

Particle Post April 2009

"Science has never drummed up quite as effective a tranquilizing agent as a sunny spring day." ~ W.E. Hall

Previous issues

A Note From Our Chairman



It is April and we have finally received the official budget numbers for FY2009. We will be running until the end of June for RHIC. In addition we will be running NSRL late into June. At the end of the RHIC run we will be preparing the U line for a proton experiment. The Defense Threat Reduction Agency (DTRA) is supporting a short proton exposure for a LANL / BNL experiment. I expect that we will start the FY2010 RHIC cooldown in the November time period. This will depend upon the magnitude of and receipt of FY2010 funding.

The All-Hands slides are now posted on our website and included in the Particle Post. The RHIC budget saw an 8.6% increase and when the \$8M of Stimulus Funding is included, the increase is 15.6%

The FY2009 500 GeV run has in general been very successful to date. We have experienced again a string of power supply etc problems, some of which are now understood and will be corrected. The performance has been somewhat disappointing to date, but we will have ample opportunity to improve as we move from 500 GeV operations to 200 GeV in mid April.

The summer shutdown period will be an intensive period of work for all the groups. There is just a lot to do for both maintenance and the introduction of new systems, such as transverse stochastic cooling cavities.

We all received a memorandum from Sam Aronson that was intended to sensitize us to continue to work safely. I want everyone to daily remind herself or himself that working safely is a critical work habit at C-AD. No one wants to be injured either at work or at home.

[All Hands Presentation - 4/6/09 \(PDF\)](#)

Administration



The FY 2009 Presidential Budget for RHIC Operations has been confirmed. Incremental operating funds of nearly \$10M will make it possible to extend the current run through Monday, June 29, as well as replenish the budget reserve that enabled us to commence current year operations during a Continuing Budget Resolution. Additionally, the ARRA (American Recovery and Reinvestment Act) provides a total of \$8M in construction funding for two accelerator improvement projects. The addition of transverse stochastic cooling in the horizontal planes of both the RHIC blue and yellow rings is estimated at

\$4M. Another \$4M has been allocated to build and install electron lenses for pp beam-beam mitigation.

The one resource that remains in short supply is manpower. We have lost a number of highly seasoned technical staff and replacements have been difficult to recruit. Aging demographics provide an additional and compelling reason to focus on staff development. As of January 1, 2009, nearly one-half the C-AD staff was over the age of 50. Thus, our newest challenge is to balance programmatic demands made possible by ample funding with an urgent need to identify, hire and mentor staff for the future.

Operations Update



We are approaching the end of the RHIC 250 GeV PP run, and getting ready to switch over to operations with 100 GeV PP next week, in preparation for a long run for physics with longitudinal polarization, made possible by the favorable budget for FY2009, finally approved.

