



BNL Welcome

David Brown
National Nuclear Data Center

20 Feb 2024



A quick photo tour of all the things you won't see at this year's TPR, because we are off site

Reactors!
Mantises!
Accelerators!
Hot cells!
The NNDC!



Brookhaven Graphite Research Reactor 1950-1968

- First research reactor for civilian use
- Based on ORNL's X-10 reactor



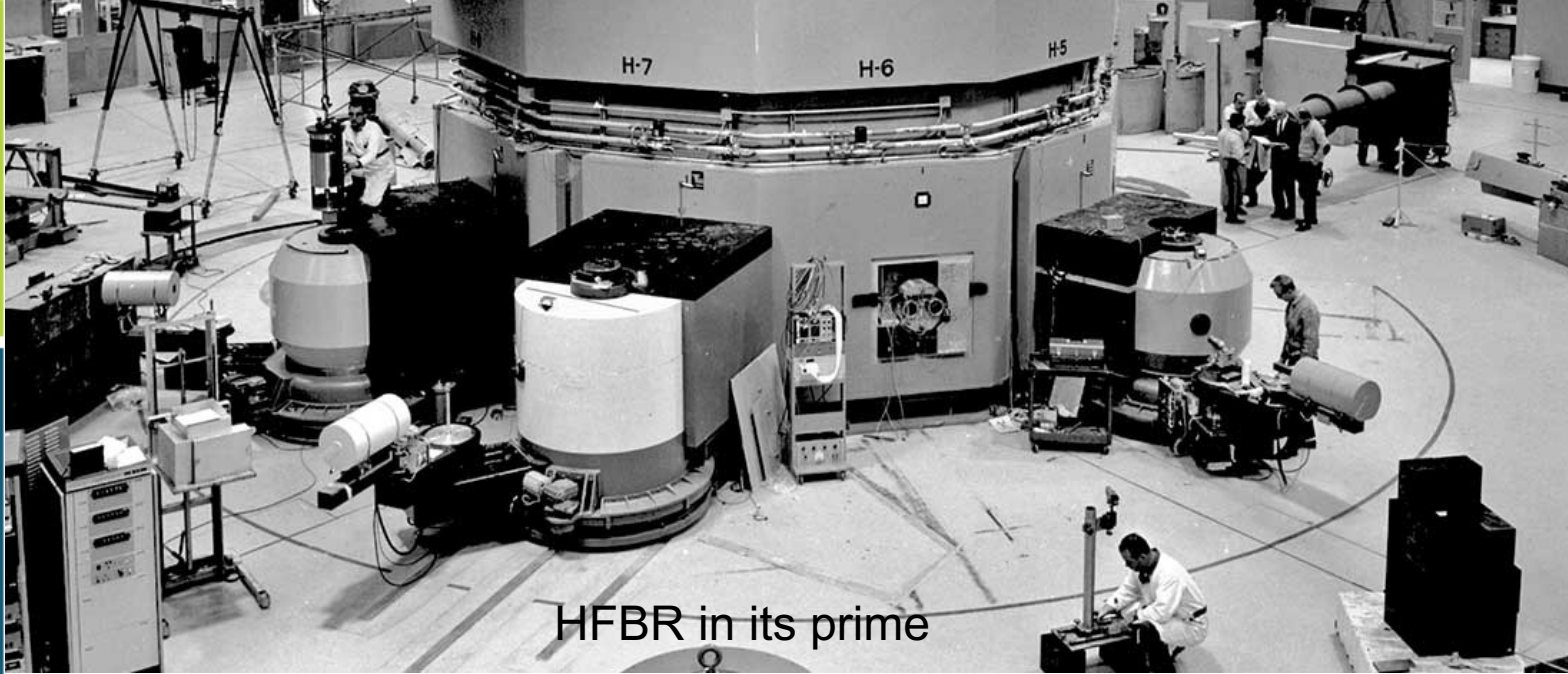
Stock photo of BGRR



Where
did this
go?

