

EURO-LABS WP 5.2

Data management and Open Science



This project has received funding from the European Union's Horizon Europe Research and Innovation programme under Grant Agreement No 101057511.

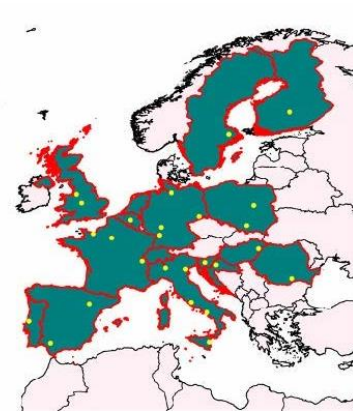
GSI/FAIR Involvement in External OS projects

	<p><i>European Science Cluster of Astronomy & Particle Physics ESFRI Research Infrastructures: Open Source Software Repository (OSSR) developer and maintainer</i></p>
	<p><i>Nuclear Physics European Collaboration Committee: Participation and writing Open Science section of the LRP 2024</i></p>
	<p><i>European Open Science Cloud: GSI/FAIR both observer members, contribution and suggestions for EOSC Future</i></p>
	<p><i>EuroLabs: Work Package on Open, diverse and inclusive Science</i></p>
	<p><i>Particles, Universe, NuClei and Hadrons for the NFDI: Two Task areas; Developments on data portal, AAI, data lake and other infrastructure from GSI IT department and Research division</i></p>
	<p><i>Matter and Technology, Data Management and Analysis: IT contributions</i></p>
	<p><i>HGF Open Science: Members of the OS, software and POF IV indicators working groups</i></p>
	<p><i>Helmholtz Metadata Collaboration: Participation in HMC funded projects, links and connections to Matter division</i></p>
	<p><i>Exploring the Universe from Microscopic to Macroscopic Scales: Supporting Open Science area of the project (as well as other direct research areas)</i></p>

EURO-LABS

Goals:

- Providing efficient access to the available resources to a large fraction of **EURO**pean **L**aboratories for **A**ccelerator **B**ased **S**ciences (**EURO-LABS**)
- Bringing together the three communities engaged in Nuclear Physics, Accelerator and Detector technology for High Energy Physics
- Allowing a synergic implementation of best practices for data management and activities relating to targeted service improvements at these RIs
- Creating synergies and collaborations between the RIs of the Nuclear and High Energy communities
- Enhancing Europe's potential



■ <https://web.infn.it/EURO-LABS/>



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WP5



The Project Office will be organised by **INFN Bologna** with the collaboration of **CERN**.

WP1
Management

WP2
Access to RI for Physics

WP3
Access to RI for Accelerators

WP4
Access to RI for Detectors

WP5
Open Diverse and Inclusive Science

WP5: Open, Diverse and Inclusive Science

Task 1: Diversity and Dissemination

- **Enhancing diversity:** Nationality, Gender, Age, Level of expertise
- **Enhancing Dissemination:** Web site, Videos of RI, Newsletters,...

Task 2: Open Science & Data Management

- Promoting data management plans
- **Creating** a portal for nuclear physics data tools

Task 3: Machine learning

- Machine Learning used in beam control and optimization
- Control of the source of laser driven accelerator

Task 4: Training

- **Hands-on training on the facilities:** 4 events of basic training and 4 events of advanced training



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(CEA)



