

**FEB '16
ISSUE**

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

**A WORD FROM
THE:**

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Quote of the Month: "Science never solves a problem without creating ten more." -George Bernard Shaw

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NOTE FROM OUR CHAIR: Thomas Roser

RHIC has started Run-16 operation on Sunday with the declaration of physics running. This required that RHIC can deliver a minimum amount of luminosity and that all the essential RHIC systems are operational to allow for efficient data taking at both STAR and PHENIX. The start-up of RHIC was achieved reasonably fast despite significant challenges from snowstorms and also the large amount of new installation work in the 2 o'clock IR.

Already during December 2015 the 200MeV Linac started operation to provide high intensity proton beams for the production of medical isotopes. For this year's run a beam raster system was successfully installed. With the raster system the heat load of the beam impinging on the target material is substantially reduced, which allows for increasing the beam intensity, and it might also increase the yield of isotopes produced. This upgrade came just in time as the Linac is delivering record beam intensities of over 150 micro-amps. Processing of the targets from the first irradiation cycle indicate that the Strontium-82 production rate is reaching record levels. This medical isotope is in increased demand in the U.S. for heart function diagnostics.

[VIEW UPCOMING CONFERENCE PROJECTIONS](#)

PROJECTIONS DUE ASAP

DID YOU KNOW??

Check out who received an employee Service Award this year! Collider-Accelerator Dept. employees who received a [Service Award](#).

Check out who received an employee [Spotlight Award](#) this year!

C-AD celebrated the careers of three distinguished employees that recently retired: Phil Pile, Yousef Makdisi & Al Pendzick! Enjoy the photos below (and thank you, Anna, for providing

EVENTS/SEMINARS

February 18 - (Bldg. 735, Seminar Rm., 2nd Floor | 11a) CFN Colloquium

February 22 & 29 - (Bldg. 459, HR Training Rm. | 12p) HR Event "SUNY MBA Information Session"

February 23 - (Bldg. 400, RSB 1 & 2 by Starbucks| 12p) Professional & Grant Writing Presentation for Postdocs & Students

them)!



February 25 - (Bldg. 490, Conference Rm. A/B | 12p) Cultural Food Tasting "AAAG Black History Month Celebration"

February 26 - (Berkner Hall Auditorium | 12p) Screening of "Soul Food Junkies: A Film about Family, Food & Tradition" by Byron Hurt followed by Q&A with the filmmaker

February 26 - (Physics Small Conference Rm. | 12p) Guest Speaker Dr. Sekazi Mtingwa on "Science & Technology in Africa: What Path Forward?"

March 8 - (Berkner Hall Auditorium | 12p) Lecture: "From Army Private to Atomic Physicist for the Manhattan Project"

March 9 - (Berkner Hall Auditorium | 12p) BSA Recital "Alliance Brass Quintet"

March 9, 10 & 11 - (Bldg. 510, Small Seminar Rm. | 9a) RBRC Workshop on Lattice Gauge Theories 2016

IN OTHER NEWS...

New Graphene-Glass Combo Powers "Spontaneous" Solar Cell
Brookhaven Does (Graphene) Windows. Apparently the Brookhaven solution to the graphene problem has been staring everybody in the face, ever since graphene was first discovered in 2004: ordinary glass window. [Read more.](#)

Research Teams Use DNA to Make 3-D Nanoparticle Structures with High Precision

DNA strands anchored to the surface of nanoparticles allow researchers to assemble the particles into three-dimensional crystalline lattices. Such control allows researchers to make new materials with desirable properties. [Read more.](#)

Farmingdale takes first in BNL High School Science Bowl
Farmingdale High School students have one contest down to a science. [Read more.](#)

New cathode material stops batteries turning crusty with age
Scientists at three US Department of Energy (DOE) national laboratories have discovered how to keep a promising new type of lithium ion battery cathode from developing a crusty coating that degrades its performance. [Read more.](#)

RHIC Particle Smashups Find that Shape Matters
Scientists colliding football and sphere-shaped ions discover evidence supporting a paradigm shift in the birth of the quark-gluon plasma. [Read more.](#)



Two American Physics Labs Are Vying for a Billion Dollar Particle Accelerator

Two labs are vying for government funding to host a billion-dollar atom smasher, and the battle is getting political. [Read more.](#)