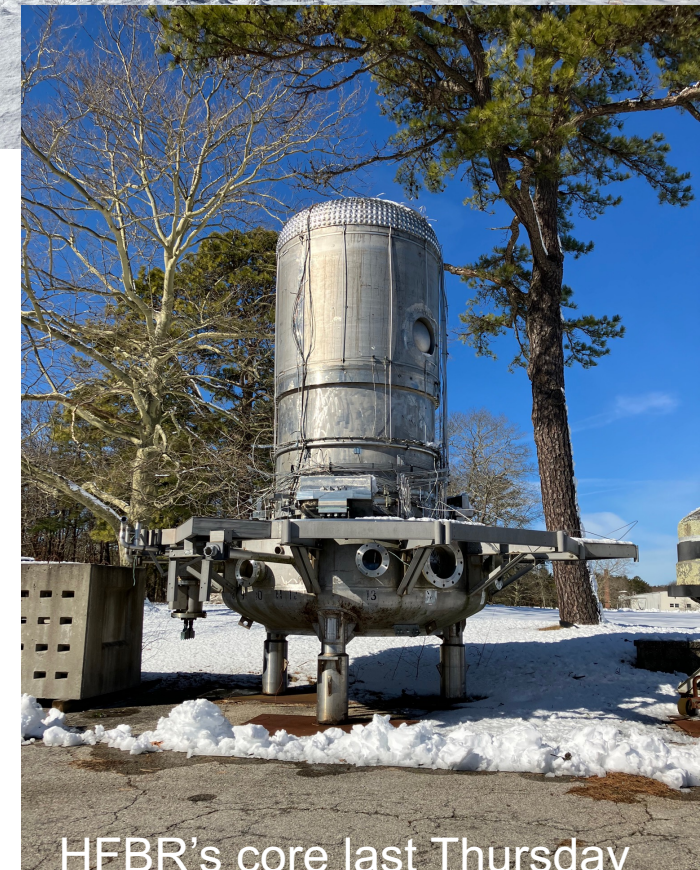
BGRR, HFBR stack removed in 2021





High Flux Beam Reactor 1965-1996

- Successor to BGRR
- Highly productive career
- Had a tritium leak in spent fuel canal, nearly got the lab shut down

