

"Open access to the data will, in the long term, allow the maximum realization of their scientific potential." --CMS Collaboration



Open Data in Low Energy Nuclear Physics (2023 Open Data Workshop)

Jin Wu, on behalf of USNDP
National Nuclear Data Center



NDAC meeting – 9/14/23



Year of Open Science - 2023

17 Federal agencies are celebrating 2023 as a Year of Open Science, a multi-agency initiative across the federal government to spark change and inspire open science engagement through events and activities that will advance adoption of open, equitable, and secure science.

<https://open.science.gov>

YEAR OF
OPEN SCIENCE



DOE Public Access Plan (June. 30, 2023)

U.S. Department of Energy
Public Access Plan

‘Ensuring Free, Immediate and Equitable Access’ to the Results of Department of Energy Scientific Research



1. **Motivation:** In response to the August 25, 2022, OSTP Memorandum
2. **Requirements:** For each scholarly publication, the DOE Federal employees, financial assistance recipients, or contractors must submit the full-text accepted manuscript, including conference proceedings or papers published in peer-reviewed journals, and the associated metadata for the publication to DOE no later than the publication date of the article.
3. **Timeline:** As required by the 2022 OSTP memo, DOE will complete and publish full policy development for implementing this Plan by **December 31, 2024**, with an effective date within 12 months after publication of the Plan.

Public Access Policy from White House OSTP

THE WHITE HOUSE



[Administration](#) [Priorities](#) [COVID Plan](#) [Briefing Room](#) [Español](#) [MENU](#)

AUGUST 25, 2022

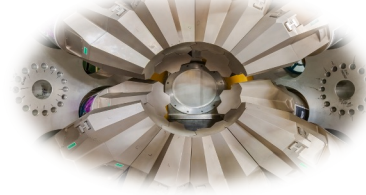
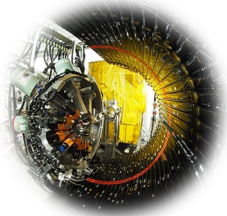
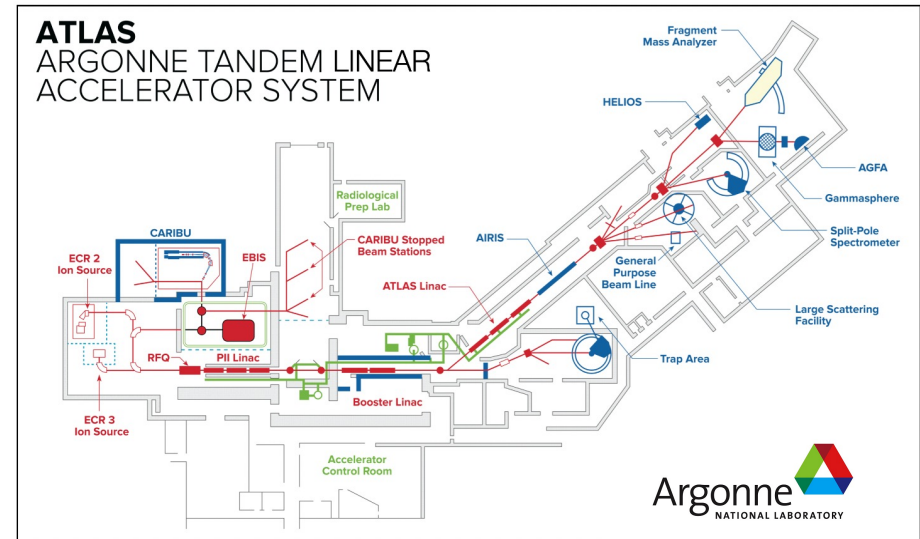
OSTP Issues Guidance to Make Federally Funded Research Freely Available Without Delay

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Require to make publications and their supporting data resulting from federally funded research publicly accessible without an embargo on their free and public release – immediate access upon publication.

