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A WORD FROM THE:

Administration

Accelerator Div.

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Acc. R&D Div.

Operations

► Arrivals/Departures

 Safety Stats

Quote of the Month: "SCIENCE IS THE GREAT ANTIDOTE TO THE POISON OF ENTHUSIASM AND SUPERSTITION." - *Adam Smith*

NOTE FROM OUR CHAIR: Thomas Roser



With the end of the Linac operation for BLIP we have finally entered the full summer shutdown. It was a very successful running period for C-AD: RHIC ran with record peak and integrated luminosity and record beam polarization, NSRL had very successful runs now using almost entirely the EBIS pre-injector and BLIP produced more of the nationally important heart-diagnostic radioisotope Strontium-82 than ever before. Two facilities, however, continue to run throughout the summer: the Accelerator Test Facility is now again in full operation after an interruption during the last winter and the Tandems are now operating fully for radiation effects testing and other commercial applications without interruptions to deliver beams to RHIC and NSRL.

Many of us have also been preparing for a DOE review of the RHIC operations cost and management, which is taking place August 6-8. This review reflects the strong interest of DOE to continue the operation of RHIC for many years and I am confident that we can demonstrate that we operate our world-leading facility in a highly efficient manner.

DID YOU KNOW??

Check out who received an employee Service Award this year! 2013 Collider-Accelerator Dept. employees who received a Service Award are listed [here](#). Last Years Service Awards are listed [here](#).

RHIC Wild Flowers are growing out front of 10055



Thanks for sharing these pictures P.K. !



EVENTS/SEMINARS...



Check out the [BNL Calendar](#) for upcoming events & Seminars or the [Upcoming Conferences & Workshops](#) page for workshops and Conferences happening at BNL.

Aug. 8 ~ (Bldg 510 | 3:00) Particle Physics Seminar, "Accessing Unpolarized and Polarized Fragmentation Functions at Belle" Presented by Martin Leitgab (U. of Illinois)

Aug. 8 ~ (Bldg 911B | 4:00) C-AD Accelerator Physics Seminar, "The Wave of the Future à€“ Prospects of Plasma-Wave Particle Acceleration for Photon Science " Presented by Jens Osterhoff

Aug. 15 ~ (Berkner Hall [Aud] | 3:00) All Employee Meeting, "10-year Strategic Plan" Presented by Doon Gibbs ~ Followed by All employee Reception @ 4pm

Aug. 17 ~ (Gazebo | 12:00) Cyclotrons Annual BBQ ~ (\$10 pp) Contact J. McCaffrey, R. Sautkulis or T. Diaz for more info.

Coming Up in September.....

Sept. 18 ~ (Berkner Hall (AUD) | 4:00) Brookhaven Women In Science (BWIS) Event ~ "Wife, mother, Scientist or is it the other way around?!", Presented by Mina Bissell (LBNL)

Sept. 23 - (Berkner Hall (AUD) | 4:00) Pegram Lecture, "Supernova and the Discovery of the Accelerating Universe", Presented by Adam Riess (Johns Hopkins U.)

IN OTHER NEWS...

Toy Helicopter Guided by Power of Thought ~ Researchers have developed a non-invasive method to control a toy helicopter using brainwaves.. [Read & See it!](#)

The Physics of Usain Bolt's Record-breaking 100 m Sprint ~ In 2009, at the World Championships in Berlin, Usain Bolt beat his own previous world record by 0.11 seconds, running a 9.58-second 100-meter dash. The record is getting more and more difficult to break, as its history shows (and as we may be nearing the limit of human speed), making each new record-breaking performance intriguing to physicists. ... [Read more](#)

Particle defy Gravity, Float Upstream! ~ [Read & See ..](#) How Rogue tea leaves have led physicists to the discovery of a counterintuitive phenomenon: Particles can float upstream in moving water.

Lord Kelvin Wipes Out on Speed Boat Wakes? ~ Most boats and ships, like the barge above, produce a wake with the same angle (*top*). But fast moving vessels like a speed boat appear to make narrower wake (*bottom*). ... [Read about it](#)

WHAT'S GOING ON IN OUR NEIGHBORHOOD?

Interested in Cycling? Why don't join in on the [Bike MS: East End Ride](#) on Long Island; or in NYC the [NYC Century Bike Tour](#) or ride from Boston to NY at the [Cycle for the Cause](#)! More in September are [Brita Climate Ride: NY to DC](#) and [NYC ~ DC Climate Ride](#)

Interested in Running or Walking? Check out the [Running August Calendar](#) for the following events: Babylon Village Classic 10k Dirty Socks Run; Commack Vol Amb Corps 5k; Runners edge TOBAY Triathlon; Main St. Farmingdale Mile, etc.. There are some fun Mud run's coming up as well, please see [Tomcat](#) or [Urbanathlon](#).

