

Particle Post

November 2012

"Gratitude is the inward feeling of kindness received. Thankfulness is the natural impulse to express that feeling. Thanksgiving is the following of that impulse." ~Henry Van Dyke

Previous issues [October 2004](#)

Note from the Chair Thomas Roser



I hope everybody got through Hurricane Sandy and the Nor'easter with little damage to their home and also quickly got power and heat back. The gas shortage seems to have past by now. If you started to carpool during the time of the gas shortage you might consider to continue it as it saves money and is one thing we can do to combat global warming. The destructive effects of Hurricane Sandy were certainly amplified by the seawater rise caused by global warming over the last century.

Operation of NSRL was interrupted only briefly by Sandy and it is still on track to finish on schedule. The isotope production at BLIP will start in the middle of December. The start of the RHIC 4K cool-down has now been delayed until February 11, 2013, to give more time for the installation of the e-lenses in the 10 o'clock IR of RHIC. This will still leave enough time for a 20-week RHIC run before the beginning of the hot summer months.

Administration Stephanie LaMontagne-McKeon



BNL's Business Operations Directorate was formed in FY 2010 centralizing many of the business functions at the Laboratory. Since then, a number of procedural changes have been implemented with the overarching goal of standardizing business practices across directorates and reducing the cost of doing business at BNL.

One very important change is the implementation of a standard procedure for the preparation, review and approval of proposals. The newly implemented procedure requires that anyone preparing a proposal for new business, regardless of sponsor or method of solicitation, utilize a common Prep and Risk System to ensure that proposals leaving BNL are subject to a proscribed review process.

A number of personnel within the Nuclear and Particle Physics Directorate attended a session in the Hamilton Seminar Room in late September during which Walter Copan, Manager of Technology Commercialization and Partnerships, introduced the Prep and Risk process described below.

The process begins with the preparation of a Prep and Risk Questionnaire (PaRQ) by the Principal Investigator (PI). The PaRQ form is a series of questions designed to help identify specific risks of the work being proposed, and should take on the order of 15 minutes to complete.

Please note that the questionnaire can be completed over time. That is, incomplete forms may be saved, recalled and updated as relevant information becomes known.

Once the PI has completed and submitted the questionnaire, an email notification is sent to C-AD Business Operations (Sue Pankowski), as well as to Research Operations (Ed Lessard), the BNL Partnership Office (Mike Furey), and our Department Chair (Thomas Roser), all of whom are required to review and approve the proposal. Proposals can only move forward once all of the required approvals have been completed.

The link below is provided for your use in accessing the PaRO.

<https://services.bnl.gov/apps/ProposalO/SitePages/Home.aspx>

PI's should remember to contact Sue Pankowski at the start of the proposal process. Sue will assist you in developing a timeline to prepare your proposal, as well as with the development of a proposal budget. Sue can be reached at x7270.

Accelerator Division Wolfram Fischer



Except for the two days shutdown due to Sandy the hurricane had only little impact on the NSRL operation. The weekend of 3-4 November was used to make up for the time lost, and we are back on schedule. The NSRL Run 12C will conclude before Thanksgiving. Using the NSRL facility we may run for the National Reconnaissance Office from 3-12 December, and BLIP will start on 17 December.

The start of the RHIC 4K cool-down is delayed to 11 February 2013 to allow for the installation of the electron lenses. One lens will receive one of the superconducting magnets being built in the Superconducting Magnet Division, and the other electron lens will receive the EBIS spare magnet. The latter one will allow for commissioning of the electron beam but not for beam-beam compensation. Both lenses will be only used in commissioning mode in the upcoming run. Meanwhile the new polarized proton source upgrade is making good progress and with the delay there is now a good chance that we will have a source with an order of magnitude more intensity, and higher polarization. For Run-13 we still need to repair the Siemens motor rotor, which is expected to ship for re-winding to a factory in Pennsylvania this week. We expect the rotor back before Christmas.