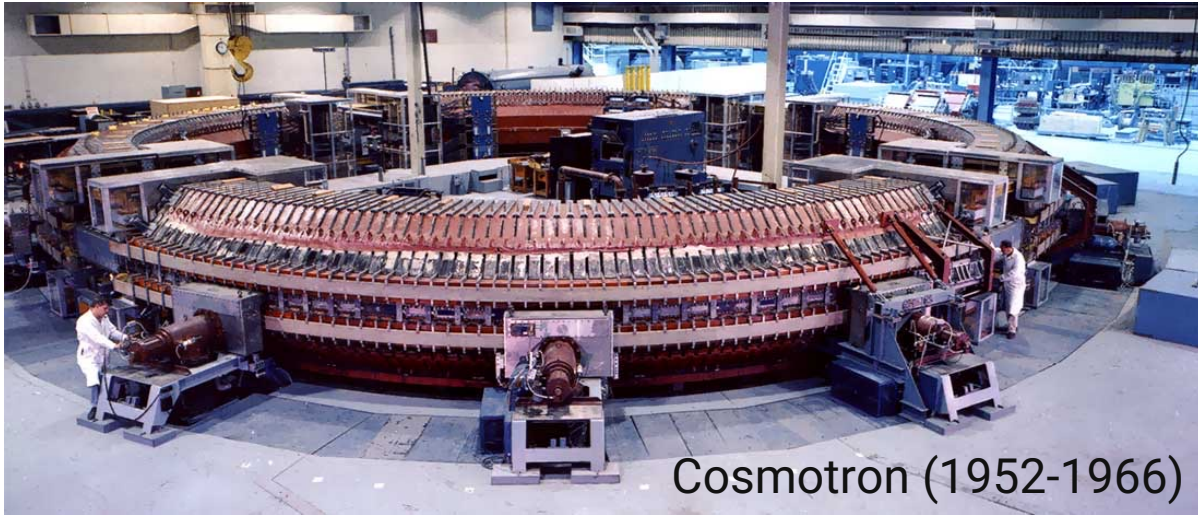




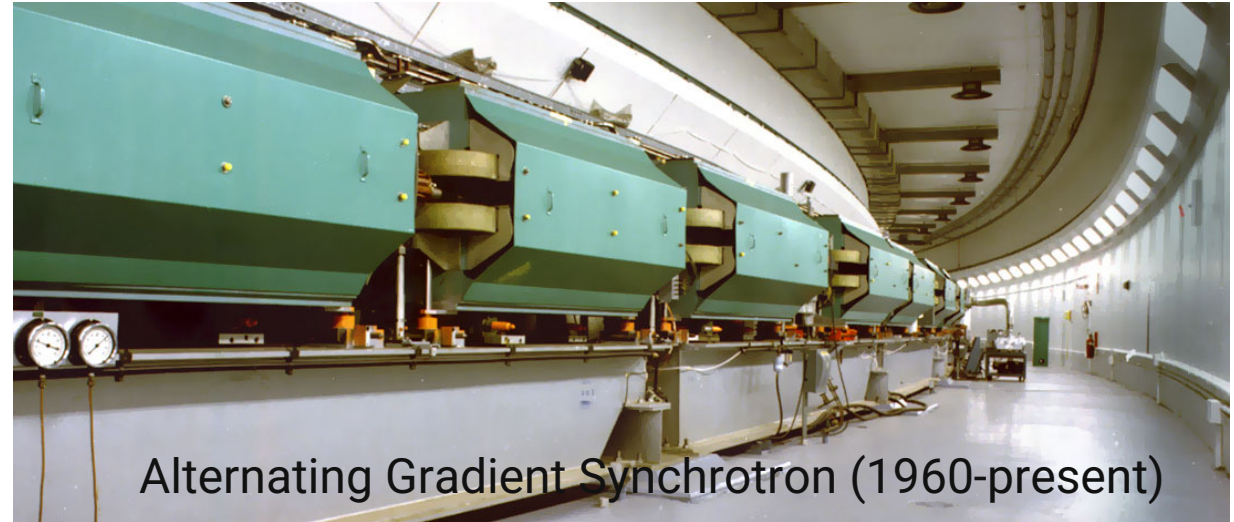
Brookhaven Medical Research Reactor 1959-2000

(very small building, so no outside pictures)
Used for animal and clinical studies and BNCT

BNL has a strong history with accelerators as well



Cosmotron (1952-1966)