Neutrinos Change Their Flavor and Snag Another Nobel Prize

Early this morning the world learned that the 2015 Nobel Prize in Physics has been awarded to Takaaki Kajita and Arthur B. McDonald for discovering that neutrinos can change from one type to another. [Read more.](#)



World's largest atom smashers create world's smallest droplets

How long can a droplet shrink and remain a liquid? [Read more.](#)

'Inflatable Dark Matter' Could Explain Why We See Less Than Many Theories Predict

Many wonderful theories that explain the evolution of the universe fail because they predict more dark matter than is actually out there. Now a new paper proposes one event in the early universe that would reduce the amount of dark matter in all the theories. [Read more.](#)

Ion collider produces droplets of primordial goo

The Relativistic Heavy Ion Collider just spit out tiny droplets of a liquid researchers say resembles the seeds of the cosmos, primordial goo created by the Big Bang, which existed on briefly before cooling the matter that helped birth stars, galaxies and planets. [Read more.](#)

Brookhaven National Laboratory projects are up for awards

Four projects developed at BNL have been nominated as finalists for awards to be presented this year by a national magazine. [Read more.](#)

Scientists Create Primordial 'Perfect Liquid' in Lab

The BNL's Relativistic Heavy Ion Collider smashed together large



nuclei at nearly the speed of light to recreate the fundamental particles in the primordial soup present during the earliest days of the universe. [Read more.](#)

World's most powerful digital camera being built by US Department of Energy
The US Department of Energy is building a digital camera that puts your camera to shame. [Read more.](#)





Wishing all the best for Phil, Yousef & Al in their retirement!

WHAT'S GOING ON IN OUR NEIGHBORHOOD?

Interested in Cycling?

<http://www.bicyclelongisland.org/majoride.htm>

<http://www.cyclotour.com/events.htm>

Interested in Running or Walking?

Runner's Edge - GLIRC Winter Fun Run - Feb 28 in Farmingdale, NY

Climb to the Top NYC - 66 flight stair climb - Feb 28 in Rockefeller Center, NYC

Caumsett 25K Run - Mar 6 in Huntington, NY

...Check out the [LI Running Calendar](#) for more!

For the Kids:

Hot Cocoa and Marshmallows - Jan 20 - Mar 16 (Wednesdays | 10:30am) at the Educational & Cultural Center in Stony Brook Village. Children will listen to a story read by the author and/or

DAY AT THE VINEYARDS...

Duckwalk North - SOUTHOLD - Music on Saturdays (4-6pm)

Castello di Borghese Vineyard & Winery - CUTCHOGUE - Vineyard Tours & Wine Tastings Every Thursday & Sunday at 1pm & FREE Jazz Every Saturday (2-4p) with Marguerite Volonts

Jamesport Vineyards - JAMESPORT -Live Music from 1-4pm every Fri, Sat & Sun

Martha Clara Vineyards - RIVERHEAD - Live Music every weekend

Palmer Vineyards - RIVERHEAD - Live Music every Sat (12-4).

Pindar Vineyards - PECONIC - Live Music Every Saturday (1-5pm)

Baiting Hollow Farm Vineyard - BAITING HOLLOW - Music

illustrator, participate in a craft activity related to the story and enjoy hot cocoa.

every Sat & Sun from (2-6)

Dinosaur Week! - Feb 16-18 (10am-3pm) at the Educational and Cultural Center in Stony Brook Village. Three fun-filled days of science, crafts, and imagination for kids ages 3-5 and 6-9.

Paumanok Vineyards - RIVERHEAD - Fresh, Local Oysters (2-5pm) every Sat & Sun starting Memorial Day through September

Stony Brook Events:

Celebrate Black History Month - Feb 1-29 (Performances at 10 am and 12 pm) at the Educational and Cultural Center in Stony Brook Village. Experience the live, on-stage drama *Running Scared, Running Free...Escape to the Promised Land* - an interactive theatrical performance about the links between the Underground Railroad, secret codes, and the strength of the human spirit in the struggle for freedom.

