

DEC '15
ISSUE

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

A WORD FROM
THE:

PREVIOUS ISSUES

August 2015

Administration

[\[HOME PAGE\]](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

Accelerator Div.

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

ES&F Div.

Acc. R&D Div.

Operations

▶ Arrivals/Departures

 Safety Stats



NOTE FROM OUR CHAIR: Thomas Roser

As of this writing there is still no budget approved and the end of the present Continuing Resolution (CR) is only three days away. However, the contentious issues are likely only political riders that can hopefully be resolved without a government shut down. The start of the Helium cool down of RHIC has been postponed to January 19 to allow for the many installations in RHIC that are occurring this year to be completed.

This last month we had a review by the eRHIC R&D advisory committee chaired by Mike Harrison. During the review we presented the status of the development of eRHIC designs that have lower technical risk. The goal is that these designs could be built using existing technologies or with only minimal R&D albeit with significantly lower performance than the main eRHIC design. Two versions were presented: one based on the same ERL - RHIC concept as the main eRHIC design but with much lower risk and the other based on a electron ring - RHIC concept. The committee strongly supported our development strategy and work is continuing on refining these designs and also prepare a cost estimate for both versions.

VIEW [CONFERENCE PROJECTIONS FOR 2015: DUE ASAP](#) -

CONFERENCES SHOULD BE PROJECTED THROUGH DECEMBER 2015

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!

Prachi Chitnis is awarded with the 2015 Experimental Physics Control Systems Prize by the European Physical Society!

EVENTS/SEMINARS

IN OTHER NEWS...

Brookhaven National Laboratory scientists find clue pointing to botulism treatment, vaccine
Scientists at BNL and collaborators at two other institutions have found a major piece in the botulism puzzle, revealing how the toxin that causes the paralyzing illness survives unscathed in the human digestive tract, a finding that can lead to possible treatments and vaccines. [Read more.](#)



"Prachi Chitnis, a Stony Brook University electrical engineering student mentored by Kevin Brown, a physicist at Brookhaven Lab's Relativistic Heavy Ion Collider, was recently honored by the European Physical Society for her research and development of beam permit and quench detection systems at RHIC." Read more [here](#).

Prachi has also completed her PhD studies and will be graduating on December 17th!

Congratulations on these great achievements!

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.](#)

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.](#)

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.](#)



NGC40, The Bow Tie Nebula by Steve Bellavia



Comet C/2013 US10, Catalina, by Steve Bellavia

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?

Ho Ho Ho 5K Run – Dec 19 (9:30 am) in Bethpage
Santa Hat Dash 5K/10K - Dec 19 in NYC

NYRR Midnight Run - Dec 31 in NYC

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

For the Kids:

Amazing Animals A-Z Program - Dec 28 - 30 (10 am) at the Educational & Cultural Center in Stony Brook Village. Children will join an Environmental Educator in learning about wildlife from A-Z!

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)

Stony Brook Events:

Strangers in the Night (Holiday Musical Theater Performance) – Nov 18 - Jan 10 at the Educational & Cultural Center

Holiday Hours in Stony Brook Village - Dec 7-24. Extended holiday hours to suit all your shopping needs this season!

Port Jefferson Events:

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

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

20th Annual Dickens Festival – Dec 4 - 6 in PJ Village

Homes of Harbor Hills - Lantern Light House Tour - Dec 12 at PJ Chamber

Baiting Hollow Farm Vineyard - BAITING
HOLLOW - Music every Sat & Sun from (2-6)

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

Check out Erik Forsyth's Travels:



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

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PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

A WORD FROM
THE:

PREVIOUS ISSUES

August 2015

Administration

{[HOME PAGE](#)}

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

Accelerator Div.

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ES&F Div.

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NOTE FROM OUR ADMINISTRATION: Sue Pankowski

Operations

▶ Arrivals/Departures

 Safety Stats



Our DOE funded budgets are on a continuing resolution (CR) with current year funds provided to support operations through December 11, 2015. It seems very likely that the CR will be extended beyond that date as we await final appropriations bills from Congress. As such, the annual federal budget waiting game continues.

From time to time, many scientific and professional staff within the department get involved in preparing proposals for new business opportunities. These can be in response to a DOE Funding Opportunity Announcement (FOA), an FOA from another federal agency, or a Work for Others request. Regardless of the type of proposal, me and my colleagues in the business operations group are available to facilitate proposal preparation from small scale efforts to larger endeavors. Furthermore, BNL's Proposal Center has additional staff and resources available to support the development of high-quality proposals.

