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DANGO (Doings and Goings On) - Vol. 22 | Issue 6

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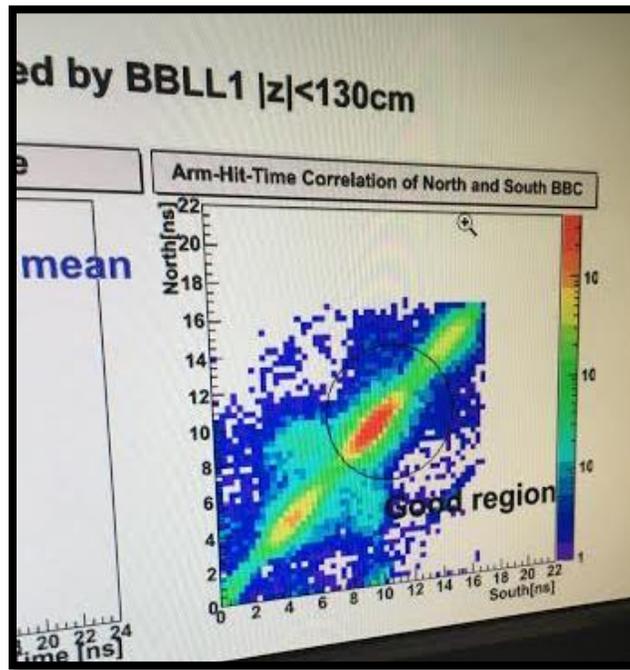https://digitalcommons.acu.edu/dango/6

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DANGO (Doings and Goings On)

Picture of the Week Winner: "Oh my gosh, the data is a lizard" -Matthew

Group Updates

FROM HANNAH HAMILTON:

Hello DANGO! I thought I'd submit a DANGO that sums up what I've done so far before I go back to Abilene.

I've spent my time working for Dr. Willis (and the LIGO Scientific Collaboration) at the Max Planck Institute for Gravitational Physics (AKA the Albert Einstein Institute) in Hannover, Germany since the second week of May. I started out by learning lots and lots of Python so I could carry out the tasks that I needed to get done. The collaboration analyzes data in a few different methods. One such method utilizes PyCBC, which is Python software that analyzes the coalescence of binary black holes. I started out by testing

whether we can see the same results from a data run when running on a GPU instead of a CPU. While this might be an easy task for many, it took me a while since I was learning Python along the way.

In late May, I attended a conference about the future of gravitational wave research. Stephen Hawking was supposed to be in attendance, but he got sick near the start of the conference. :(Oh well. It was still an enjoyable and informative conference. Next, I worked on changing various parameters to increase the efficiency of data analysis runs. That is still on going, and will probably continue back in Abilene (as far as I know).

Now I know what you're thinking: is this all I've done while in Germany? That's so lame! And you'd be right (mostly, although I did go with Josh and Autumn to some lovely places early on). That's why I've tried to make up for all the weekends I stayed in Hannover by travelling this week!

I started out in Berlin for some aggressive sightseeing. I went to the Museum Island, which was phenomenal, but really shouldn't be done in the time period I did it. I saw the Berlin Wall, Brandenburger Tor, Under den Linden, and various other things. The next day I went to Potsdam to Sanssouci Palace, and then to Charlottenburg Palace. Next was Leipzig! A beautiful town with lots of history. I think my favorite part was seeing the church J.S. Bach used to work at. The next day I went back to Hannover and slept all day. Next was Hamburg. I was surprised to see a harbor there, which is apparently quite famous. I blame America that my only association with the city involves fast food. It was extremely hot that day, so I mostly stayed indoors. I'd say my favorite part was looking out over the city from a church tower. On Friday I went to Nuremberg to learn some history. And Saturday I went to Munich.

I could go on forever about these trips, so I've kept it as short as I possibly can. All in all, it was an amazing and fulfilling experience, and I cannot begin to describe the impact it had on me.

Auf wiedersehen!
Hannah

BROOKHAVEN
NATIONAL LABORATORY

FROM MATTHEW KIMBALL:
Hey DANGO Matthew here,

This week has been a good one here at Brookhaven. We finished out our lasts shifts at PHENIX (which will be shutting down after the current shift is done) and moved back to Mickey's lab. We immediately picked back up where we left off our electronics work and tested the bandwidth of two different balun boards and two different drs4s. The next step will be to measure the drs4s when their input

is put through the balun boards.