Port Jefferson Events:

Skating on the Harbor with the Rinx Village Center – Nov 27 – Mar 31 at PJ Village The Rinx

Waterfront Tradition Photo Exhibit Village Center - Jan-Feb at PJ Village Recreation PJ Conservancy

4th Annual PJ Historical Society Dinner - Feb 6 at 6pm at the Port Jeff Country Club

Check out Erik Forsyth's Travels:



[HTTP://WWW.YACHTFIONA.COM](http://www.yachtfiona.com)

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NOTE FROM OUR ADMINISTRATION: Sue Pankowski

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This month I'd like to share some important notes about timecards and recording paid time off. As I've mentioned previously, it's up to you to use the proper project/activity number to charge your time worked. Likewise, it's equally important to enter the proper codes on your timecard for paid absences, be it Vacation, Sick, etc. Many people don't realize that when you charge your time worked to a project, the project is also paying a percentage towards your paid time off benefits. Then, when you have the actual time off, the programs you worked on have already "paid" for your time off in advance - hence, you then record a "V", "S", or other code on your timecard.

We all know how important it is to recharge yourself when you use those well-earned vacation days. With that said, I'd also like to remind everyone about vacation accrual limits. Exempt and non-exempt monthly employees must reduce their vacation balance to 20 days or less by MARCH 20, 2016. Weekly employees must reduce to 31 days or less by March 20. If you have requested a waiver by submitting the Vacation Carryover Request Form (the deadline for submitting has already passed), you will be notified once that waiver has been approved.

Finally, BNL has experienced some weather-related site closures over the past few weeks. Here are a few reminders on how to record site closure hours on your timecard.

Non-exempt employees should record any hours worked. For any hours that you would have typically worked but couldn't due to the site closure, record the hours as "E". HOWEVER, if you were on scheduled leave (vacation, sick) for the day, record the leave time appropriately.

Exempt employees should NOT record any "E" hours. Record all hours worked from home or another location as applicable while the site was closed for access. Consider all remaining target hours in the month and plan, along with your supervisor, how best to complete your work or use leave time as applicable.

Weekly employees should record worked time in and time out. Note "E" on the timecard and other codes as applicable.

Essential personnel working on site during the closure should note the following:

Weekly employees should record time in and out; record "E" - Important to indicate your normal schedule at the top of the paper time card.

Monthly non-exempt employees should insert a row, choose "EW" as the TRC code, add the proper activity and indicate the total hours worked. This code requires a note to payroll. The note requirements are that you indicate your normal schedule and also the time in and out worked for the day.

BNL site closure policy can be referenced here: <https://www.bnl.gov/newsroom/news.php?a=24624&t=a%20>

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NOTE FROM OUR ACCELERATOR DIVISION: Wolfram Fischer

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The RHIC setup for physics with Au+Au collisions was completed on Sunday, 7 February 2016 and we are in physics mode. Congratulations to the Run Coordinator Xiaofeng Gu and the whole team. The luminosity is close to but still somewhat below what we had achieved in 2012. Over the next weeks we aim to exceed the 2012 values with higher bunch intensities from the injectors, and possibly the use of the 56 MHz SRF system.

The isotope program, using the new raster system for the target irradiation, is now routinely running at record current of 152 micro-A.

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NOTE FROM OUR EXPERIMENTAL SUPPORT & FACILITIES DIVISION: Bill Christie

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This is my first submission to the Particle Post in my new capacity as the Head of the Experimental Support and Facilities Division. For those of you who may not know me I'd like to start with a brief history as a way to introduce myself. I grew up in Seattle, Washington, and then went to undergraduate school at Western Washington University. I then went to Graduate school at the University of California, Davis.

My thesis research was done at the BEVALAC, located at Lawrence Berkeley National Laboratory. Upon graduation with a PhD in Physics, I became a Post Doctoral Fellow at Lawrence Berkeley Lab, where I started working on computer simulations for a Letter of Intent for an experiment at RHIC, which at the time was just getting geared up to start construction. I was one of the authors for the Letter of Intent, which was chosen to go forward to a full proposal, and became the STAR Detector Project.

I came out to Brookhaven Lab in the Fall of 1993, joining the RHIC Project, as a Liaison between the STAR Project Office back at LBNL and the RHIC Project, a role that I kept through the RHIC construction phase. With the completion of RHIC I transferred into the Physics Department as a member of the STAR group. I took on the role of Operations Coordinator for STAR just after the first year commissioning run of RHIC and the Experiments, a role that I've held ever since. I had the privilege of working together with Ralph Brown, who had the role of Chief Mechanical Engineer for STAR during the construction, and continuing into operations, managing the operation and maintenance of STAR until Ralph left STAR in 2007 to take the Chief Mechanical Engineer role in the Daya Bay Neutrino Experiment.