One of the first steps you should take when a new proposal opportunity arises should be to prepare the electronic [Prep and Risk Questionnaire \(PaRQ\)](#). The PaRQ form addresses key parts of proposal preparation and risk mitigation, and many of the questions are modeled after the Proposal Information Questionnaire (PIQ) that is submitted with final proposals to DOE. Once the PaRQ is completed, a notice is emailed to department management, business operations, and the BNL partnerships office who then review and provide input on the proposal opportunity.

While the contents of the proposal will differ based on the requirements of the sponsor organization, generally all include some form of a Statement of Work, budget, and schedule for completion. Getting this information prepared within specified deadlines is best accomplished when the right people are involved early on in the process. Please feel free to reach out to me for assistance and guidance when you get involved with a new proposal opportunity.

**DEC '15
ISSUE**

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

**A WORD FROM
THE:**

PREVIOUS ISSUES

August 2015

[Administration](#)

[{HOME PAGE}](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

[Accelerator Div.](#)

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

[ES&F Div.](#)

[Acc. R&D Div.](#)

[Operations](#)

NOTE FROM OUR ACCELERATOR DIVISION: Wolfram Fischer

[▶ Arrivals/Departures](#)

[Safety Stats](#)



We are now preparing for the start-up of the machines for the next RHIC run. The start of the 4K cryo wave is scheduled for 19 January 2016 and we will have Au+Au at 100 GeV, followed - time and budget permitting - by d+Au at a number of energies. During Run-16 the Coherent electron Cooling Proof of Principle (CeC PoP) experiments will run, and we will also make important tests for the low-energy Au+Au program in 2019 and 2020.

BLIP operation will begin on 15 December 2015, and this year we will use for the first time a new raster system that reduces the energy density of the isotope target, which allows for an increase in beam current the production of larger quantities of medical isotopes.

DEC '15
ISSUE

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

A WORD FROM
THE:

PREVIOUS ISSUES

August 2015

Administration

{ [HOME PAGE](#) }

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

Accelerator Div.

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

ES&F Div.

Acc. R&D Div.

Operations

NOTE FROM OUR EXPERIMENTAL SUPPORT & FACILITIES DIVISION: Phil Pile

▶ Arrivals/Departures

 Safety Stats



There has been a change in the RHIC schedule for Run 16 since the last Particle Post was published. In consideration of the work left to do to be ready for Run 16, in particular work in preparation for the CeC proof of principle experiment, the start of cool-down of RHIC was delayed by 2 weeks. Cool down is now planned to start on Tuesday, 19 January. The plan to run for 22 weeks of cryo operations remains unchanged, budget permitting (still waiting for Congress to pass a budget!). Both the STAR and PHENIX experiments should be ready to take beam when available as neither experiment needed the two week delay.

The sPHENIX project underwent an important cost and schedule review 9-10 November. The review was called by Berndt Mueller with a charge to the panel to "provide an independent evaluation of the maturity and status of the sPHENIX project plan, focusing on the cost and schedule". The panel was comprised of individuals from inside and outside (Stony Brook, Columbia and Fermilab) the lab. The review committee made several constructive recommendations including a recommendation to extend the sPHENIX construction period by a year. This project comes with the formation of a new collaboration, independent of the STAR and PHENIX collaborations. The inaugural meeting of the sPHENIX collaboration is being held in Rutgers 10-11 December. New collaborators are expected to join at this meeting or following the meeting as there is a need for a greater university participation in the planning and construction of sPHENIX.

The sPHENIX BaBar magnet is about ready for a low power 100 amp test with connections to the ERL cryo system to be completed in late Dec/early Jan. The cool down will start as early as Monday, 11 Jan. This is an important milestone for the sPHENIX project.

The fall NSRL run started on 12 October and finished on Friday, November 20th. The new Booster D6 extraction magnet and a 1.5 GeV/n capable beam line (Galactic Cosmic Ray simulator) was commissioned during the run so congratulations go to the team (led by Charlie Pearson) that delivered this project. The spring 2016 run schedule is being worked on with an expected start date in early April.

The plan to bring on the LINAC for BLIP starting on 15 December is on track. The new beam raster system has been installed in the BLIP spur and commissioning without beam is almost complete. The first targets for Sr-82 production will go in on 4 Jan. With the raster system the targets should be able to take the full beam current from the LINAC with no significant risk of target failure. The 2016 BLIP run is scheduled to continue through July 2016.