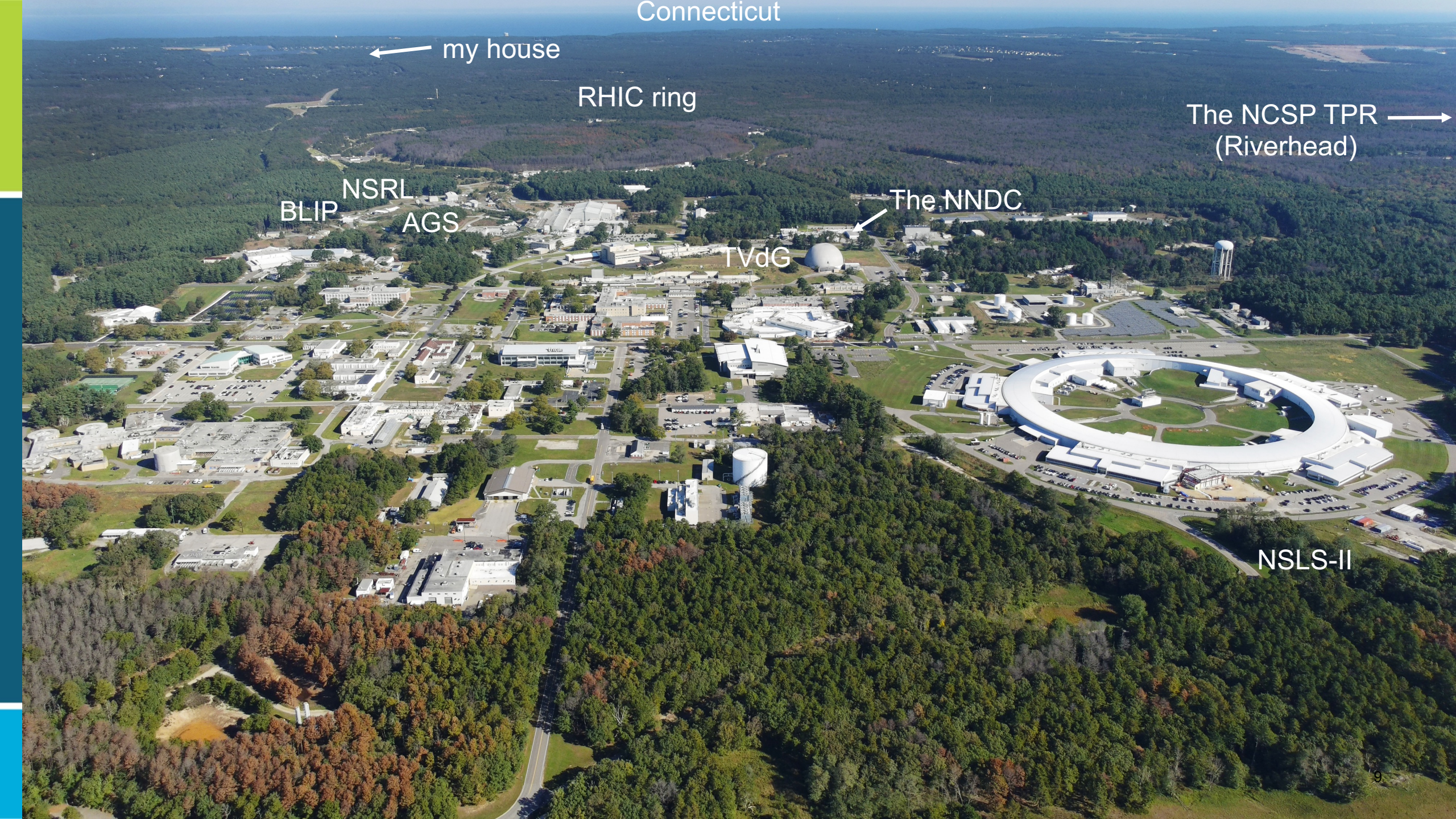
Alternating Gradient Synchrotron (1960-present)



National Synchrotron Light Source (1982-2014)

The AGS taught us a lot about spallation and that knowledge was put to use first at LANSCE and later at the SNS

The NSLS building now houses our Computational Sciences Initiative



Connecticut

← my house

RHIC ring

The NCSP TPR →
(Riverhead)