From this point forward I continued my responsibilities for the operation of STAR during the physics runs, and picked up the responsibilities that Ralph had carried for the maintenance, integration, and installation of detector upgrades for STAR, and managing the STAR Technical Support group.

In my role as Operations Coordinator for STAR I've had the pleasure of interacting with most, if not all, of the members of the C-AD ES&F Division. Given the close coordination and interaction necessary between the detector operations and the Collider operations I've also interacted more or less daily for the past fifteen years of RHIC operations with the Collider operations group and the Accelerator Physics group. I think it is not a stretch to say that I've spent more time interacting with C-AD personnel over the past fifteen years of RHIC operations than I have with personnel in the Physics Dept.

Now I've been given the privilege of joining C-AD as the ES&F Division Head. I appreciate the kind words and welcome that I've already experienced starting my new role in C-AD. Having worked closely with Phil, Yousef, and Al for the past decade and a half, I have an appreciation for the 100 plus years of knowledge and experience that has gone with them into retirement, but I also have an appreciation for the depth and breadth of talent, skill, experience, and dedication that exists in the members of the ES&F division, as well as the whole C-AD department. I'll need, seek, and appreciate the assistance of all members of the division as we move forward. As a final comment, I'm always eager to hear any ideas people may have on how we can perform our work better, safer, or more efficiently.

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NOTE FROM ACCELERATOR R&D DIVISION: Ilan Ben-Zvi

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No comment at the time of this publication.

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NOTE FROM OPERATIONS: Paul Sampson



After a great end of shutdown effort and repair of the Yellow vacuum leak in sector 2, RHIC Run 16 has begun. Work on stochastic cooling setup and increased intensity and luminosity are ongoing. The first scheduled maintenance will occur on February 17th and alternate bi-weekly with APEX for the remainder of the run.

The pre-injectors continue to run reliably, with setup for increased bunch intensity continuing behind RHIC fills. Preparation for Polarized Proton studies in the injectors has also begun. Preparation for the NSRL run 61A has also begun and will initiate next month.

LINAC is running well for BLIP. The Raster system is running well and the current on target has been steady at 150uA. The third irradiation is presently underway and scheduled to end on the 19th of February. LINAC maintenance is scheduled for Tuesday, February 23rd.

EBIS has been running well, delivering beams to the Booster for RHIC fills and setup. Work on delivering additional pulses for bunch merges in AGS continues behind stores.

The "[RHIC Broadcast](#)" link displays the latest schedules for testing, power disruptions, outages and daily schedules.

To view a list of approved work for the Shutdown or to review past results, go to the [Job Request System](#) and select the appropriate date. This link is behind the firewall and requires privileges to view.

For weekly schedule updates see: [This Week](#), which can be viewed by all.

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ARRIVALS: Welcome!

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Rajah Goodrich - Communications & Electronic Support, ES&F Division

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DEPARTURES: Farewell, you will surely be missed..

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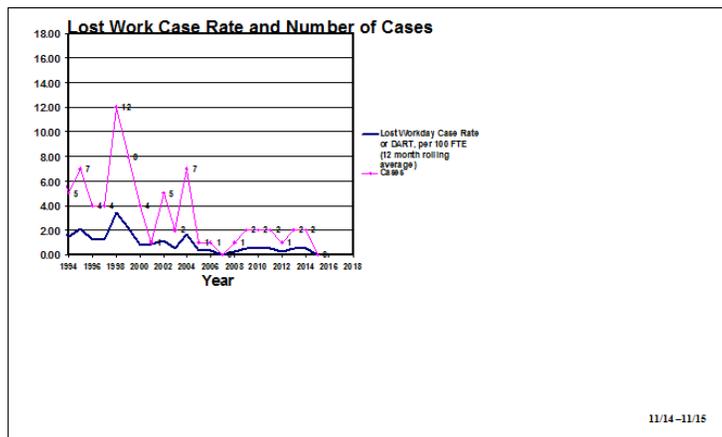
Acc. R&D Div.

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SAFETY STATS: Peter Cernigliaro

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C-AD Occupational Injury Statistics

	For Year 2015	For Year* 2016
First Aid Cases	5	1
Recordable Cases	1	0
Lost Work Cases	0	0

* Calendar Year through 1/16