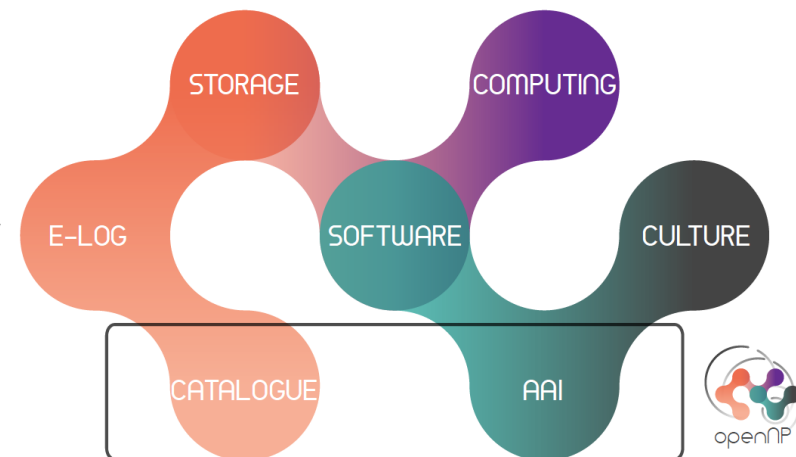
Livius Trache
IFIN-HH

WP 5.2: Open Science and Data Management

- *Participants:* CSIC, GANIL (Leading partners), INFN, CNRS, IJCLab, GSI
- *Task leader:* A. Lemasson (Ganil); *subtask leader:* C. Hornung (GSI), A. Matta (CNRS), M. Jouvin (IJCLab)



- **Goals:**
 - Bringing the nuclear physics community into the EOSC (European Open Science Cloud) framework
 - Developing services to enhance FAIR (Findable, Accessible, Interoperable and Reusable) data principles
 - Integration of Nuclear Physics community to existing infrastructures/services of EOSC environment - using present experience from ESCAPE/HEP physics community



Metadata for nuclear physics experiments

When publishing data, also publish machine readable metadata

- Allows datasets to be found
- Enables interoperability between datasets
- Enables reprocessing of data: transparency and integrity
- Efficient use of resources



No common schema existing for nuclear physics experiments

Look for **European (and beyond) wide strategy**

-> commonalities and overlaps

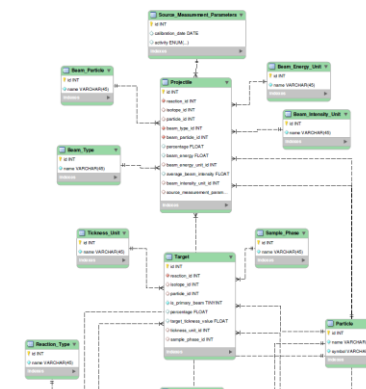
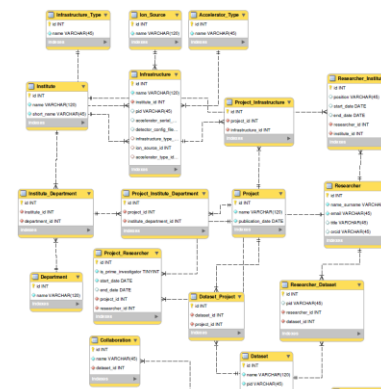


Select a **suitable standard and vocabulary** (datacite, dublin core...)

Suggestions, recommendations and collaborations welcome!



Page	Mandatory	Metadata item
		Main Items
1	!	Publication Date
1		Dataset PID
1	!	Facility
1		Infrastructure
1	!	Department/Division
1		Experiment Number
2	!	Principal Investigator
2		Collaboration
2		GSI/FAIR pillar
2		POV IV topic
3	!	Date of data generation start
3	!	Date of data generation end
3	!	Data Type
3	!	Data category
3	!	Data format