See ya,
Matthew Kimball

FROM ARIC TATE:
Hello Everyone,

This week was a doozy. Unfortunately the mRPC decided to stop producing signals sometime over the weekend. We assumed that the pre-amplifiers were blown and took the mRPC of the of gas vessel to check them. They weren't. So after reattaching everything we placed the mRPC back in the vessel and began flowing gas. We are now waiting on Mickey (who is on shift for most of the day) to be around before we turn on the electronics. He would like to see the initial signals we observed last Friday and make sure we don't blow any more oscilloscope channels. At this point we have no good leads on why the mRPC stopped working.

Also, Muhlenberg has begun invading our fortress and I do not know how much longer we can hold out. We will offer up Haley first if it comes to that.

-Aric

FROM HALEY STIEN:
Hey Dangoers,

This week has gone by somewhat quickly. I began my week finishing up my last shift and I actually had to train someone who hadn't already done the job, which helped make my last day go by a bit faster. On Wednesday, Matt and I finally went back to working in the lab on our electronics study. For the most part, it's pretty repetitive, but I did learn how to solder wires (sort of)! That was my excitement for the week.

Also, because most of the Towells are gone, I've had to really step up my cooking game. I made pasta! However, I am really looking forward to my mom's visit in a few days so that I can go eat a bunch of awesome food in NYC.

Contrary to popular opinion, I do not mind the Muhlenberg invasion and have embraced our new friends (not literally).

Ready for vacation,
Haley

FROM VICENTE ROJAS:
I spent most of this week figuring out a puzzle. Have you ever sat down and tried to put together a 10,000 piece puzzle? It requires A LOT of concentration and dedication. Maybe I exaggerated with the number of pieces, but this is how this week felt. I was assigned to find the gravity and pump hydraulic calculations of an entire water treatment plant in Brady, TX. This means that I had to make a model that

showed the flow of water with a given pressure, elevation, and flow rate through thousands of feet of piping. I sat down for endless hours, looking at old plans and deciphering the appropriate piping connections. I kept myself motivated knowing that once I had this under my belt, anything else would be a piece of cake.

I discovered that one of the perks of working at eHT was getting lunch paid for from Beehive Restaurant to attend a webinar. The webinar discussed the recent changes in the process to become a Professional Engineer. I am still a long ways from becoming a PE, but it is good to know about these changes.

Lastly, I started my online speech class this past Monday.

-Vicente

FROM ZHAOJIA XI:
Ni hao Dango,

This week has been productive and fun. My mentor Andrew has come back from vacation, so I got to ask him many questions about the project and made a lot of progress. From Monday to Wednesday, I was working on my code. The program is to read hodoscope efficiency from different tracks in various counters. On Thursday, Dr. Daugherity's family, Reuben and I went to six flags. The weather was perfect, most

lines were not too long. I had a blast with these cool people. I am covering half of Catherine's day shift right now and I will keep working on my code and ask Andrew what else he wants me to improve. I hope nothing will crash during the shift and finish writing code very soon.

Work hard play hard,
Zhaojia(Tiffany) Xi

FROM CALEB HICKS:
<Generic Greeting>,

This week I'm back from shift and have been trying to keep myself busy poking through some code and reading things. I helped Dr. I build a cosmic ray detector from some hotoscopes so we can eventually test some new scintillators. I've been trying to talk to Dr. D about dark photon stuff because I was kind of lost but he's been absent so I haven't gotten much done on that other than poking through code. Kind of boring week, but I got a little done.

<Generic Send-Off>,
Caleb Hicks

FROM JOSHUA MARTINEZ:
Dear DANGO,

This week was rather interesting in that I was working night shift this week so I had a lot of time to do things. I manage to read an entire book over C++ and Linux so I feel like my programming skills have improved significantly compared to the

beginning of this internship. I have also been working on looking at data from some of the databases and I have become comfortable searching through all the information. In terms of being on shift I have learned how to correct the Chamber high voltage for all the drift chambers. It seemed rather hard at first but after I tried it myself it wasn't so difficult. Other than that it was a rather smooth week.