For the Kids: American Idol (15 August); Sesame Street Live (13-15 September); Disney on Ice (November) @ [The Nassau Coliseum](#).
Aug 25 ~ Runners Edge TOBAY Junior Triathlon 8-13 yrs
Sept. 15 Italian Festival @ Hofstra

Stony Brook Events:

Horse Drawn Carriage Rides: Through Stony Brook Village July 11 ~August 29, 6pm to dusk/ \$3 pp

LI's Auto Racing Heritage: July 13-Sep 2 (10-5) \$4pp \$2 for kids. See & Hear about LI's 5 race tracks as well as vintage memorabilia.

Sunday Summer Concerts on the Green: July 14-Aug 25 (7-9) on the Stony Brook Village Green.

The Dog Days of Summer: July 28- Aug 25 (10-5) Giving abandoned dogs a home.

Family Art Day: Aug 10 (10-5)

Back to School Day: (Aug 17 (11-3)

1st Annual LEGO Building Contest: Sept 21-Oct 20 (9-5)

Coming up in October - Nassau Coliseum the Auto Show & Home Show!

DAY AT THE VINEYARDS...

Macari Vineyard ~ [MATITUCK] Harvest East End (Aug 24 | 7-9:30pm) Join 42 winemakers & 32 Top regional Chefs to savor the flavors of the East End @ McCall Vineyard & Ranch.

Duckwalk North ~ [SOUTHOLD] June 29 (7-10pm) ~ Opera of the Hamptons \$45 pp

Duckwalk South ~ [WATER MILL] August 9 & 23, Sept. 6 (5-8pm) Sunset Music with Shari Yeomans; August 10, 11 & 17 Live Music (5:30-8:30); Sept. 2 (2-5pm) Live Music: Jupiter Fell; Aug. 16 & 30 (5:30-8:30pm) Sunset Music: Liza Coppola;

Castello di Borghese Vineyard & Winery ~ [CUTCHOGUE] ** Vineyard Tours & Wine Tastings Every Saturday @ 1pm & FREE Jazz Every Saturday (2-4) with Marguerite Volonts** August 17 (7pm) Laugh NYC Comedy Night \$15 pp;

Jamesport Vineyards - No Events Posted

Martha Clara Vineyards - [RIVERHEAD] Aug 10 (2-6) Live Music: Ted Hefko & the Thousandaire; Aug 11 (1-5) Live Music: The Sea Monkeys; Aug 16 (7:30pm) Country Music & Line Dancing with the Road House Band \$12:50 pp; Aug. 17 (2-6) The East End Trio; Aug. 18 (1-5) Vanessa Trouble; Aug. 19- Aftee Dance Party ~ East End; Aug. 24 (2-6) The Bobby Nathan Band; Aug. 25 (1-5) Quadralove Reggae; Aug. 31 (1-5) Keith Maguire; SEPTEMBER ~ 1 (2-6) The Sly Gerald's Band; 2 (2-5) Steeldrummania; 7 & 8 (1-5) 12th Annual Oktoberfest; 7 ~ Vanessa Trouble; 8 (1-5) Two Man Acoustical Jam; 14 (1-5) The Bobby Nathan Band; 15 (1-5) Latinology; etc

Palmer Vineyards - [RIVERHEAD] *Courtyard Reservations available 5/18 ~ 8/31*, *Live Music every weekend*, Every Sunday Yoga in the Vineyard (11am) \$25 pp and Mimosa Bar.

Pindar Vineyards - [PECONIC] ~ Live Music Every Weekend

Baiting Hollow Farm Vineyard ~ [CALVERTON] *Music every Sat & Sun from (2-6pm)* Aug. 10 ~ Tommy Keys/Ricky Roche; Aug 11 ~ Southbound; Aug. 17 ~ Top Cat; Aug. 18 ~ The Smoking Gun; Aug. 24 ~ (12-2) Tommy Keys & (2-6) Ricky Roche; Aug. 25 ~ Denise Given Band; Aug. 31 ~ (12-2) Tommy Keys & (2-6) Acoustic Soul; Sept. 1 ~ Denise Given Band; Sept. 2 ~ Labor Day: Old School; Sept 7 ~ (12-2) Tommy Keys & (2-6) Ricky Roche; Sept. 8 ~ Acoustic Soul; Sept. 14 ~ (12-2) Tommy Keys & (2-6) Southbound; Sept. 15 ~ Acoustic Soul; Sept. 21 ~ (12-2) Tommy Keys & (2-6) Ricky Roche; Sept. 22 ~ Southbound