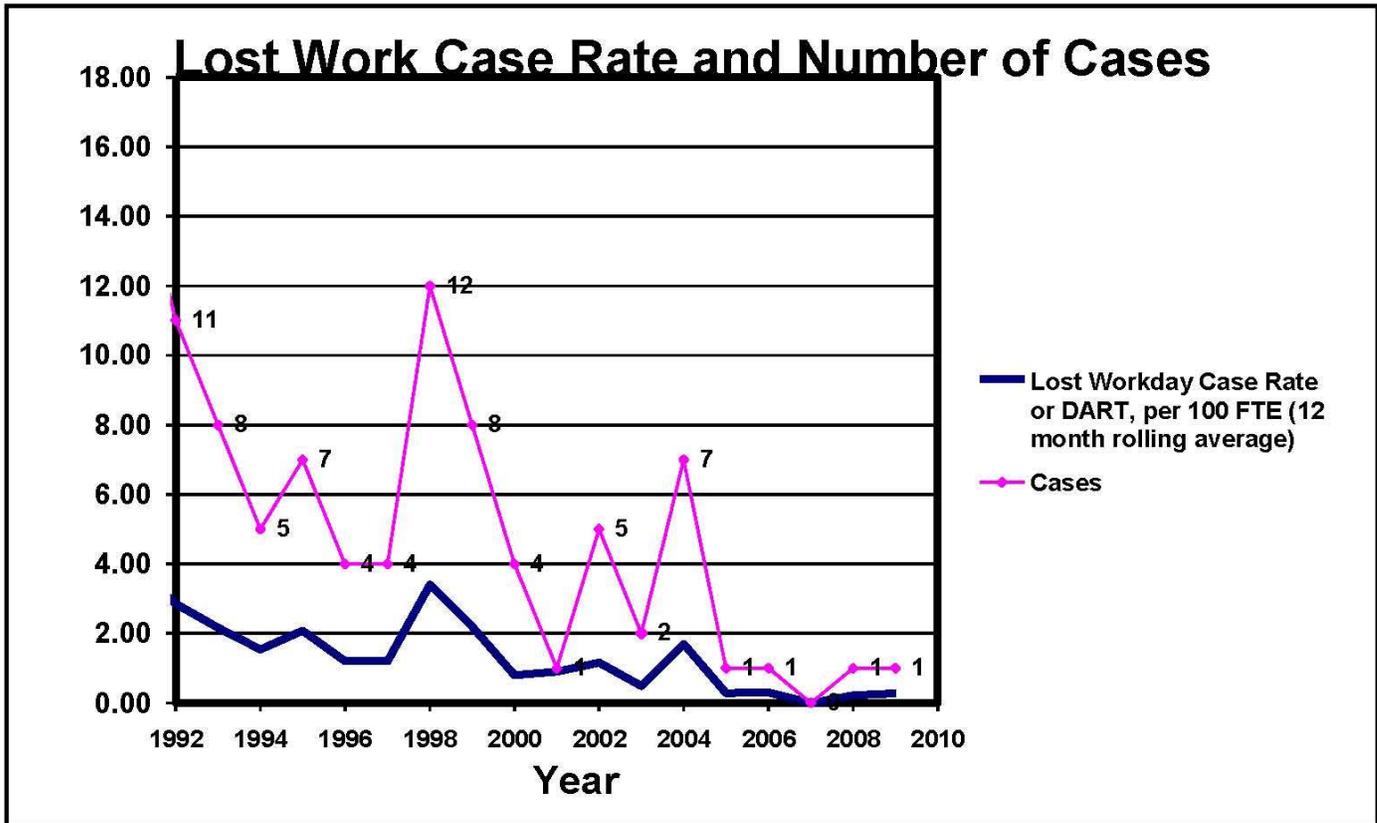
Operations with 250 GeV PP have been challenging in many ways. Not only is it a completely new operations set up, but it also followed a long shut-down, and the first few weeks saw a rather high rate of failure. Machine availability is however improving weekly now, which confirms that accelerator really needs long runs to operate reliably. The goal for the last week of the run is to provide as much luminosity to the experiments to increase their W events pool and at the same time to learn as much as we can about the polarization limitations, to be able to go beyond the present 35-40% in RHIC in future 250 GeV PP runs.

The injectors are continuing taking development and study opportunities under the RHIC stores, and that resulted for instance in reduced polarization dependence on bunch intensity, important not to have to compromise luminosity and polarization in RHIC.

The 250 run will end on Wednesday April 15 after dedicated beam time for commissioning of low level RF and necessary final beam studies. After an extended maintenance we will start the set-up for the 100 GeV run, expected to be relatively short given that we have a 'warm' machine.

Last but certainly not least, BLIP and NSRL are running concurrently with RHIC operations, keeping MCR and support personnel quite busy.

Safety Stats



C-AD Occupational Injury Statistics

For Year* 2008 For Year* 2009

First Aid Cases	6	1
Recordable Cases	3	0
Lost Work Cases	1	0

* Calendar Year

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

EXCHANGE DATE: FRIDAY, MAY 1, 2009

Pete Cirnigliario



Arrivals

Michael Costanzo joined the department on March 9, working with Brian Oerter in the Hardware Systems Group.

Lokesh Rajulapati joined the department on April 7, as a Collaborator working with Wolfram Fischer until the middle of August.

Victor Soria joined the department on March 30, working with Roberto Than in the Cryogenics Systems Group.