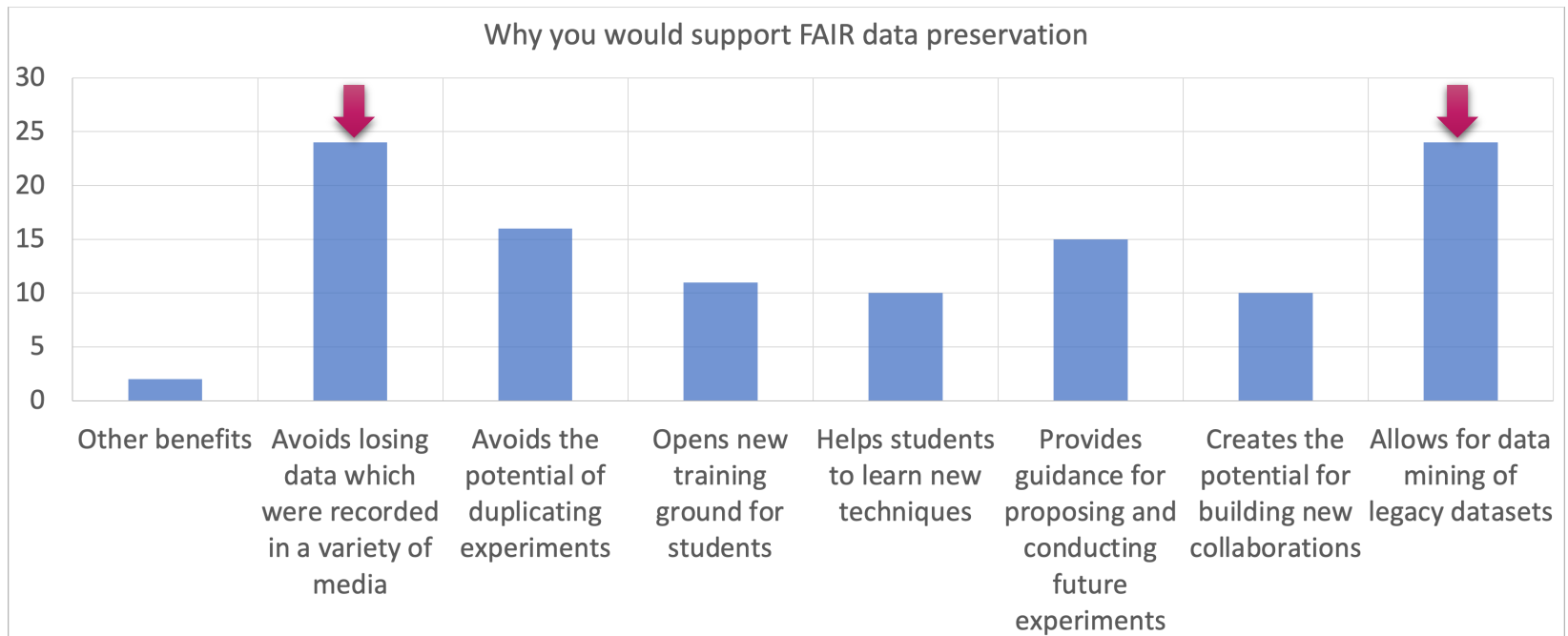
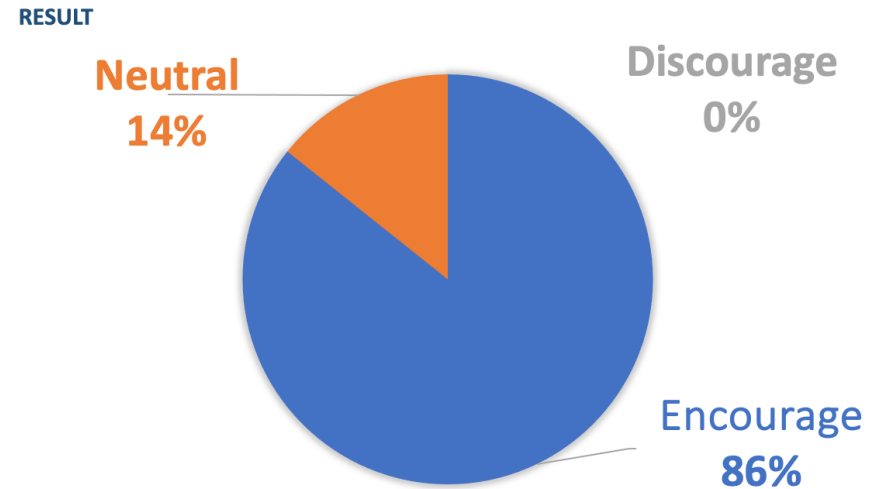
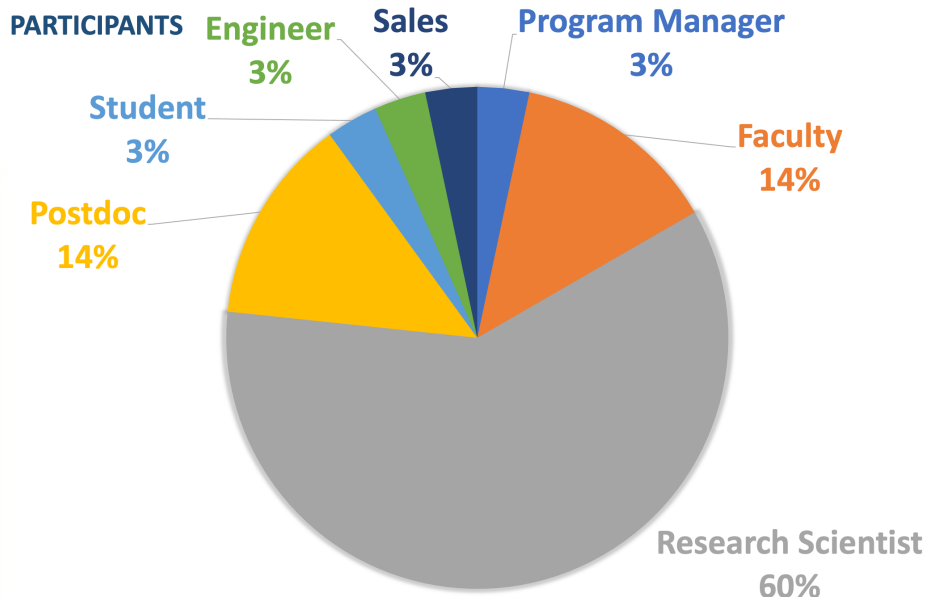
1. Requires immediate access to data underlying publications and increased access to other data.
2. Requires the use of persistent identifiers (PIDs) for research outputs (e.g., publications, data, software), researchers, and awards.