BLIP
NSRL
AGS

The NNDC

TVdG

NSLS-II

NASA
SPACE RADIATION
LABORATORY

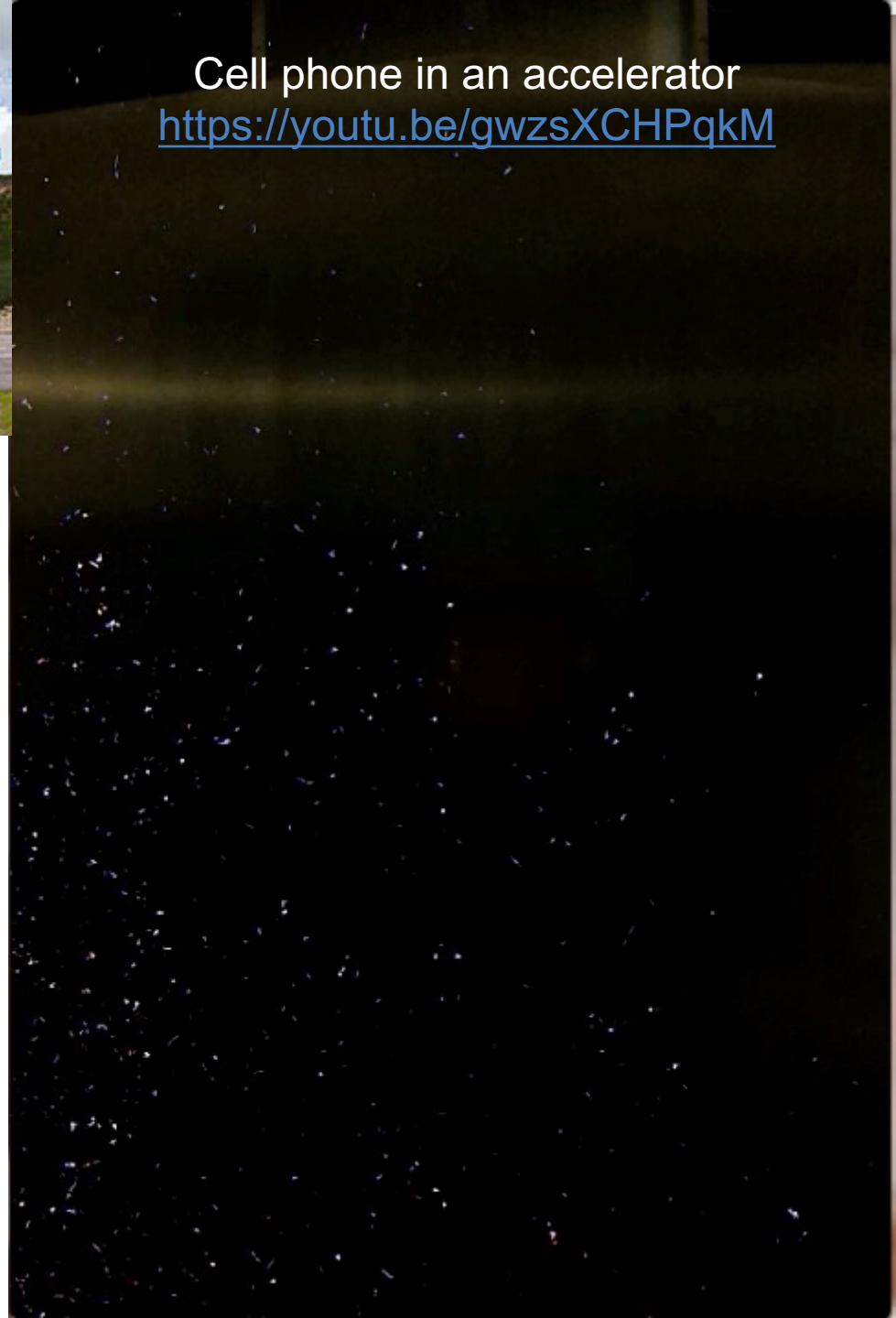