Experimental Support & Facilities Division Phil Pile

The start for Run 13 has slipped to allow more time for e-lens installation. The new start date for cool-down to liquid helium temperatures is 11 February. This will still allow for 20 weeks, budget permitting, of cryo operation by the end of June. The run plan



remains unchanged beginning with 255 x 255 GeV polarized protons with plans to accommodate a four day special STAR pp2pp run. A low energy gold run is planned should the goals for the polarized proton run be completed early.

STAR and PHENIX are recovering from the aftermath of Sandy. The experiments weathered the storm with no significant damage but have lost time due to the two day lab closure, issues on home fronts (no power, trees down...), gasoline shortages, etc. Although the experiments were on schedule for a 7 January start for Run 13, there is still a lot to do to be ready for the run so the month delay in startup will allow for a less stressful experiment turn-on process and give us more time to find and install extra shielding for PHENIX.

One of our premier AGS fixed target experiments, the g-2 experiment, is being taken apart for shipment to Fermi National Laboratory. This experiment, E821, began running in 1996 and ran through the first two years of RHIC operation. The last run was in 2001 with unfinished business. The E821 experiment achieved a 0.5 ppm (parts per million) accuracy in the measurement of the anomalous magnetic moment of the muon. The deviation between this measurement and theoretical predictions is just over 3 standard deviations, a difference that could be the first evidence for physics beyond the Standard Model – a big deal! A follow-up experiment, E962, was given scientific approval in late 2001 but never ran as DOE HEP support for AGS operations was terminated in 2002. Another proposal, P869, with significant upgrades to the experiment that would have reduced the error to 0.2 ppm was considered in 2004 with the Program Committee rating the proposal "among the short list of "must-do" experiments in the

field". Renewed support for AGS fixed target experiments, however, never materialized and the experiment is destined to be completed at Fermilab. Some parts of the experiment have already been shipped to Fermilab with the 50 ft. diameter superconducting muon storage ring still to go.

NSRL Run12C for NASA is more than half way done. Sandy caused some problems with the schedule but we were able to reschedule most of the experiments (evenings and weekends). A typical run cycle, Run 12C in this case, will deliver beam to over one hundred individual experiments so you can imagine the scheduling headaches when the laboratory closes for a couple of days! The Run12C will be followed by experiments sponsored by the National Reconnaissance Office (NRO) aimed at studying ways to improve electronics survival in space. The NRO experiments are set for the first two weeks of December. Both the Tandem (silicon and protons) and EBIS (other ions) are being used for these experiments.

BLIP is scheduled to begin operations with LINAC beams on 17 December and will continue into early summer.

Accelerator R&D Division Ilan Ben-Zvi



A milestone has been achieved in the Superconducting RF gun of the Energy Recovery Linac: The gun was cooled using the new liquid helium refrigerator, first to 4.5 degrees K, then to 2 degrees K, at this temperature the liquid helium becomes a super-fluid (with very interesting properties) and the quality factor of the gun cavity improves by about a factor of 20 compared to 4.5 K, and becomes about a million times better than a copper cavity of similar shape. The frequency of the gun was measured and it is as expected and matches the frequency of the accelerating cavity. The tuner of the cavity was exercised successfully, and finally, RF power was applied to the gun. At this point only 25 kW of the 1 MW available were applied, but already leading to a significant field of 8 MV/m out of the 25 MV/m designed. The road is still long ahead of us to get beam out of the gun, but the road behind us is much longer, and was paved with the efforts and dedication of many people in our great department, to whom thanks are due.

A kick-off meeting took place to launch a concentrated effort to carry out Low Energy RHIC electron Cooling (LEReC). We expect this cooling to increase the luminosity of RHIC by about an order of magnitude in support of studies of a possible boundary separating ordinary nuclear matter, composed of protons and neutrons, from the quarks and gluons liquid which has been discovered at RHIC. This cooling method will

be using bunched-beam electrons from an SRF gun and accelerating cavity.