**DEC '15
ISSUE**

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

**A WORD FROM
THE:**

PREVIOUS ISSUES

August 2015

[Administration](#)

[{HOME PAGE}](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

[Accelerator Div.](#)

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

[ES&F Div.](#)

[Acc. R&D Div.](#)

Link to: [ATE Newsletter](#)

[Operations](#)

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

[▶ Arrivals/Departures](#)

No comment at the time of this publication.

 [Safety Stats](#)



DEC '15
ISSUE

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

A WORD FROM
THE:

PREVIOUS ISSUES

August 2015

Administration

[\[HOME PAGE\]](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

Accelerator Div.

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

ES&F Div.

Acc. R&D Div.

Operations

NOTE FROM OPERATIONS: Paul Sampson



In RHIC while shutdown work continues, startup of subsystems has begun. The Cryogenics system scrub began last month and will be followed by the 45k wave later in the month.

Focus at RHIC continues in the a and 2 o'clock regions and on the CeC PoP, LEReC and associated projects. Testing of RF in the 4 o'clock region is being conducted in the evenings mid week until RHIC start up. Annual Access Controls System testing is ongoing, with some scheduled access interruptions in the RHIC tunnel and service building throughout the month.

Work in the AGS is reaching the finale stages. Testing and checkout for startup, including the Main Ring Heat and dry runs will take place this month. Beam work is scheduled for early January.

Shutdown work at LINAC is complete. Access controls certification and RF startup under way. Commissioning of the new Low Lever RF system, commissioning of the Raster system and startup for BLIP are all slated for December. BLIP production will commence in early January.

The Booster is presently shut down and will be run for tests before restoring beam operations on January 4th.

Work in EBIS in preparation for delivering heavy ions to RHIC is underway and will continue in the Booster and AGS startup in January.

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.

▶ Arrivals/Departures

 Safety Stats

DEC '15
ISSUE

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

A WORD FROM
THE:

PREVIOUS ISSUES

August 2015

Administration

[\[HOME PAGE\]](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

Accelerator Div.

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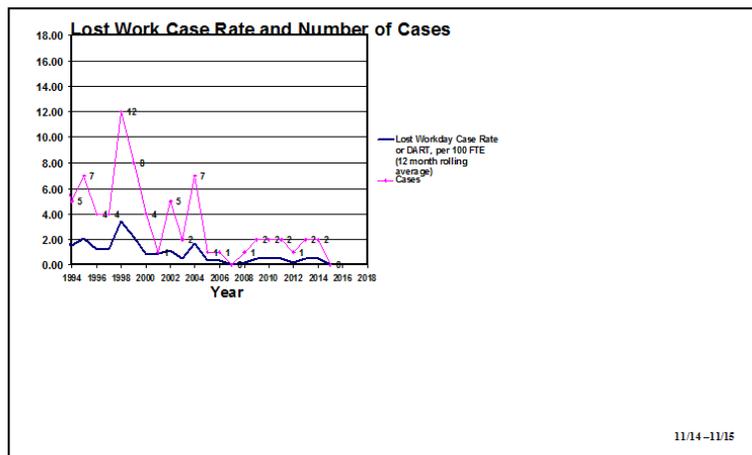
Operations

▶ Arrivals/Departures

 Safety Stats

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SAFETY STATS: Peter Cernigliaro



11/14-11/15

C-AD Occupational Injury Statistics

For Year 2014 For Year* 2015

First Aid Cases	8	5
Recordable Cases	3	1
Lost Work Cases	1	0

* Calendar Year through 11/15

**DEC '15
ISSUE**

PARTICLE POST

COLLIDER-ACCELERATOR DEPARTMENT

Contact: [A. Lamberti](#)

**A WORD FROM
THE:**

PREVIOUS ISSUES

August 2015

[Administration](#)

[{HOME PAGE}](#)

[BNL WEBSITE](#) | [C-AD WEBSITE](#) | [ES&F WEBSITE](#) | [BERA](#) | [BNL CLASSIFIED ADS](#) | [INSIDE](#)

[Accelerator Div.](#)

Quote of the Month: "Nothing in life is to be feared, it is only to be understood. Now is the time to understand more, so that we may fear less." - Marie Curie

[ES&F Div.](#)

[Acc. R&D Div.](#)

ARRIVALS: Welcome!

[Operations](#)

Lizhi Chen - Research Associate
Ali Younes - Research Associate

[▶ Arrivals/Departures](#)

DEPARTURES: Farewell, you will surely be missed..

 **Safety Stats**

Frank Cullen
Mark McNeill
Mitch DeLaVergne
Felix Carlier

Guest Notices: