



QuarkNet 2019 - Vanderbilt University

24-28 June 2019

Welcome!

The week in a nutshell:

Monday, news and Particle and Astro-Physics talks

Tuesday Morning, Cosmic Ray Muon Detector

Tuesday Afternoon, eLabs and CRMD

Wednesday, prepare for outreach

Thursday, setup at Adventure Science Museum, run display in shifts

Friday, setup, run, and take down display

Administration

- Introductions around the room.
- Make sure you check the day on the **attendance sheet**. It is how the stipend will be calculated. Check it and sign it your last day in attendance.
- Also hand-in the IRS W-9 form and ACH bank direct deposit form needed to process your stipend.
- Pickup your parking permits.
- We have **two** working sets of cosmic ray muon detectors (CRMDs) and have laptops for datataking and control. We have a **third** set with non-standard (small) scintillator paddles good for shielding experiments.
- We use the “standard” Java program *Equip* to control the boards/detectors.

Useful Links

- Vanderbilt QuarkNet Site:
<http://www.hep.vanderbilt.edu/~gabellwe/qnweb/>
- Vanderbilt QuarkNet “Drupal” group page:
<http://quarknet.i2u2.org/group/vanderbilt-university-quarknet-center>
- Vanderbilt QuarkNet Workshop 2018 page:
<https://quarknet.i2u2.org/content/vanderbilt-quarknet-worskhop-2018>
- QuarkNet Cosmic Ray eLab Teacher page:
<http://www.i2u2.org/elab/cosmic/teacher/>
- QuarkNet CMS eLab page:
<http://www.i2u2.org/elab/cms/home/project.jsp>
- QuarkNet LIGO eLab Page:
<https://www.i2u2.org/elab/ligo/teacher/>
- 2017 Marla Glover’s CMS Open Data Page:
<http://quarknet.i2u2.org/content/vanderbilt-cms-data-agenda>
- 2016 Ken Cecire's LIGO eLab page:
<https://quarknet.i2u2.org/content/ligo-e-lab-workshop-vanderbilt>



news and talks

Monday Schedule

8:00-8:30am Arrive, parking permits for the week, **check the attendance sheet & IRS**

8:30-9:00am The weeks schedule, News, Announcements, Bill Gabella

9:00-10:00am Event Horizon Telescope, Bill Gabella

10:00-10:10am Break

10:10-11:00am Particle Physics, Savannah Starko

11:00-12:00pm Relativistic Heavy Ion Physics, Vicki Greene

12:00-1:15pm Lunch

1:30-2:30pm LISA and Black Holes, Kelly Holley-Bockelmann

2:30-2:40pm Break

2:40-3:40pm Pulsar Timing Array, Natasha McMann

3:40-the end Discuss

Tuesday 9am LHC and Pixel Detector, Will Johns



Tuesday Schedule

Muon detectors and e-Labs

8:30-9:00am Arrive

9:00-10:00am Cosmic Ray Muon Detectors, Bill Gabella

10:00-10:10am Break

10:10-noon, e-Lab Activities in small-ish groups

noon-1:15pm Lunch

1:30-4:00pm Report on e-Lab Activities

2017 CMS from Marla Glover: <http://quarknet.i2u2.org/content/vanderbilt-cms-data-agenda>

2016 LIGO e-Labs, Ken Cecire: <https://quarknet.i2u2.org/content/ligo-e-lab-workshop-vanderbilt>

Cosmic Ray e-Labs: <http://www.i2u2.org/elab/cosmic/home/project.jsp>



Wednesday Schedule

Prepare for Adventure Science Museum

8:30am-9:00am Arrive

9:00am-noon Discuss Adventure Science Center Visit, Prepare

noon-1:15pm Lunch

1:30-4:00pm More Preparation



Thursday Schedule

At the Adventure Science Museum, <http://www.adventuresci.org/> and at 800 Fort Negley Blvd., Nashville, TN 37203, **Hours 10am to 5pm.**

8:00-10:00am Setup

10:00am-5:00pm Run QuarkNet display in shifts, others work on experiments\

5:00-6:00pm Secure the display, take home laptops, etc



Friday Schedule

Adventure Science Center, day two

8:00-10:00am re-Setup display

10:00am-5:00pm Run display in shifts and do experiments

5:00pm-6:30pm (?) Take down the display



Adventure Science Center 1/

- **Goal is to inform people about both Cosmic Rays and the QuarkNet Program.**
- Should have several CRMDs set up and running.
- Have a display of a PMT and of a Scintillator.
- Have an oscilloscope showing the electrical pulse.
- Maybe some teachers doing the speed-of-muon experiment?
- Demographic is mostly very young, elementary age, but there are still some adults and teens around. We need to let them know that we are there, in the corner, out of sight:)
- Handouts? Cosmic Extremes (not many copies) and a one page, two sides for adults (lots of these are possible), and maybe one for younger children.



Adventure Science Center 2/2

- **Space** is on the 1st floor near the Planetarium, but a bit dark and out of the way.
 - Is in the space section, solar system.
 - Has AC power outlets in the floor.
 - Can hang banner on wall with Sticky putty or similar.
- Will be given a 6' table.
- If we want an AV cart with a large CRT television
 - Bring a flat screen from school or home?

ASC Space we have been given 2/



ASC space around corner from Planetarium 2/