Sincerely,
Joshua Daniel Martinez

FROM PAUL CARSTENS:
Greetings, all,

I've spent this week on shift so nothing too noteworthy has happened in my work. The detector was nice and cooperative while I was watching it; I didn't have to panic and scramble while everything around me crashed and burnt. While on shift I continued to work on the magnet PT kick study that I had started last week. I significantly reduced the mass difference between the Monte-Carlo J/psi and the jTracked J/psi. It's not perfect and I'm sure I could reduce it further given more time, but it's time I move on to optimizing the PT kick settings for the MC drellyan events. It'll likely be less clean than the J/Psi since the mass isn't a well-defined point. Once I get the MC drellyan cooperating I'll move onto real data.

FROM REUBEN BYRD:
Greetings Dango,

This week I have been stumbling my way through a macro to graph the residuals of each detector. It's putting my limited programming experience to the test, which good I guess! In other news, we set up a cosmic test stand at the beginning of the week, but we haven't done much with it since Dr. I left. I'm assuming we will work more with that this coming week. On Thursday I went with the Daugherity family and Tiffany to Six Flags! We had a blast, and no one even threw up! I'll be working the four to midnight shift this weekend, and I'm hoping for smooth sailing with the beam.

Adieu,
Reuben

FROM DR. MIKE DAUGHERITY:
DANGO!

I recently realized that I've already been here for six weeks. Time flies when you're smashing atoms. We are still chugging along with SQERP and making great progress in writing a tool that will import data from the dark photon simulation into a SeaQuest tracker. And sooo many shifts this week. Also Six Flags. All in all, a good week.

-DrD

FROM DR. DONALD ISENHOWER:

News from Dr. I. the elder:

I have set up a muon test trigger and needed electronics for the extruded scintillators for the dark photon search experiment. Also I spent time teaching Ruben and Caleb how it works so that they will be able to finish setting it up and start testing them with the SiPms that we will use for readout. Right now there are three of those silicon photomultipliers down in the SeaQuest detector to see how they survive the radiation environment. Lots of electronics doesn't survive more than a few months even if it is behind the shielding of the solid magnet. Any silicon device in the target cave would be dead after one beam pulse, which is why the idea of putting a monitoring camera in the area isn't possible.

We will have to add a patch panel to a light-tight box built by Ben Draper, a former ACU student some of you may have met at our Awards banquet because we have a number of new signals we have to get in and out of the box. We of course have to keep the box light-tight and many connectors will let a few photons through and our detectors will pick up single photons. The students will also participate in solving the problem in how to mount the new hodoscopes. Depending on where they are mounted, this can be an easy or hard problem. But attaching the SiPMs to the fibers will still be tricky.
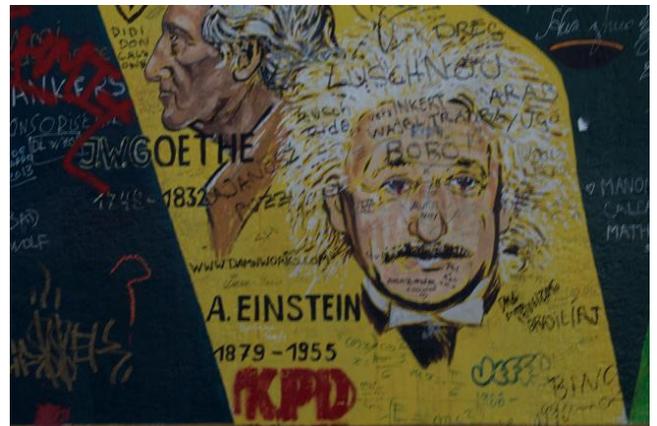
Dr. I.

Picture of the week candidates

Dr. D: "Continuing the "Paul in a funny hat" series, we have an official highlight of the 2016 Fermilab User's Meeting: Paul with funny Goggles. From http://news.fnal.gov/2016/06/highlights-2016-users-meeting/"

Hannah: "A familiar face on the Berlin Wall"

Zhaojia: "Molly and I got soaked for three times."

Coffee of the Week!

Almost Starbucks- Aric's $5 hipster coffee