

RHIC/AGS UEC Mar 4

Justin Frantz, Chair

3/4/16

Agenda Items

- Next Meeting: 4/8 (Before BNL workshop)
- DC Nuclear Day
- QOL/Report Amy Nunziata Mtg/Diversity WG

DC Lobbying Day

- Monday March 14th – Pre-Dinner March 13th
- Status: ~27 Volunteers
 - Some late signups turned away except Jim Thomas will sub for a couple NY folks who dropped out (/Cali)
 - Paul Romatske Colo: Renee Fatemi KY student: lobbyists considered but decided they wouldn't be able to schedule
- Training session/conference call today 1:30pm
- Info to be distributed :
 - organizational website , info about leaving bags, dinner time needs fixed/restaurant?, congressional meetings schedules
- Justin DOE Mtg @ 10am → will leave after 8am mtg w/ Michael Thoenessen (FRIB rep/organizer)
- Rides NY → DC Lijuan please report

New Fact Sheet ! (pdf also in slides area)

Relativistic Heavy Ion Collider

RHIC Users' Executive Committee • Brookhaven National Laboratory • PO Box 5000 • Upton, NY 11973

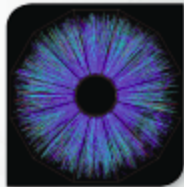
Nuclear Physics at RHIC

www.bnl.gov/rhic

RHIC: Relativistic Heavy Ion Collider Exploring Matter at the Dawn of Time

Scientists' quest to understand matter and its interactions in the early universe inspired the construction and continuous improvement of the Relativistic Heavy Ion Collider (RHIC), the world's most versatile particle collider. It has produced a new kind of nuclear matter, a "perfect" liquid made of the subatomic building blocks that give shape to everything we see in the universe today.

The research conducted at RHIC attracts the world's best and brightest minds, inspires a new generation of scientists, and drives technological advances in many fields. >



RHIC Basics

- RHIC accelerates a large variety of nuclei across unprecedented energy ranges with crisscrossing rings of 1,740 superconducting magnets in a 2.4-mile tunnel

< Thousands of outgoing particles detected by STAR >

- RHIC's large nuclear collisions result in 1000s of outgoing particles that tell us about the nuclear force
- RHIC is the only US particle collider, one of only two in this energy regime in the world

- Sponsored by the U.S. Department of Energy's (DOE) Office of Nuclear Physics
- Replacement cost of over \$2 billion
- Two large particle detectors STAR and PHENIX

RHIC Productivity & Economics

- Major discoveries include the perfect-liquid quark-gluon plasma and the spin of gluons inside nucleons
- 1000+ scientists use RHIC (from around the world)
- \$180 million+ annual economic impact
- 390+ scientific papers, including 60 of the field's 100 most-cited
- 380+ PhDs, hundreds more to come
- 200+ tenured or tenure-track faculty and research positions in states across the U.S.
- Supports 1,469 full-time equivalent jobs
- Newly upgraded detectors with precision capabilities

Magnet-lined tunnels where nuclei are accelerated >

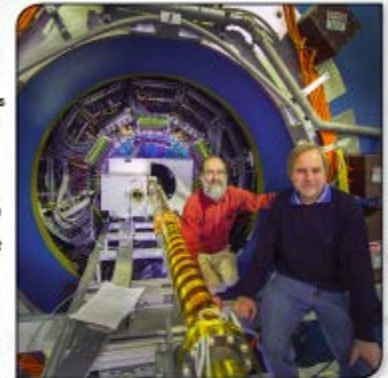


Nuclear Physics DC Day
Washington, DC • March 14, 2016



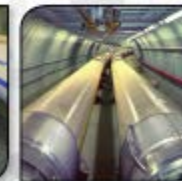
RHIC Impact

- Maintains position of the U.S. as a leader in nuclear science
- Inspires and trains hundreds of students for careers in science, technology, engineering, and mathematics (STEM)
- Develops the high-tech workforce needed to address technical challenges in communications, energy technologies, national security, medicine, and more
- Essential for world's full hot-nuclear-matter program also incorporating Europe's Large Hadron Collider (LHC)
- The National Nuclear Science 2015 Long Range Plan's #1 recommendation includes necessity of continuing RHIC operations
- Triggers spin-off benefits including:
 - medical isotopes for heart scans and cancer treatment
 - studies of space radiation impacting astronauts
 - a collider advances that could improve cancer treatment and nuclear reactor safety
 - R&D to advance energy storage
 - computational advances for "big data" in many fields



RHIC Future

- A strong RHIC community is a key foundation for the next-generation research facility for nuclear science: an Electron-Ion Collider (EIC)
- RHIC infrastructure can provide an affordable path to an EIC and U.S. nuclear physics leadership for decades to come
- Sufficient funding for RHIC is essential for a smooth transition preserving:
 - scientific talent
 - international collaborations
 - foreign investments



This document was produced by the
RHIC Users' Executive Committee

www.bnl.gov/rhic

www.smashingmatters.org



Thanks Agnes, Kelly, Media/Communications Karen, Pete Genzer, Berndt, Jen Abramowitz (Designer): Made Quickly! → fyi special lobbying acct for Graphic Design