NSRL

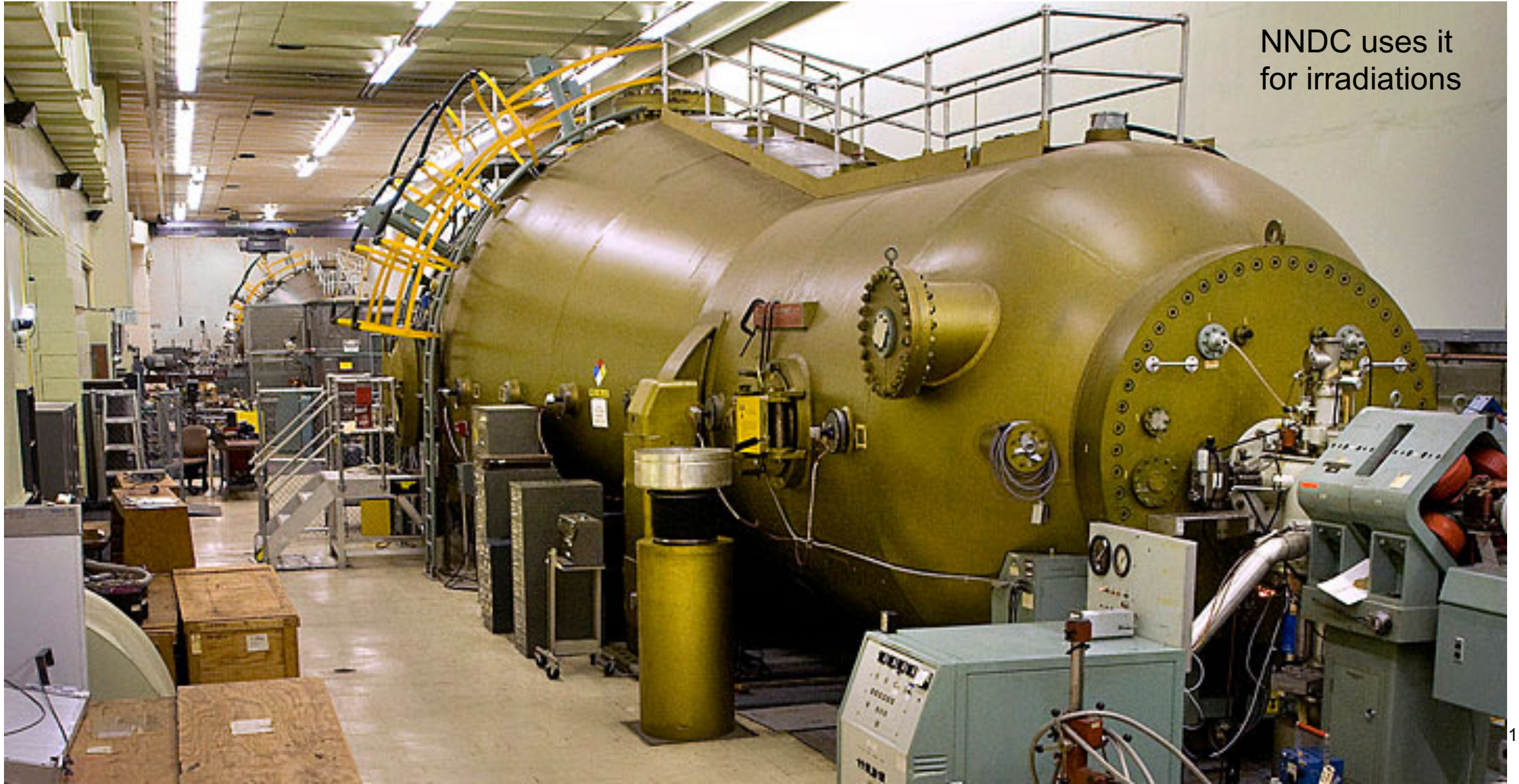
Used to
simulate space
radiation
impacts on
humans and
equipment