WELCOME!

Transfer

Douglas Zigrosser, Vacuum Systems Group, will be transferring to Light Source II, effective April 20.



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 **April**
a happy and healthy year ahead.
Birthday people ONLY click on cake*





C-AD Service Awards March

30 years	Peter Popken Charles Bloxon Kathleen Brown
25 years	Stephen Perlstein Thomas Russo Christopher Watts
20 years	Edward Ulrich
10 years	Christopher Naylor

Congratulations!



Get To Know Your Co-Worker

Jim Alessi, Head of the Preinjector Systems Group has worked at AGS/C-AD for over 29 years. Projects he has been working on includes the 200 MeV Linac; the Tandem Van de Graaff, and the Ion Source Development Group. He also serves as Project Manager for the EBIS Project. When Jim started here he was working on a very high current H-minus ion source for fusion. He has pretty much stuck with ion sources ever since, and over the years has probably worked on a dozen different type sources. Jim and his wife Dottie (a retired teacher) have 3 children. Their oldest daughter Laura, is a teacher in Rochester, NY. Son, James, works in video production for a TV station in San Francisco. Youngest daughter, Debbie, is in Pharmacy school in Rochester, NY. They also have one grandchild who is 1 1/2 years old now. Jim's hobbies include sports, camping and running. He was born and raised in Buffalo, so while he likes all sports, he is a very big Buffalo Bills fan.

Free JavaScripts provided
by [The JavaScript Source](#)



Did You Know

Ryoichi Miyamoto (Toohig Fellow) working with Angelika Drees in LARP has been awarded 'Best Dissertation Award for 2008' from the APS Doctoral Dissertation Award Committee.

CONGRATULATIONS!!

Subject: BNL/C-AD Library Resources

The mission of our Research Library is to deliver scientific and technical information to the Laboratory's research community. By acquiring, cataloging and providing access to information, online and through other means, the Research Library makes the content of serial publications, books, articles, and technical databases available to the staff. Related services include interlibrary loan, document delivery, and reference services.

Stacey Kuczewski, C-AD Librarian, is available to assist staff members in negotiating the wealth of information that is available through the Research Library. To obtain a "Library Orientation Material Packet" or for further information on the available resources, please contact Stacey at Ext. 4853 (afternoons) or via akuczewski@bnl.gov.

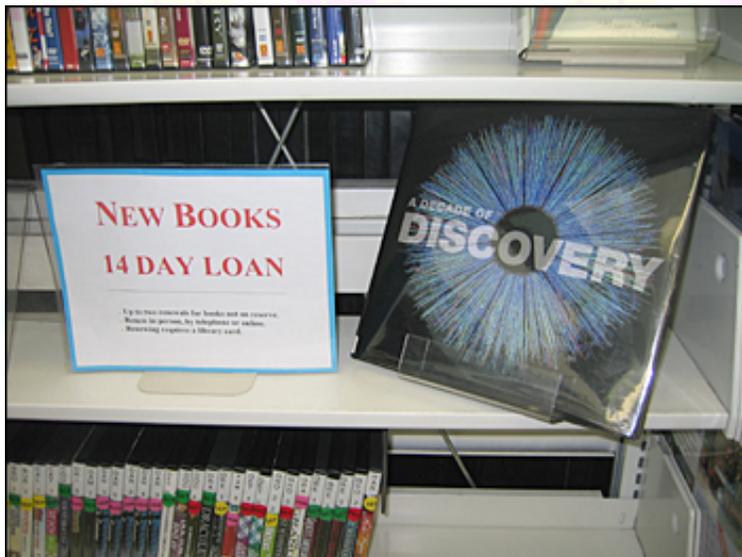
Sony played this at their conference...it's amazing...and scary

SOUND ON. Click below.

