty Towell:

“Hello Dango,

As much fun as it was serving as the night Shift Leader for PHENIX, I'm thankful to be able to sleep at night again. Our shifts ended Tuesday and since then we've been working in the RPC factory. PHENIX (the collaboration) expects to install these chambers into PHENIX (the detector) this shutdown starting in August. This is a bit unnerving because we don't have any of the RPCs assembled yet. In fact we don't even have the parts to start assembling them. The Resistive Plate Chambers are assembled in a stack with several layers of delicate parts sandwiched between two metal sheets. The metal sheets and outer frame provide the mechanical strength and protection to the RPC. These boxes are what we are waiting on.

While we await their arrival from China in hopefully only a couple of weeks, we are preparing all of the inner parts including the transition cards and the mylar foils. If we have all of these parts ready. And If the boxes arrive on time. Then I think we might stay on schedule. It should be a fun summer.

One of the nice things about being at a national lab is getting to see old friends. This week I've got to spend some time with Jason Newby and this afternoon Dillon Thomas dropped by for a short visit. I'm looking forward to visiting with him more tonight at our ACU group dinner. I look forward to seeing the LANL and ACU groups over the next two weeks.

Grace and Peace,
Rusty”

From Dr. Michael Daugherty:

“Dearest DANGO,

After last week's adventure of driving 2,173 miles with a toddler and a 6 year old, I've really enjoyed being at Brookhaven this week. I always start the summer by looking around for fun, interesting, or at least useful projects, but this year I didn't have to look very far. Apparently in December our group's server was shut down by cybersecurity, and our RPC factory network was essentially disassembled. Since the run was in full swing, no one has really had time to look at it until now.

It has been an interesting week trying to put everything back together since there is basically no documentation (of course). A few days ago I stumbled across an ancient map to the temperature sensors which started an Indiana Jones-style adventure where we traced cables to hunt down

components for a dead computer. After it was reassembled, we eventually found enough clues that Kyle could hack the password. With Dasith's help we eventually got the temperature monitoring working again, restoring peace and harmony to the land.

Now, if you'll excuse me, I haven't played DotA in about eight months, and I hope to correct that mistake tonight.

-Dr. D”

From Shon Watson:

“Dear Dango,

This week, I have been working on the MIDAS versions of the NIFFTE event builder and channel demux programs. I have started writing the MIDAS version of the new event builder. It's based on the standalone version that Daniel has written.

Shon Watson”

In Other News

APPLICATION DEADLINE: 1 August 2011

What: Conference Experience for Undergraduates (CEU) - Fourteenth Annual

Where: 2011 DNP Meeting, East Lansing, MI

When: 26-29 October, 2011

Sponsored by: NSF, DOE, DNP

All undergraduate students who have participated in nuclear physics research are invited to apply! Students will present research posters and participate in several CEU and conference related events. Travel and lodging awards will be granted to a number of the top qualifying students. Please refer to the CEU website for more detailed information, updates, and application information:

<http://physics.westmont.edu/ceu/>

PROGRAM

CEU11 will include the following highlights: student research poster session, undergraduate nuclear physics seminars, graduate school information session, CEU social reception, and regular DNP conference events, including attendance at invited and contributed talks.

QUALIFICATION AND APPLICATION

Students (fall 2011 returning undergraduates) who have participated in experimental or theoretical nuclear physics research are invited to apply. The online application (found on the link above) consists of a research abstract and a brief summary of the student's individual contribution to the larger group effort. Application deadline is 1 August 2011. Applications will be reviewed and travel and lodging award decisions will be based on the quality of the research, and the imagination and creativity reflected in the student's contribution.

QUESTIONS

Contact Warren Rogers <ceu@westmont.edu>

***ALL UNDERGRADUATE STUDENTS WHO HAVE PARTICIPATED IN
NUCLEAR PHYSICS RESEARCH ARE ENCOURAGED TO APPLY!***