Current situation of U.S. Low Energy Nuclear Physics researches

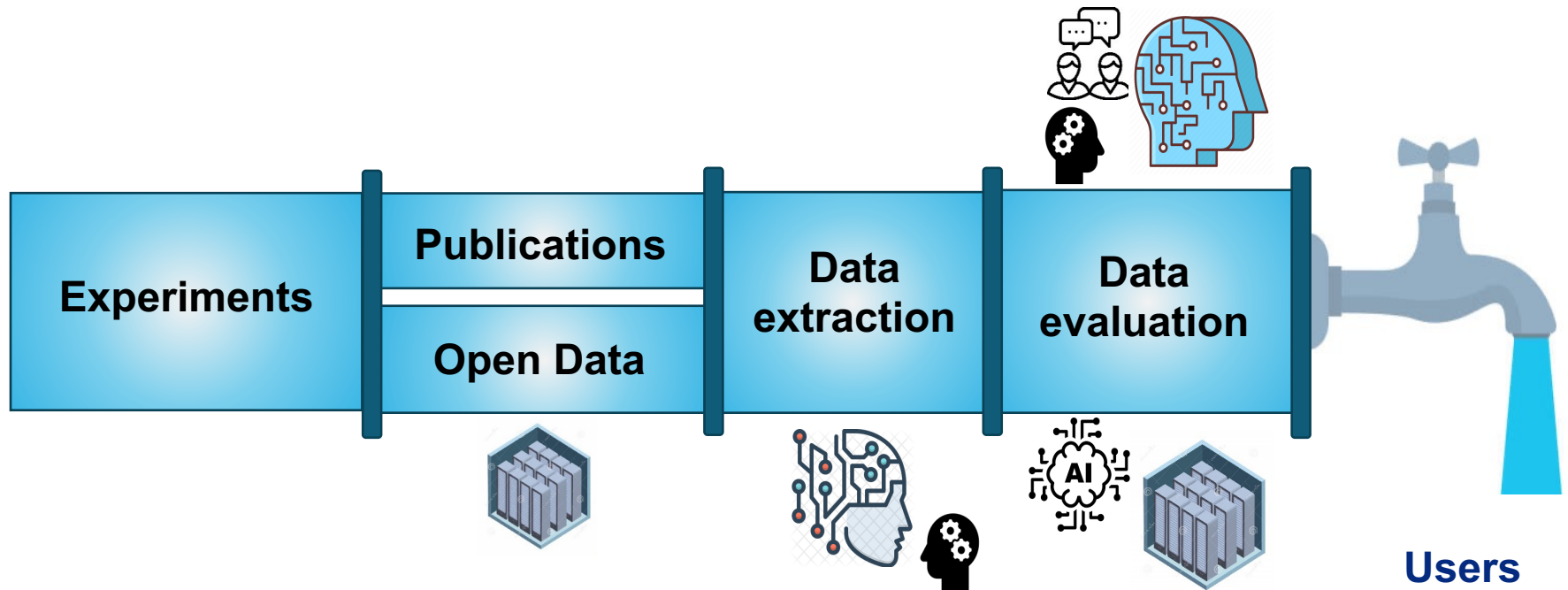


- Large amounts of experimental data will be produced attributing to the powerful accelerators and complex detection systems.
- This “self-curation” by individual research groups lacks uniformity and results in a situation where data discovery and reuse are often difficult or impossible.
- **There is no central data preservation repository in the U.S. Low Energy Nuclear Physics!!!**

Data Preservation Survey at WANDA2023



Complementary for Nuclear Data Pipeline



- Ensure results and associated experimental files are properly stored
- Be easily traceable for the experimental and data analysis techniques

European Open Data initiatives in Nuclear Physics

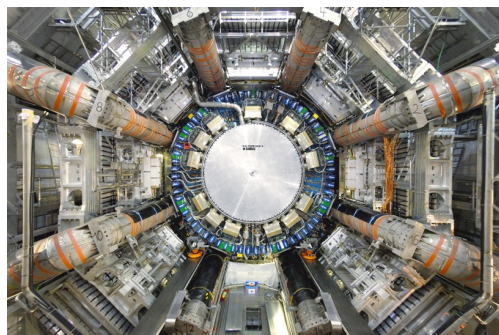


“The openNP initiative aims at developing a central service to reference and access all existing data set and associated software. Including, for instance, experimental and simulated data set, theoretical calculations and associated software.”

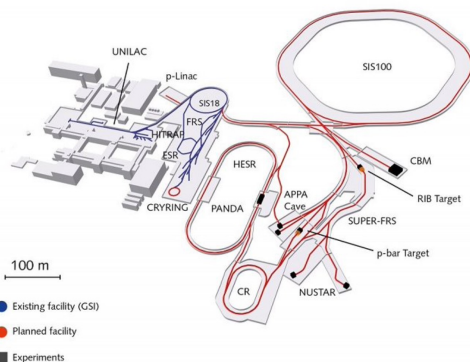


“ESCAPE (European Science Cluster of Astronomy & Particle physics ESFRI research infrastructures) is a project that addresses the Open Science challenges shared by the astrophysics and accelerator-based physics”

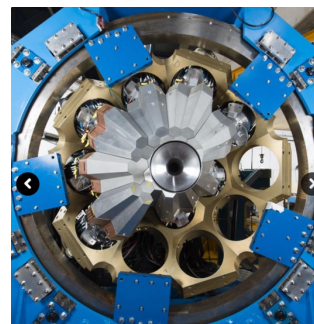
European Facilities with a path to Open Science