NOTE FROM OUR ADMINISTRATION: Stephanie LaMontagne-McKeon



Over the past several days, C-AD managers and group leaders have delivered presentations in three venues that discuss your accomplishments, the outstanding performance of RHIC and the Directorate's plans for the near-term and long-term future of the facility. The passion, dedication and exceptional contributions of C-AD personnel to RHIC were apparent to all participants. The closing remarks of the Review Committee were very complimentary and the support of the Nuclear Physics program office clearly evident. The preliminary report included the following observations – the RHIC facility and its operations are “appropriately and effectively managed, “good strategies . . . are in place for planning and management of resources” and the “ESSH&Q management in C-AD is exemplary”. Congratulations to all of us!

On the fiscal front, we have adequate RHIC funding with which to close out the year and are well positioned to sustain operations through what is almost certain to be another lengthy Continuing Resolution in FY 2014. Our NSRL program remains vital. An extension of the current agreement with NASA is under discussion and authorization to proceed with an upgrade for high energy operations, imminent. Additionally, the Accelerator Test Facility, which was transferred to C-AD in April, has submitted a very impressive proposal for a facility upgrade.

As we prepare for RHIC Run 14, the NSRL fall campaign and continued operations at BLIP and the ATF, do not allow the stress and frustration of your day-to-day responsibilities to cloud your vision of the promising future for which we are preparing.

NOTE FROM OUR ACCELERATOR DIVISION: Wolfram Fischer



The BLIP run came to an end on 31 July 2013, with new records in the pulse (48 mA) and average (137 microA) current delivered to BLIP. The Linac operation also showed excellent reliability; with the best week 1-8 July that had zero unscheduled downtime. Congratulations to everyone involved.

We are now in shutdown mode for all machines, until NSRL starts up again in September.

On 25 and 26 July we had the annual Retreat at the Brookhaven Center to review the performance of the previous run, and plan for the next one. We will operate with Au+Au beams in the next year, at low and high energy. For this we need excellent injector performance that delivers high-intensity Au bunches to RHIC, and we will use for the first time full 3D stochastic cooling with Au ions. We also plan to install and commission the first superconducting cavity in RHIC, a 56 MHz cavity in which the voltage is developed by the beam itself.

The catalog of all Technical Notes is <http://www.rhichome.bnl.gov/AGS/InternalReports.html>, and it is linked from both the Department and Accelerator Division home pages.

NOTE FROM OUR EXPERIMENTAL SUPPORT & FACILITIES DIVISION: Phil Pile



We hosted another successful Summer Sunday this past Sunday with a count of nearly 1500 people visiting our RHIC facility and the STAR and PHENIX experiments. Thanks to all those in C-AD that helped made this a success and a special thanks to Yousef who once again provided the overall coordination on the RHIC side for this event.

We are now about two months into our summer shutdown work and still on schedule for an early January start for Run 14. Our present guidance from DOE allows for a 22 week run, a bit short of optimum but nevertheless long enough to plan for a short low energy run followed by a long full energy gold-gold run. Berndt Mueller has given the go-ahead to install a gold foil target inside the STAR IR beam pipe (aluminum portion of the pipe, about 2 meters from the IR) to allow "fixed target" running at energies similar to the AGS and CERN SPS fixed experiments of the '90's. The target will come with a 4 cm hole (same size as the Beryllium pipe ID) to allow the primary beam a clear path through. STAR plans to use this target during the low energy gold-gold run by triggering on Yellow beam particles in the gold beam halo that interact in the foil.

BLIP shut off at 09:00 on 31 July, now all of our accelerators are in a maintenance mode. The total number of protons on the BLIP targets this year were an all-time record with an integrated current of 488,867uA-h (~25% more than last year). BLIP operated for (~227 days with a total system reliability index of 92.1% (90.3% last year), BLIP plus LINAC. Beams of 66, 117, 140, and 200 MeV were used. So all-in-all this was a very good year for BLIP despite a few bumps in the road with targets and processing. The group is still processing Sr-82, Ge-68 and Ni-63 so will not get a real break for another few weeks.