Cell phone in an accelerator
<https://youtu.be/gwzsXCHPqkM>



Tandem Van de Graaff

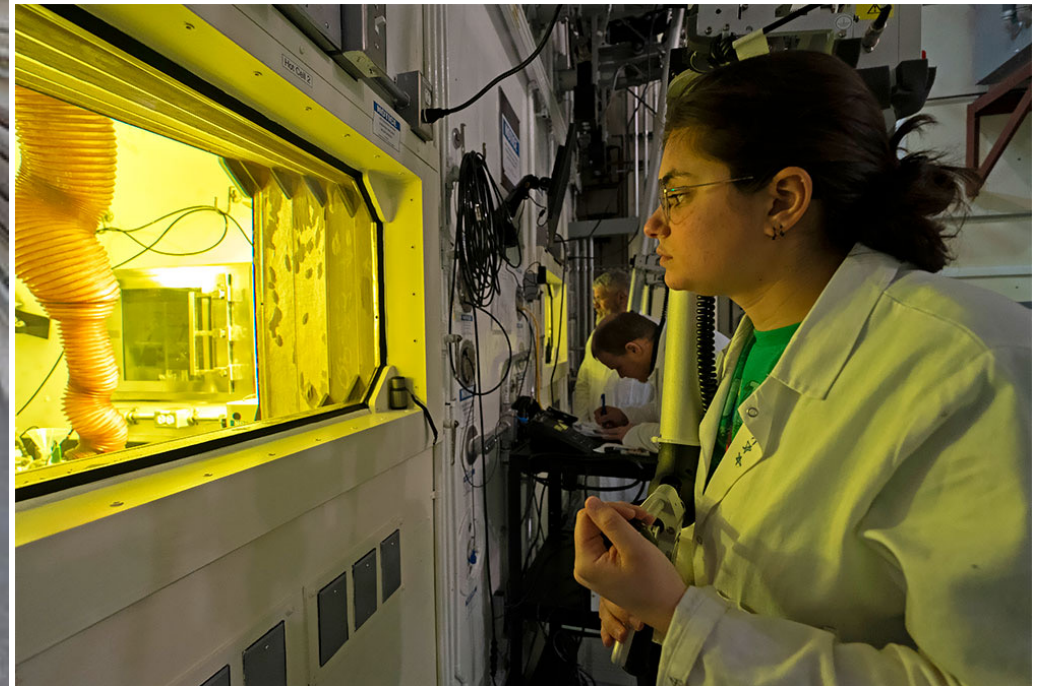
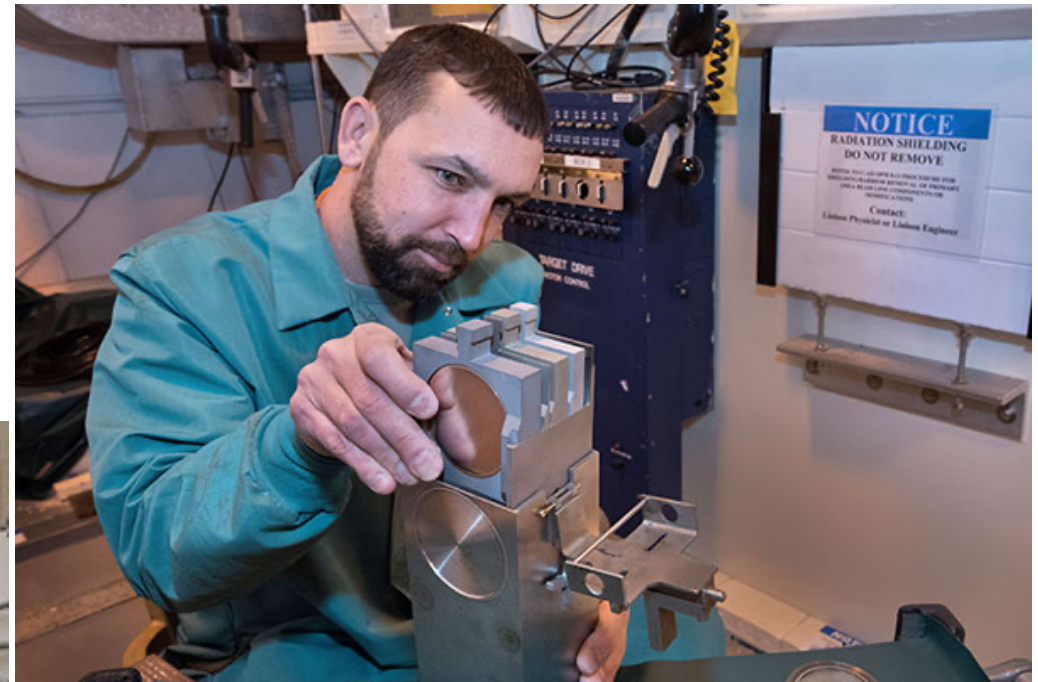


NNDC uses it
for irradiations

BLIP

The Brookhaven Linear Isotope Producer

New: ^{225}Ac production using $p+^{232}\text{Th}$



We now need a criticality safety officer!



By Peter Genzer

Robert "DJ" Carter Named Brookhaven Lab's Nuclear Safety Division Manager

February 13, 2024

Robert "DJ" Carter, a nuclear safety professional with more than three decades of experience, has been named manager of the newly formed Nuclear Safety Division at the U.S. Department of Energy's (DOE) Brookhaven National Laboratory.