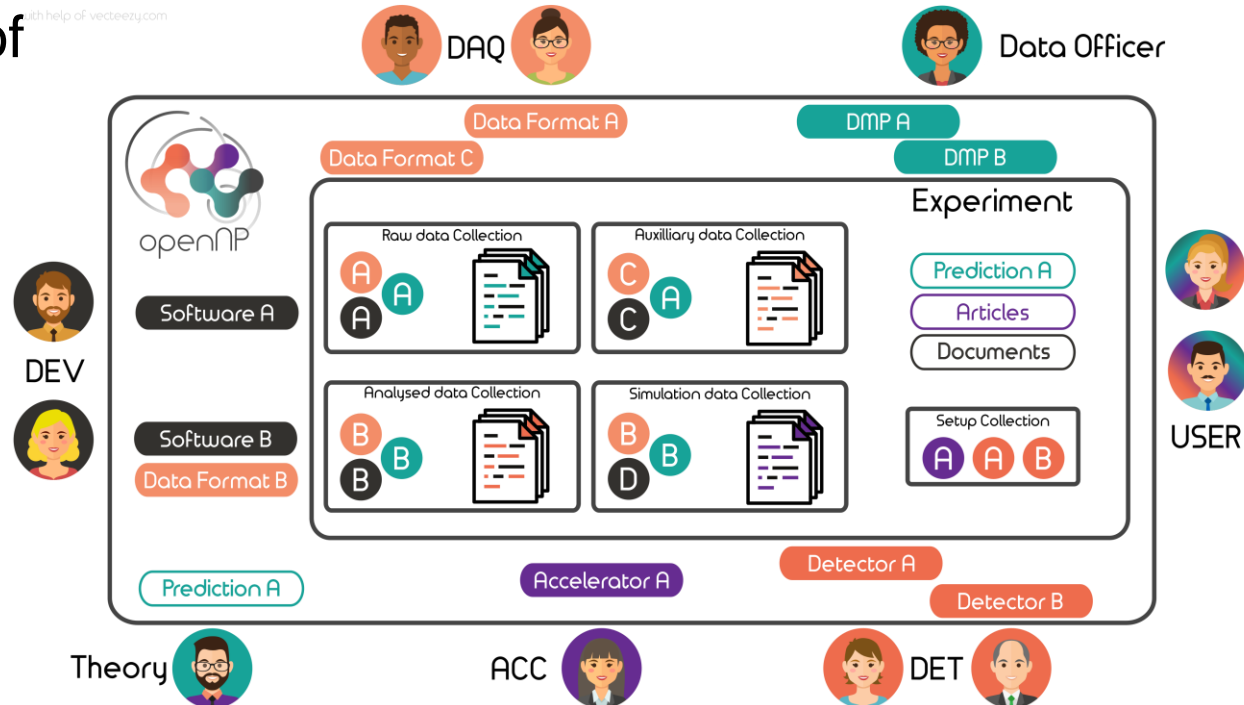


Ivan Knezevic

openNP Catalog

openNP is a catalog of with help of vecteezy.com

- experimental datasets from RI
- auxiliary Data (elog, ...)
- DMP
- DAQ softwares (data format, readout, ...)
- Analysis Softwares
- Experimental setup descriptions
- Analysed data



Involving

- Researchers,
- Data Officers,
- IT Departments,
- ...

Do not intend to store the large experimental datasets



CC-BY-SA A. Matta, created with help of [Vecteezy.com](https://www.vecteezy.com)

Adrien Matta

openNP: Milestone achieved

Milestone report submitted in August 2023.

It summarized the conceptual design for a prototype for the openNP catalog allowing research infrastructure and researchers to centralize the metadata of their datasets.

Published under:

Released on zenodo Aug 24th 2023: <https://doi.org/10.5281/zenodo.8279798>

<https://zenodo.org/communities/euro-lab>

DOI 10.5281/zenodo.8279798

Grant Agreement No: 101057511

EURO-LABS

EUROpean Laboratories for Accelerator Based Science
HORIZON-INFRA-2021-SERV-01-07 Project EURO-LABS

MILESTONE REPORT

[OPENNP CATALOG PERIMETER, ARCHITECTURE, AND STANDARDS]

openNP Catalog



1) Definition of the data type and metadata fields

Beams, Accelerator, Experimental Setup, DataSet, Softwares, ...