The NSRL schedule for the fall is beginning to take shape with first experiments scheduled to begin on 7 October, a bit later than usual to give the EBIS crew more time for maintenance and new equipment installation. The end date will be about mid-November. NRO experiments may run later in the year or in the winter....to be determined.

The move of the g-2, 50 foot diameter superconducting coils/cryostat ring to FNAL I talked about last month is now complete. The journey by barge began on 25 June from the Smith Point Marina and followed a path around Florida and up the Mississippi River. The last leg of the journey was by truck from a dock in Joliet, Illinois to Fermilab. The ring arrived at Fermilab on 26 July....a long journey for this big, bulky and very delicate piece of the experiment. We wish FNAL well with Phase II of this important experiment that first ran here at the AGS.

Lastly, the close-out for the Lehman RHIC Operations Review was held yesterday and we came through with many very favorable comments from the review committee.

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



Coherent electron Cooling: The 5-cell accelerating cavity was at BNL for vacuum baking. The baking at 600C for 10 hours is complete and the cavity is on its way to Niowave for final processing before vertical test. The 500 MHz bunching cavities were vacuum baked and prepared for the low power RF measurements. Vacuum is excellent, in 10^{-10} Torr range. The network analyzer measurements are in progress. The goal is to determine position of a waveguide short plate that would provide critical coupling. On July 27th we conducted successful preliminary design review of the helical undulator. Niowave shipped the 112 MHz gun to BNL. It is currently is being prepared for installation into the RHIC tunnel. The modifications include installation of a heater and cryogenic instrumentation. The solenoids were built and waiting the magnetic measurements to be performed.

ATF: The new Ti-sapphire laser system has been delivered to the experimental hall, for use in the optical measurement of a plasma wave produced by plasma wakefield acceleration (experiment of users from the University of Texas in Austin).

The CO₂ laser beam has been converted to 2nd harmonic to investigate laser damage threshold of optical materials at the 5 mm wavelength (experiment by Radiabeam – UCLA collaboration).

Current work is on beam line installation of a tapered undulator for the RUBICON high-gradient IFEL user experiment (UCLA), which is scheduled to run next.

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he ATF Program Advisory Committee reviewed the ATF Upgrade Proposal. The suggestions of the committee were implemented, and the proposal has been submitted to DOE. The upgrade proposal calls for dramatic increase in the science reach of the facility, its efficiency and turn-around time. It includes a 100-fold increase in the CO₂ laser power to 100 TW, a 5-fold increase in the beam energy to 500 MeV, all enabled by the move of the ATF to EEBA in building 912.

Muon Accelerator: In the previous month much attention has been given to the optimal choices for lattices in the 6-D cooling channel, which is a key component of a muon collider. Various linear channels are being evaluated with the goal of having an end-to-end simulation of the entire 6D cooling system by the end of this calendar year.

LARP: The 400 MHz crab cavity has been taken out of the cryostat after the cold test. A thorough inspection has been carried out to find out the reason for the un-expected low Q during the test. The cavity has been sent to ANL for another round of chemistry. We found some high thermal loss regions in the assembly components, and will have these areas coated with niobium for the next test.

ERL: The test of the ERL gun with the copper cathode is on hold for cryogenic lines repair/reconfiguration and completion of the 56 MHz vertical test.

56 MHz SRF cavity for RHIC: The cavity is in the LVTF cryostat. It was cooled to 4.5 K. The vertical test is in progress.

NOTE FROM OPERATIONS: Paul Sampson



Shutdown '13 continues at RHIC. All major projects are underway and include installation of components for CeC, 56MHz RF and Stochastic Cooling. Testing of the blue e-lens with electron beam was successfully completed last month. Construction and assembly for the final configuration of the e-lens has also begun. Shutdown work in the AGS continues. Major efforts are focused on RF, instrumentation and vacuum system upgrades.

The Booster shutdown began in July, with the successful conclusion of NSRL run 13B. Maintenance and other shutdown work in the Booster and at NSRL has commenced, with focus on RF and instrumentation upgrades.

Infrastructure systems maintenance is on going throughout the complex. Outages and interruptions are displayed on the CATV system and on the web at [RHIC Broadcast](#).

BLIP run 42 was completed July 31st as the most successful to date. Final installation, testing and commissioning of the new LINAC Access controls system has begun and is expected to be completed before the turn for NSRL in November.

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](#).

ARRIVALS: Welcome!

Philip Dyer & Kiel Hock ~ Both joining C-AD August 12, 2013 and will be working in Machine Operations.