As Nuclear Safety Division Manager, Carter will be responsible for leading efforts to reestablish the Laboratory's nuclear safety program, with the goal of increasing Brookhaven's isotope research and production capacity to help meet the nation's growing need for critical isotopes for medicine, industry, and national security.

"DOE has designated isotope research and production as a mission-essential function, and the Lab's long-term goals require that the Lab's isotope program operate under a nuclear regulatory structure going forward," said Sharon Kohler, Brookhaven's Associate Laboratory Director for Environment, Safety and Health. "DJ has the experience and knowledge necessary to stand up this new division and ensure its success."

The new division will be responsible for developing institutional nuclear safety processes and documentation and preparing and maintaining safety analyses for nuclear facilities. These efforts will also pave the way for construction and operation of the Clinical Alpha Radionuclide Producer (CARP), a new facility at Brookhaven that will further increase its production of alpha-emitting isotopes such as actinium-225, which show great promise in treating tumors by delivering a lethal punch to cancer cells. The Lab is currently working toward achieving the next CARP milestone, CD-1 (Approve Alternative Selection and Cost Range) to bring this new facility online so that more of these promising isotopes can be produced and tested—and if shown to be efficacious, brought to patients around the world.

"I'm very excited for the opportunity to help facilitate the mission of the Lab's Isotope Research and Production Department," Carter said. "The isotopes being produced here at Brookhaven are delivering amazing, life-changing results, especially for those battling metastatic cancers. I'm grateful to play any small role in helping to further that success."

Carter has served as the Lab's subject matter expert for work planning & control and conduct of operations since August 2022, and will continue to oversee and provide stewardship of the institutional work planning & control and conduct of operations functions in his new role.

"Work planning and control is very important to safely conducting the research we undertake here at Brookhaven, and that system needs to effectively serve everyone at the Lab," said Carter. "Our staff are our most important resource, and we owe it to them to provide a safe and efficient environment in which to work."

Prior to joining Brookhaven, Carter worked at Lawrence Livermore National Laboratory (LLNL) in California. At LLNL, he served as nuclear facilities manager for the Superblock complex, a collection of two Hazard Category 2 and two Hazard Category 3 nuclear facilities for research and development of special nuclear material. In addition, he also served as LLNL's conduct of operations manager. Before joining DOE, Carter served on active duty for 28 years in the U.S. Navy, filling numerous roles in support of the Naval Nuclear Propulsion Program. Carter holds a B.S. in Nuclear Engineering Technology and is trained in various areas of nuclear safety and operations.



The National Nuclear Data Center (virtually)

<https://www.nndc.bnl.gov>

The interface features a central 'Chart of Nuclides' plot showing a diagonal band of nuclides. Navigation buttons are arranged as follows:

- Top row: NSR, XUNDL, ENSDF
- Second row: NuDat, Databases, MIRD
- Third row: Sigma, EXFOR, ENDF
- Bottom center: Networks (CSEWG, USNDP, NDWG)
- Bottom right: Atlas of Neutron Resonances, Tool and Publications, Nuclear Data Sheets, Nuclear Wallet Cards

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The National Nuclear Data Center (IRL)



Serving nuclear data since 1952!



BNL's deep connection to the NCSP

- **Dr. Herb Kouts (1919-2008)**
- BNL senior physicist until retirement in 1989
 - Head of Reactor Shielding Group at BGRR
 - Head of Experimental Reactor Physics Group in 1952
 - Head Reactor Physics Division in 1956
 - Tenured in 1957
 - Head of BNL Technical Support Organization in 1968
 - AEC director of Division of Reactor Safety Research in 1973
 - Returned to BNL in 1976 to head the International Safeguards Project Office
- AEC's E.O. Lawrence Award in 1963
- Served on the Defense Nuclear Facilities Safety Board from 1988-2000
- While serving on the DNFSB, was instrumental in establishing the NCSP