=> Subject to evolution

Synergies with ongoing activities on metadata standardization at GSI and PUNCH4NFDI project

2) Planned implementation of the catalog using DataVerse (<https://dataverse.org>)

- already used in a wide range of research context
- a flexible handling of nested collections (compared to zenodo)
- import/export capabilities with other existing repositories

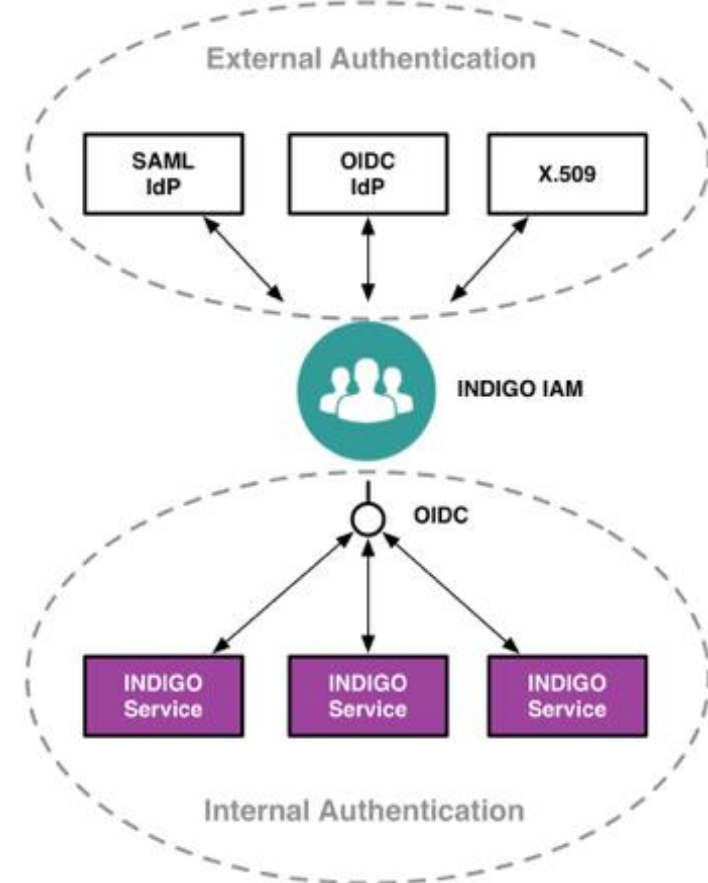
3) Prototype expected 2024 (hosted at CC-IN2P3)

- Prototype tests and adjustment with the help of RI
- deliverable is final service in M36

data manager position at GANIL to be publicized in the coming week

Authentication and Authorization Infrastructure

- Common identification and authentication service (M. Jouvin IJCLab)
- Identification using existing federations (eduGAIN, ...) using single sign on (SSO) or ORCID
- Easy registration of new services (compared to registration directly to the federation)
- Management of users based on groups to handle/differentiate authorizations levels on the service side
- Benefiting from the experience gained from ESCAPE



=> INDIGO IAM

Michel Jouvin

- Service was released in June (you can register now)

<https://iam-eurolabs.ijclab.in2p3.fr>



Welcome to **indigo-dc**

Sign in with

eduGAIN 

Local credentials

- Already used in another EURO-LABS work package for the NS4EXP virtual access theory platform and Grafana service identification at GANIL for EXOGAM@NFS experiment

=> presently 30 users

If such a service may seem useful to you, please contact us

Next steps :

- Build an operation committee with members from the various labs to manage the service (approval of registration, group management), define policies
- Extend to ORCID identity provider (in the coming week)
- Distribute examples of implementations (APACHE server, python, ...)

- Within the EURO-LABS project we are developing solutions for the nuclear physics community to enhance FAIR (Findable, Accessible, Interoperable and Reusable) data principles
- open NP Catalog => Definition of the data type and metadata fields
- Authentication and authorization infrastructure for nuclear physics tools

<https://iam-eurolabs.ijclab.in2p3.fr>

- Plans for a school dedicated to Open Science & Data Management for next year at GSI

Thank you for your attention!



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