In other news: Testing of the 56 MHz cavity-mounted tuner system is underway. The system was adjusted, as expected, to reach the desired tuning range.

Recent developments for eRHIC included a novel approach to the space charge compensation and the considerable advance in the FFAG-lattice design option.

Operations Paul Sampson



Having made up for some lost time due to Hurricane Sandy, the AGS Booster continues to run for NSRL until November 19th. Through planning and foresight, the impact of outages following Sandy was minimal. Experiments were run throughout the weekend preceding and for extended hours following the storm. After the Thanksgiving holiday, preparation for the Booster for NRO will be made.

Outside of the Booster and NSRL, shutdown work continues to make progress throughout the complex. Work on the e-lens in RHIC at the 10 o'clock area progressing well. Installation of cable tray, electrical services, water-cooled buss, power supply and instrumentation continues to ramp up.

Other shutdown work includes installation and testing of RHIC RF systems including components for the 56 and 9MHz systems as well as the bunch-by-bunch dampers. Bake outs for these systems have been completed. During some these tests, the 4 o'clock area of RHIC will remain locked up. RF tests are being performed in the evenings and tunnel access at 4 o'clock is prohibited. Work on other systems around RHIC is also making headway. See the link below for details.

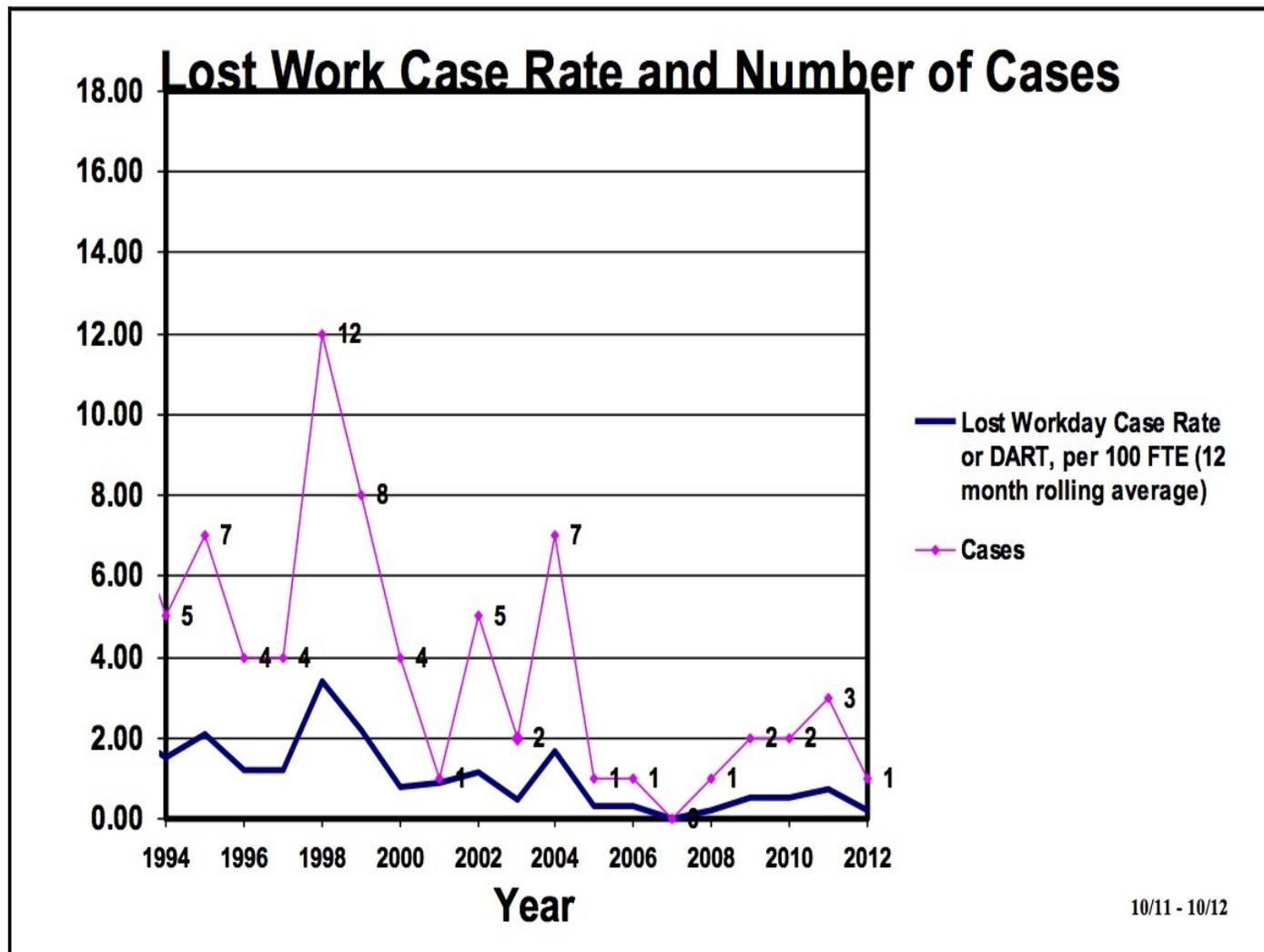
Work in the AGS continues to proceed. Installation of the new Access Controls System is nearing completion and testing and certification should be completed by Thanksgiving. Other work of note in the AGS includes installation/repair of IPM systems, magnet survey and re-positioning, testing of the corrector power supplies and implementation of RF system upgrades. Removal of the g-2 ring elements is ongoing.