CERN



FAIR/GSI

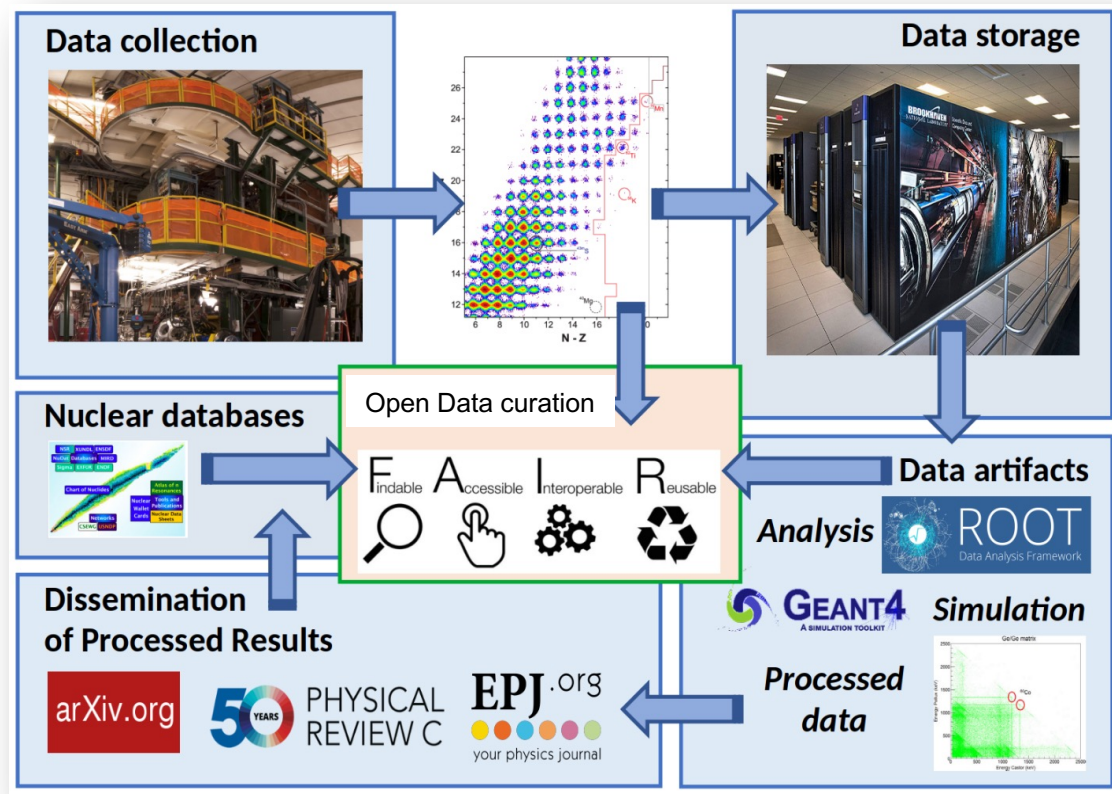


AGATA



INDRA-FAZIA apparatus in GANIL

An example of Modern Data Management tool



Credit: Adam Hayes

Acceptance of Proposal

During Experiment

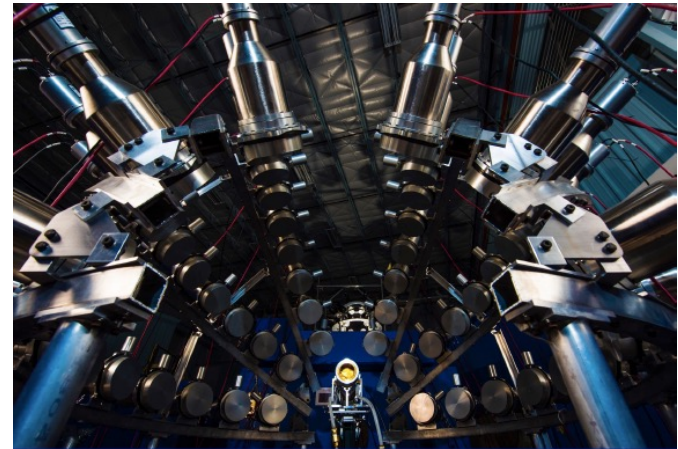
Acceptance of publication

The end of embargo period

Takeaways from WANDA Data Preservation Discussion



OSTI provides the first steps to making your data FAIR



45TB Chi-Nu Data needs to be archived (courtesy of Matt Devlin)

- **Don't store raw data**
 - Consensus that it only makes sense to store processed data
- **Proper archiving should be done throughout the course of the experiment**
 - Retracing steps are difficult if not impossible
- **Community needs a central repository**
 - Common language identifying experiments that can easily be searched
 - Leveraging experiences from Europe colleagues

2023 Open Data Workshop



Potential Topics:

- DOE Open Data policy
- Data Preservation from nuclear facilities
ATLAS, FRIB, ARUNA, LANSCE, TUNL
- Data Preservation from large Detector Collaborations
GRETINA, FRIB Decay Station, Gammasphere, ...
- Leverageable Open Data experience from other research fields
(s)PHENIX, STAR, CMS, DUNE, NASA ...
- Programming Support for Open Data
SDCC(BNL), CSI(BNL) ...

Goals:

1. Understand DOE Open Data policies
2. Share capabilities and technologies
3. Define community needs
4. Discuss key issues, e.g. embargo period
5. Conceive Open Data standards and policies
6. Write a Whitepaper

Thank you!



Jin Wu
jwu2@bnl.gov

Elizabeth McCutchan
mccutchan@bnl.gov

David Brown
dbrown@bnl.gov