Gymon "Denny" Nembhard ~ joined the department as an Electrical Engineer July 29, 2013. He will be working with Alex Zaltsman in the RF Group.

DEPARTURES: Farewell, you will surely be missed..

Christopher Zimmer ~ (MCR Operator) ~ last day was Saturday, July 13, 2013.

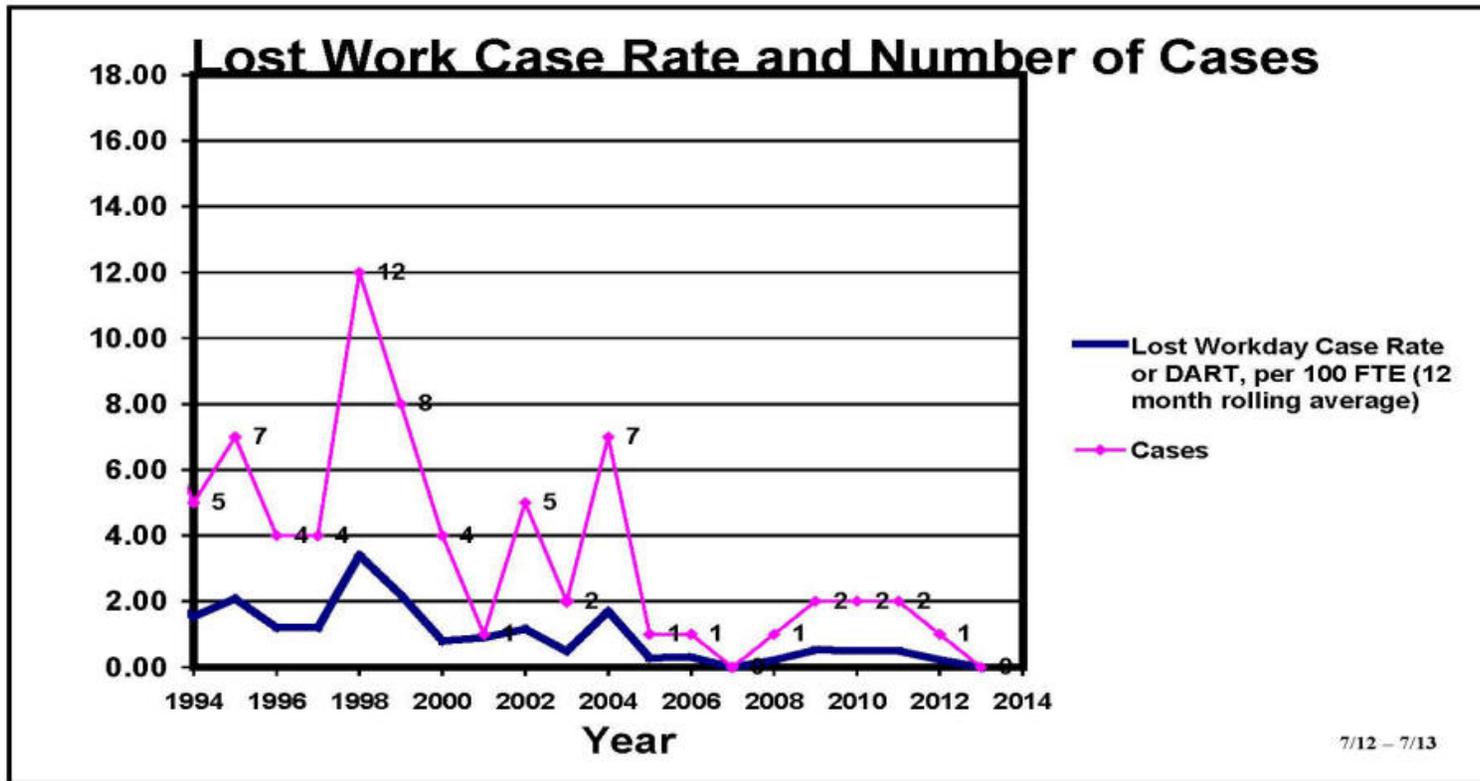
Roger Davis ~ (Vacuum Systems) ~ last day was Friday, July 26, 2013.

Elizabeth Korach ~ (BLIP/RRPL) ~ Last Day is Friday, August 9, 2013

Term Appointments:

Farrokh Dilmanian ~ (Acc. R&D) ~ Last Day: July 19, 2013.

Jie Wie ~ Guest Scientist ~ Expiration Date: August 20, 2013.



C-AD Occupational Injury Statistics

For Year 2012 For Year* 2013

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

* Calendar Year through 7/13