<http://www.youtube.com/watch?v=cL9Wu2kWwSY>

Department of Energy's New Book, 'A Decade of Discovery,' Displayed in Community Libraries

By Mona S. Rowe | March 30, 2009



Department of Energy's new book, "A Decade of Discovery"

Many employees have reported seeing the Department of Energy's new book, "A Decade of Discovery," displayed in their community libraries. The book describes the scientific discoveries and technological advancements "in recognition of the men and women working in DOE's seventeen national laboratories across the country." It contains 37 stories, two focused on Brookhaven research and facilities - "A Perfect Liquid" and "Take the Nano-Train" - and one highlighting Brookhaven work - "The Future of Fuel." Brookhaven's iconic STAR image from the Relativistic Heavy Ion Collider graces the front cover. Check out a copy at Brookhaven's Research Library.

2009-1154 | [Media & Communications Office](#)

Meditation & Talk:

How We Can Achieve Peace!

By Swami Dayamrita Chaitanya, a senior disciple of Mata Amritanandamayai (Amma) one of the world renowned spiritual masters and recipient of 2002 United Nations Gandhi-King award for Non-Violence and Peace.

Where: Brookhaven National Lab, Recreation Bldg, #317

When: Friday, April 24th 2009, 4:30 to 7:30 PM

4:00 - 5:00 pm, Social gathering & Refreshments

5:00 - 6:15 pm, Talk & Q&A

6:30 - 7:30 pm, Meditation, Prayers & Chants

Open to the Public, Free, All are welcome!

For info contact Ila Campbell: ila@bnl.gov, x2206

Sponsored by: BERA, APAA, & IAA Yoga Club

2009 RHIC Run Features New Energy Milestone for Exploring Proton Puzzle

By Diane Greenberg | March 27, 2009

Physicists working at the [Relativistic Heavy Ion Collider](#) (RHIC) are exploring the puzzle of proton spin as they begin taking data during the 2009 RHIC run. For the first time, RHIC is running at a record energy of 500 giga-electron volts (GeV) per collision, more than double the previous runs in which polarized proton beams collided at 200 GeV.



Fulvia Pilat (left), head of RHIC operations, and Mei Bai, 2009 RHIC run coordinator.

[Steven Vigdor](#), Associate Laboratory Director for Nuclear and Particle Physics, said, "Physicists are interested in this higher energy because they can make measurements of polarized proton spin over an extended range of momentum of the quarks and gluons inside the proton. In particular, [RIKEN](#) physicists are interested in it because it will help them to meet a performance milestone they set for 2011 - the first measurements of W boson production in polarized proton collisions."

W bosons are massive subatomic particles that can only be produced with interesting rates at the new RHIC energy range of 500 GeV. Vigdor explained that finding these particles would provide insight into the spin preferences of "sea quarks," which are quark-anti-quark pairs that pop into and out of existence in protons. In addition to three regular quarks that are always present in protons, and to the abundant gluons that have been the primary target of RHIC polarized proton runs to date, these effervescent sea quarks

make up the proton structure.

Physicists have long wondered why the overall spin of a proton cannot be accounted for by summing the spin preferences of its component quarks and antiquarks. Experiments have shown that these quarks and antiquarks combine to account for only 20-30 percent of the proton's spin. One view is that gluons account for the missing spin, a theory that is being tested at RHIC. With the higher energy polarized proton run, the PHENIX and STAR experiments will begin to determine in detail how sea quarks contribute to proton spin, while also sampling the gluon spin contribution at lower momenta than have been previously accessible.

RHIC is expected to run until at least mid-April, but if Congress passes the Omnibus bill, it will run until the end of June. To prepare for this run, RHIC operations personnel have been working around the clock to make several significant improvements to the accelerator.



A diagram of the Relativistic Heavy Ion Collider (RHIC) complex at Brookhaven National Laboratory. The complex is composed of several accelerator facilities "chained" together to provide beams which are collided in detectors located inside the RHIC ring.

"It typically takes three weeks to get RHIC set up and ready for experiments," said the Collider-Accelerator Department's Fulvia Pilat, head of RHIC operations. "We started cooling down the machine to 4 kelvins on February 2, and then got beams circulating a week later. By the third week, the beams were colliding. Physics production starts soon afterwards."