Scheduled Booster Maintenance in October was minimal and occurred on alternate Wednesdays from 0800-1100hrs. All work was completed on schedule.

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

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

Safety Stats



C-AD Occupational Injury Statistics

For Year 2011 For Year* 2012

First Aid Cases	4	3
Recordable Cases	3	3
Lost Work Cases	3	0

* Calendar Year through 10/12

REMINDER: TLD exchange is done the *FIRST FRIDAY* of the Month.

EXCHANGE DATE: FRIDAY, DECEMBER 7, 2012

Pete Cirnigliario



transfer

Larry Hoff, Controls Systems Group transferred to Photon Sciences effective November 1.

GOOD LUCK!



[RHIC Newsletter](#). Please click on link to the left to view the latest web publication of RHIC News.



We wish all of you born in **November**
a happy and healthy year ahead.
Birthday people ONLY click on cake



Fun Time

In a motor accident, wherein a speeding car hits a slower moving vehicle coming from the side, the speeding car drivers often swear that they just didn't see the vehicle coming from the left or right.

Well, they aren't lying. They really don't see the vehicle coming from the side, in spite... of broad daylight. This phenomenon on the car drivers'

part is known as "Motion Induced Blindness". It is unbelievable but it is true, and it is definitely frightening. Armed forces pilots are taught about motion induced blindness during training, because it happens faster at high speeds; and to some extent it is applicable to car drivers also, especially the fast ones. So, if you drive a car, please read this carefully.

Once airborne, pilots are taught to alternate their gaze between scanning the horizon and scanning their instrument panel, and never to fix their gaze for more than a couple of seconds on any single object. They are taught to continually keep their heads on a swivel and their eyes always moving. Because, if you fix your gaze on one object long enough while you yourself are in motion, your peripheral vision goes blind. That's why it is called motion induced blindness. For fighter pilots, this is the only way to survive in air; not only during aerial combat, but from peacetime hazards like mid-air collisions as well.

Till about three decades ago, this "heads on swivel & eyes moving"

technique was the only way to spot other aircraft in the skies around.

Now-a-days they have on-board radars, but the old technique still holds good. Let me give you a small demonstration of motion induced blindness.