• Old Fact Sheet

Use 2 sides
pics of

FACTS

Purpose

To study the fundamental properties of matter from elementary atomic particles to the evolution of the universe

Sponsor

U.S. Department of Energy's (DOE) Office of Nuclear Physics
Replacement Cost
~\$2 billion

Features

- Two crisscrossing rings of 1,740 superconducting magnets in a 2.4-mile tunnel
- Two complementary state-of-the-art detectors: PHENIX and STAR
- Collides everything from polarized protons to heavy nuclei across an unmatched range of beam energies

Users

Over 1,000 per year from national and international laboratories, universities, and other research institutions

Strong Support

The nation's Nuclear Science Advisory Committee expresses strong support for RHIC, recommending a budget that "will allow the U.S. to preserve the tools that enable our science...the minimal budget for a viable U.S. program that maintains leadership in the core areas of nuclear science."

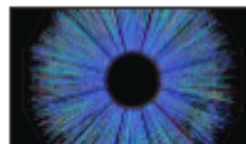
— 2012 NSAC Subcommittee Report to DOE Office of Science and NSF

The committee ranks "RHIC as absolutely central in its ability to contribute to world-leading science in the next decade."

— 2013 NSAC Subcommittee Report on Scientific Facilities

The President's FY16 budget request would support the goals of RHIC and fund the research of its users across the country.

www.bnl.gov/rhic



Thousands of particle tracks at STAR.

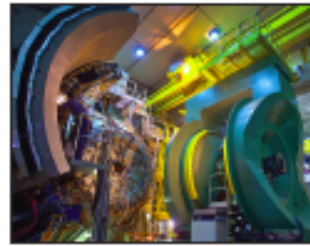
Nuclear Science at RHIC

BROOKHAVEN
NATIONAL LABORATORY

Exploring Matter at the Dawn of Time

The Relativistic Heavy Ion Collider: Inspiring Science and Innovation

Scientists' quest to understand the early universe and interactions among its fundamental particles has inspired the design, construction, and continuous improvement of the Relativistic Heavy Ion Collider (RHIC), the world's most versatile particle collider. The research conducted at RHIC attracts the world's best and brightest minds, inspires a new generation of scientists, and drives technological advances in many fields. RHIC is a vital national resource for cutting-edge discovery, accelerator science and engineering R&D, future workforce development, and continued U.S. leadership in science and technology.



PHENIX, one of RHIC's particle-tracking detectors

Only Collider in the U.S.

- RHIC is the only U.S. collider, and the world's only polarized proton collider.
- RHIC collides particles over a wide range of energies to explore details of the transition between matter at the dawn of time to the atomic nuclei that make up 99 percent of the mass of visible matter in the universe today.
- Physicists from RHIC and Europe's Large Hadron Collider (LHC) agree that both RHIC and LHC are needed to fully study early-universe matter.

Unmatched Versatility, Productivity

- Record-setting collision rates and proton polarization
- Access to wide variety of ions and beam energies for controlled studies
- Newly upgraded detectors with precision capabilities
- 380+ scientific papers, including 60 of the field's 100 most-cited
- 380+ PhDs, hundreds more to come
- 200+ tenured or tenure-track faculty and research positions in states across the U.S.

Strategic Impact

- Attracts/serves more than 1000 scientists from around the world
- Supports 1,469 full-time equivalent jobs
- Generates more than \$180 million in annual economic output
- Triggers spin-off benefits including:

- medical isotopes for heart scans and cancer treatment; studies of space radiation to protect future astronauts; accelerator advances that could improve cancer treatment and nuclear reactor safety; R&D to advance energy storage; and computational approaches for managing "big data" in many fields
- Inspires and trains hundreds of students for careers in science, technology, engineering, and mathematics (STEM)
- Develops the high-tech workforce needed to address broad-impact scientific and technical challenges in communications, energy technologies, national security, medicine, and more
- Positions the U.S. as a leader in science

RHIC's Role in the Future

- A strong RHIC community is a key piece of the scientific and technological foundation for the next-generation research facility for nuclear science, an Electron-Ion Collider (EIC).
- RHIC infrastructure can provide an affordable path to an EIC, enabling continued U.S. leadership in nuclear physics and ancillary benefits for decades to come.
- Sufficient funding for RHIC is essential for a smooth transition that preserves scientific talent, international collaborations, and foreign investments.
- If RHIC didn't exist, something like it would have to be built at much greater cost.

New fact sheet
unable to use
BNL logo:

more logo
restrictions now

Legal Counsel
involved

QOL/ Diversity WG

- QOL:
 - Any updates on Internet Quality?
 - Meeting with Amy Report
 - Brant/Peter/Kathy in attendance → Amy took our comments, seems to be communicating need for improvements to Metz
 - Still need to put positive blog about BNL CDC response: some email?
 - Email about train station at blog?
- Amy Nunziata Mtg:
 - Enterprise – car seat options Amy taking care of
 - Food: smiley face insta feedbacks will likely be installed @ Berkner
 - She will suggest more ingredients (e.g. Gluten) shown
- Diversity:
 - PING Christina Swinson?
 - Kelly working on debugging listserver.