Data are taken continuously, interrupted only for beam development or beam experiments to improve RHIC's performance or for machine maintenance. More than 1,000 physicists from around the world participate in RHIC data-taking and analysis, and about 350 operations personnel keep RHIC running at its optimum capacity.

"We have operations personnel working 24-hours-per-day, seven-days-per-week in the main control room and at the RHIC site," Pilat said. "We also have a coordinator for every RHIC run who oversees the run and is responsible for delivering the machine performance that is agreed upon for experiments. This year, Mei Bai [C-AD] is the run coordinator, and she is basically on call all the time."

For this run, RHIC has an upgraded polarimeter to measure the degree of polarization - that is, the extent to which protons are all spinning in the same direction. It is this spin-alignment that allows scientists to tease out the factors that contribute to overall proton spin. The polarized proton injectors have also been improved to deliver or exceed a polarization of 60 percent. In addition, a new transverse stochastic cooling system increases the rate of particle collisions. For more information on the stochastic cooling system, see: http://www.bnl.gov/bnlweb/pubaf/pr/PR_display.asp?prID=08-09.

2009-1138 | [Media & Communications Office](#)

Sharing the Road With Larry Hoff

By Joe Gettler | March 24, 2009



Larry Hoff

Some people enjoy driving to work; others prefer not to. Brookhaven's Larry Hoff is of the latter group. Although 13 miles separate the Lab from his home in East Patchogue, this group leader in the Collider-Accelerator Department commutes throughout most of the year via bicycle.

"The bike ride is a half hour longer than driving - but I *really* like riding the bike," Hoff explained. "There are lots of secondary reasons I'd rather ride my bike rather than drive: saving money by not buying gas, environmental reasons, staying in shape. But the main reason I ride is because I really like riding a bike."

Hoff began riding his bike to work when he first started work at the Lab 24 years ago. Now that his children are older, Hoff commits to a bicycle commute throughout the entire span of daylight savings time, from March until November each year.

"I only ride to and from work during daylight savings. I have no interest in riding home in the dark, I don't feel safe doing it," said Hoff. In fact, he travels by car whenever safety is an issue - for example, in the rain. Hoff also wears a helmet each time he mounts his pedal-powered steed.



(from right) Larry Hoff with fellow C-AD bicyclists Sev Binello and Seth Nemesure.

Hoff is eager to spread his enthusiasm and love for bike riding. Each week, he rallies fellow C-AD bicyclists during their lunch break on Fridays for an hour-long ride - which is usually another 25 miles in addition to his daily 26-mile commute. "I hope BNLeers realize how supportive the Lab is of bicycle commuting with the plentiful amount of bike racks and showers available on site," Hoff added.

So as the sun shines longer each day and you begin thinking about exercising or saving some gas money, think about riding a bicycle - whether it be to work or the corner store. Remember Larry Hoff clocking in more than one hundred miles each week, and share the road if you are driving and see him or other bicyclists riding along.

Thinking about riding a bicycle to work? Larry Hoff has some advice:

1. Plan your travel route in advance; use roads with less traffic and wider shoulders.
2. Learn to fix a flat tire on road; get a tire repair kit and air pump.
3. Get the cell-phone number of a sympathetic co-worker, in case you get stuck.
4. Bring work clothes to the Lab in advance so you don't have to carry them each day.
5. Pay attention while you ride. Don't listen to music, although audio books and podcasts still allow you to hear traffic.

2009-851 | [Media & Communications Office](#)



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: Donnelly, Francine M

As part of the Laboratory's 2009 EARTH WEEK celebrations taking place the week of April 20th, we're holding our annual OFFICE SUPPLY SWAP on Tuesday, April 21st and Wednesday, April 22nd, from 11:30 - 1:30 in Berkner Lobby.

This is an opportunity to Spring Clean your offices, supply closets and conference rooms of items you no longer use, but are still in good condition, and bring them to Berkner on April 21 and 22 to be "recycled." Even if you don't have anything to bring, you should stop by Berkner and TAKE away any item you want FOR FREE!

In the past, all kinds of things were donated paper, notebooks, pads, pens, pencils, folders, binders, small office equipment such as calculators, staplers, 3-hole punches, computer related accessories, etc., which were "recycled" for use within the Laboratory. We cleaned house, minimized waste, helped the recycling effort, and got things for FREE!