This is the same demonstration that is used for trainee pilots in classrooms before they even go near an aircraft. Just click on the link below. You will see a revolving array of blue crosses on a black background. There is a flashing green dot in the center and three fixed yellow dots around it. If you fix your gaze on the green dot for more than a few seconds, the yellow dots will disappear at

random..., either singly, or in pairs, or all three together. In reality, the yellow dots are always there. Just watch the yellow dots for some time to ensure that they don't go anywhere!

<http://www.msf-usa.org/motion.html>

You can alter the background color or the rpm of the array by clicking the appropriate buttons.

So, if you are driving at a high speed on a highway and if you fix your gaze on the road straight ahead, you will not see a car, a scooter, a buggy, a bicycle, a buffalo or even a human being approaching from the side. Now reverse the picture. If you are crossing a road on foot and you see a speeding car approaching..., there's a 90% chance that the driver isn't seeing you, because his/her peripheral vision may be blind! And you may be in that blind zone!



Did You Know

Many of you are already aware that Larry Hoff, long time leader of the Controls Front End Computer(FEC) Software Group has accepted a new position at NSLS-II. We wish Larry well in his new position.

I'm pleased to announce that Jim Jamilkowski has agreed to take over as Controls FEC Software Group leader. Jim has been a member of the FEC Software Group for 7 years. He

had many years of Main Control Room experience before that. For the past several years, Jim has been project leader for the ERL Controls effort. I'm sure that Jim will do an excellent job in handling his new responsibilities.

John Morris



October 18, 2012

"Think We Before Me – Work United – Live United"

C-AD Department Members:

It's United Way donation time again! Last year C-AD did a great job in supporting the United Way

and we are looking forward to joining with others at BNL in making this the most successful year-to-date.

There will of course be the Holiday Auction on Dec. 12& Dec.

13th which includes the Holiday Yard Sale

and Jewelry Boutique as well as many other Department & Lab-wide events. If you would like to donate

any gently used handbags or jewelry for the Boutique, please bring it to Building 911A, Rm. A118.

Also, we are collecting money to create our C-AD raffle basket for the Holiday Auction, any amount would be appreciated.

Last year C-AD created a beautiful bath towel and accessories basket which was a popular big ticket item.

Donation jars for the raffle will be located in Building 911A, Rm. A118 (Paul Sparrow) and Rm. A236 (Gladys Blas).

Other C-AD fund raising events and dates will be announced in the near future (pizza/soda lunch, bake sale, etc.)

BNL is committed to helping the United Way, and C-AD would like to continue our

generous support of this fund raiser.

Note: If anyone knows of or is involved with a not-for-profit charity

that they would like our fellow employees to specifically designate

their contributions to go to on their Pledge forms, please contact me with the

information and I will share that information with our Department members.

Please Donate!

Your continued support definitely makes a significant difference

to those who are in need in our Long Island communities!

I thank you all in advance for your continued generous support for this worthy cause.

Paul Sparrow

C-AD United Way Captain



Dear Colleagues,

It is my difficult duty to share the news that Bill Willis passed away last Thursday, November 1. He died peacefully at home, following a cerebral hemorrhage.

A great number of us at Brookhaven have known Bill as colleague, friend, mentor, and inspiration. His leadership and far-reaching ideas have been a central part of BNL's scientific journey over the past five decades or so, from the early AGS program, through the Isabelle/SSC era, laying the foundations for RHIC, stewarding the U.S. ATLAS program, and navigating neutrino physics through the torturous DUSEL discussion. While Bill has held various positions at Brookhaven during his years with Yale, CERN, and Columbia, his association with Brookhaven Lab has been a close and constant one that transcended formal appointments throughout his career. Arrangements to memorialize Bill's life and accomplishments are being discussed, and will be announced in due course.

With great sadness,

Tom Ludlam

The Food Pantry needs our help.....

If everyone can bring in at least one non-perishable food item, this would help the local food pantries in our area. There are so many families who are in need of food and depend on their local food pantry to have at least one meal a day. With the food supply so low, the volunteer's who help out at our local food pantries can't help those in need. So please..... bring whatever you can to replenish the food supply for those in need.

Your donation of any non-perishable food item can be left in the box marked "Food Drive" located in the 911A Lobby. Your continued support is appreciated.

Thank you.

From: Carter, Christine B
Sent: Thursday, November 08, 2012 3:11 PM
Subject: Info & BERA Update 11-8-12

Bucket Brigade BUCKETS will be available here in 400 on Friday to assist in hurricane relief.

Once filled, they can be dropped to Cris Caccavale in Staff Services in Bldg. 400. They will be locally distributed. Ask your United Way captain for more information!

BERA NEWS & information @ www.bnl.gov/bera

Costco in Berkner 488 on Wed. 11/14 from 11am-1:30pm

**Sam's Club makeup date is Mon 11/19! Berkner 488 on Monday 11/19 from 11-1:30
BOOK FAIR 11/26 & 27**

WINTER FITNESS

BERA TRIPS

BERA HOLIDAY PARTY

New BERA STORE MERCHANDISE ARRIVING DAILY, including iPad shoulder bag, desk top post it notes, pens/pencils, and more! Check it out!



ALUMNI NEWS: AGS/RHIC/C-AD RETIRED CROWD - We'd enjoy hearing from you and what you have been up to. Please send your notes to pmanning@bnl.gov

You can catch up on all of Eric Forsyth's travels by clicking on his sailing yacht below.





November 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4 Daylight Saving Time ends	5	6 Election Day	7	8 BSA Distinguished Lecture, "Spheres: One Hundred Years of Topology", Prof. John Milnor, Dept of Math, Stony Brook U., 4pm Berkner	9	10
11 Veterans Day	12 Lab Holiday	13	14 Brookhaven Lecture, "From RHIC to eRHIC: Challenges and Opportunities for Accelerator Science", Vladimir Litvinenko, C-AD, 4pm, Berkner	15 "Get to Know the Lab" with Nuclear & Particle Physics ALD Steve Vigdor, 9-10am, Berkner, Room B United Way Event "Bldg. 400 Bake Sale", 11am, Bldg. 400 Lobby	16 United Way Event "Bldg. 400 Bake Sale", 11am, Bldg. 400 Lobby C-AD AP Seminar, "Development of a Multi Cathode Activation Chamber", Dr. Eric Riehn, C-AD, 4pm, Bldg. 911B LCR	17
18	19	20	21	22 Lab Holiday 	23 Lab Holiday	24
25	26	27	28 Joint BNL/Stony Brook High Energy/RIKEN Theory Seminar, "TBA", I. Low, Northwestern/ANL, 2pm, Bldg. 510,	29	30 Research Symposium "BNL Young Researcher Symposium", 9am, Berkner	



December 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7 Pearl Harbor Remembrance Day	8
9 Happy Hanukkah	10	11 Physics Colloquium, "TBA", J. G. Milhano, CERN, 3:30pm, Bldg. 555, Hamilton	12 United Way Event "Holiday Auction, Yard Sale and Holiday Boutique", 11am Berkner Lobby	13 United Way Event "Holiday Auction, Yard Sale and Holiday Boutique", 11am Berkner Lobby	14	15
16	17 United Way Event "WM 'Pie in the Face", 11:30am Berkner Auditorium	18	19	20	21 Winter Begins 1/2 Lab Holiday	22
23	24 Lab Holiday	25 Merry Christmas Lab Holiday	26 Happy Kwanzaa	27	28	29
30	31					



We Remember
Sept. 11, 2001

[USS New York](#) - A ship forged from the steel of the World Trade Center

Editor: [Pamela Manning](#) x4072