We cannot accept bar-coded items.

Please spread the word!

To learn more, contact Francine Donnelly at Ext. 3381

The Health Promotion Program and BERA present

Spring Awakening

The sun is shining, the grass is growing
and it is time to awaken and renew!

Fitness Walk – Monday, April 13th, noon

Meet in the Berkner parking lot at Cornell Ave. and Johns Hopkins St.

Golf Clinic – Tuesday, April 14th, space is limited

There are two sessions. Call to reserve – Michael Thorn, Ext. 8612

Table Tennis- Wednesday, April 29th,

11:30 a.m. – 1:30 p.m., Berkner Hall

All welcome for a demonstration and play!

Fitness Walk- Wednesday, May 6th, noon

Meet in the Berkner Parking lot at Cornell Ave. and Johns Hopkins St.

Ultimate Frisbee- Tuesday, May 12th, noon

Lawn at Berkner Hall, enjoy and learn tips on Frisbee play!

Ballroom Dancing- Thursday, May 14th, noon, Berkner Hall

Stop by for a demonstration and short lesson!

Registration is only required for the golf clinic.

Questions?

**Contact Michael Thorn, Ext. 8612 or
mthorn@bnl.gov**



INDIAN ISLAND EARTH DAY FESTIVAL

VOLUNTEER SIGN-UP SHEET

Come help BNL and the Suffolk County Department of Parks, Recreation and Conservation celebrate Earth Day 2009 during the 3rd annual Indian Island County Park Earth Day Festival. Please sign-up and help manage a display for a few hours, and then take some time to see all of the interesting displays, demonstrations and environmental information provided by a variety of other organizations and businesses on Long Island.

Festival Date: Sunday, April 19, 2009

Festival hours: 10:00 AM - 4:00 PM

Morning Volunteers: Arrive at 9:00 AM to help set up. Leave at 1:00 PM.

Afternoon Volunteers: Arrive at 1:00. Plan on staying to 5:00 (latest) to help break down displays.

SIGN UP NOW for BERA Softball! The Softball League is looking for BERA members over 18 who would like play in our **family friendly leagues**. It doesn't matter if you are a seasoned player who hasn't thrown the ball in a couple of years or a person who has never seen a baseball game before, all are welcome. If you would be interested in playing please contact Jim Durnan, ext. 5993 and he will find a team for you."

SPRING Cleaning?

2 for 1 dry cleaning special for all BNL badge holders at Rocky Point DNA Dry Cleaner. The current "dry clean 1 & get 1 free" offer at the new Rocky Point dry cleaner will be permanently extended to all employees who show their BNL ID badge. The offer is good for cleaning done on premises only. Owner Danny can be reached at 744-4362. His store is located at 632 Route 25A (next to Tilda's Bakery) and he looks forward to serving BNL with his full service shop, which includes tailoring.

- **LI DUCKS TICKETS HAVE ARRIVED!** They will be on sale beginning at 9am on Friday 3/27/09. BERA has 8 seats for each Ducks home game. Limits apply- 2 game maximum for the first week of sales! <http://www.liducks.com/> \$10
- **Special Family Trips! Great for Mother's or Father's Day!**

****Cirque Du Soliel Kooza. Saturday May 9, 2009 \$80 PP adult or child, includes luxury coach bus & ticket. 4pm show. Leave Brookhaven Center at 1:30, leave 6:30 or at conclusion.**

AND

****Clearwater Festival Hudson River Saturday June 20.**

<http://www.clearwater.org/festival/index.html> Leave Brookhaven Center at 9am, leave park at 5pm. \$40 adult. Children 12 and under \$10.

LI Housing Partnership. Grant eligibility. www.lihp.org Please go to Human Resources for more information & application.

SUNY Stony Brook! Great new benefits for BNL badge holders at <http://www.bnl.gov/visitorinfo/SBU.asp>



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

Photo submitted by Jim Osterlund showing us that Nature Awakens! This is a Mourning Cloak:

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





April 2009

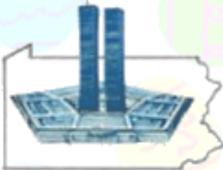
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
				Particle Physics Seminar "Exploring the Proton Spin in Polarized Proton-Proton Collisions", Werner Vogelsang, BNL, 3pm, Bldg. 510, Small Seminar	RHIC Spin Collaboration, 1:30pm, Bldg. 510 Rm. 2-78	
5	6	7	8	9	10	11
Palm Sunday		Physics Colloquium, "Understanding cosmic inflation", Anze Slosar, U. of CA at Berkeley, 3:30pm, Bldg. 510 Large Seminar	BREA Seminar "Retirees Staying on Track in a Volatile Market", Thomas J. Kelly, TIAA-CREF, 12noon, Bldg. 555 Hamilton Seminar Rm Instrumentation Division Seminar "Time-to-digital converter circuits", Sachin Junnarkar, IO, 2:30pm, Bldg. 535	Passover Particle Physics Seminar "Cosmic Rays Precision Studies with the Satellite-Borne Apparatus PAMELA", Andrea Vacchi, INFN Trieste, 3pm, Bldg. 510, Small Seminar	Good Friday RHIC Spin Collaboration, 1:30pm, Bldg. 1005, 3rd floor CR Paul Rishell and Annie Raines, 8pm, Brookhaven Center	

<p>12</p> <p>Easter Sunday</p>	<p>13</p>	<p>14</p> <p>Physics Colloquium "Five aspects of dark matter", Michel Tytgat, Universite Libre de Bruzelles, Belgium, 3:30pm, Bldg. 510 Large Seminar</p>	<p>15</p> <p>Brookhaven Lecture "448th Lecture", James Muckerman, CO, 4pm, Berkner Auditorium</p>	<p>16</p> <p>Particle Physics Seminar "Signatures for Dark Matter at the LHC - LHC at BNL Seminar Series", Dr. Neal Weiner, NYU, 3pm, Bldg. 510 Small Seminar</p>	<p>17</p> <p>C-AD AP Seminar "The LBNL Normal Conductive CW VHF Photo-Injector", Fernando Sannibale, LBNL, 4pm, Bldg. 911B LCR</p> <p>Physics Colloquium "Tibetan Buddhism and Science", Donald Lopez, U. of Michigan, 3:30pm, Bldg. 510 Large Seminar</p>	<p>18</p>
<p>19</p>	<p>20</p>	<p>21</p> <p>Physics Colloquium "TBD", Leonard Sander, U. of Michigan, 3:30pm, Bldg. 510 Large Seminar</p>	<p>22</p> <p>Earth Day</p> <p>Brookhaven 449th Lecture: 2009 Earth Day Lecture, "Global Change and the Terrestrial Biosphere", Alistair Rogers, ESD, 12noon, Berkner Hall</p> <p>Administrative Professional Day</p>	<p>23</p> <p>Take Our Children to Work Day</p>	<p>24</p>	<p>25</p>
<p>26</p>	<p>27</p>	<p>28</p> <p>Physics Colloquium "On the Antikythera Mechanism", Dr. Alexander Jones, Institute for the Study of the Ancient World, 3:30pm, Bldg. 510 Large Seminar</p>	<p>29</p>	<p>30</p>		



May 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 Physics Colloquium "TBD", Tom Russell, U. of MA, 3:30pm, Bldg. 510 Large Seminar	6 Brookhaven Lecture "450th Lecture" by Nicholas Samios, RIKEN, BNL, 4pm, Berkner	7	8	9
10 Mother's Day	11	12 Physics Colloquium "TBD", Nigel Goldenfield, U. of IL at Urbana, 3:30pm, Bldg. 510 Large Seminar	13 Brookhaven Lecture "451st Lecture" by Yin-Nan Lee, EE, 4pm, Berkner	14	15 Roy Book Binder, Hosted by BNL Music Club, 8pm, Brookhaven Center	16  Armed Forces Day
17	18	19	20	21	22	23
24	25  Memorial Day Lab Holiday	26	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

