



ESCAPE
European Science Cluster of Astronomy &
Particle physics ESFRI research Infrastructures

ESCAPE Project Use Case

Aris Fkiaras (CERN / ESCAPE)

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ESFRI Science Projects

HL-LHC	SKA
FAIR	CTA
KM3Net	JIVE-ERIC
ELT	EST
EURO-VO (LSST)	EGO-VIRGO (CERN,ESO)

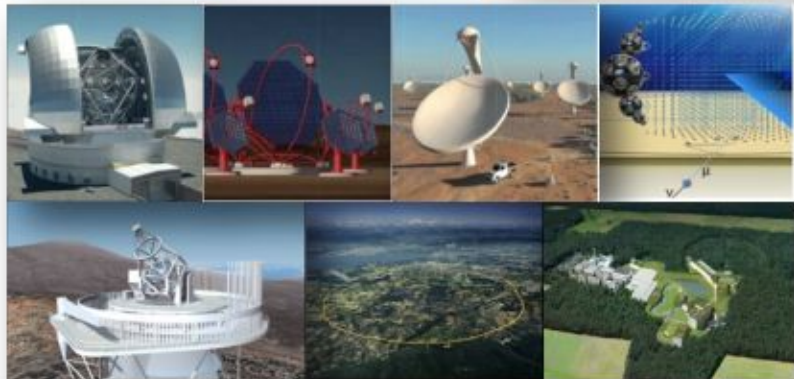


Goals

Prototype an infrastructure for the EOSC that is adapted to the Exabyte-scale needs of the large ESFRI science projects.

Ensure that the science communities drive the development of the EOSC

Has to address *FAIR* data management, long term preservation, open access, open science, and contribute to the EOSC catalogue of services.



Work Packages

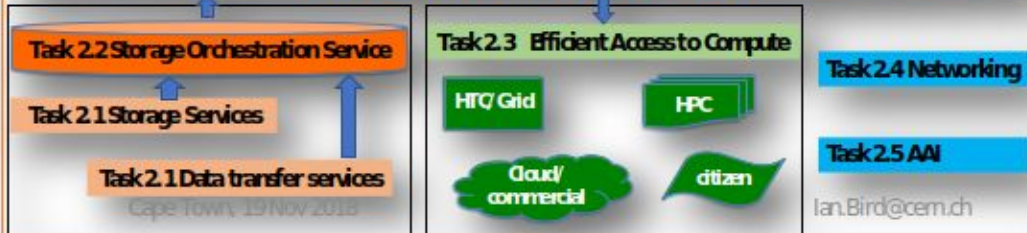
WP2 – Data Infrastructure for Open Science

WP3 – Open-source scientific Software and Service Repository

WP4 – Connecting ESFRI projects to EOSC through VO framework

WP5 – ESFRI Science Analysis Platform

Task 2.2 Content Delivering and Caching



Data centres (funded in WP2)

CERN, INFN, DESY, GSI, Nikhef, SURFSara, RUG, CCIN2P3, PIC, LAPP, INAF



Work Package 2 - Data Infrastructure for Open Science

- Task 2.1 Data Lake Infrastructure and Federation Services. CERN (Xavier Espinal)
- Task 2.2 Data Lake orchestration service. DESY (Patrick Fuhrmann)
- Task 2.3 Integration with Compute Services. NOW-I-ASTRON (Yan Grange)
- Task 2.4 Networking. SKAO (Rosie Bolton)
- Task 2.5 Authentication and Authorization. INFN (Andrea Ceccanti)

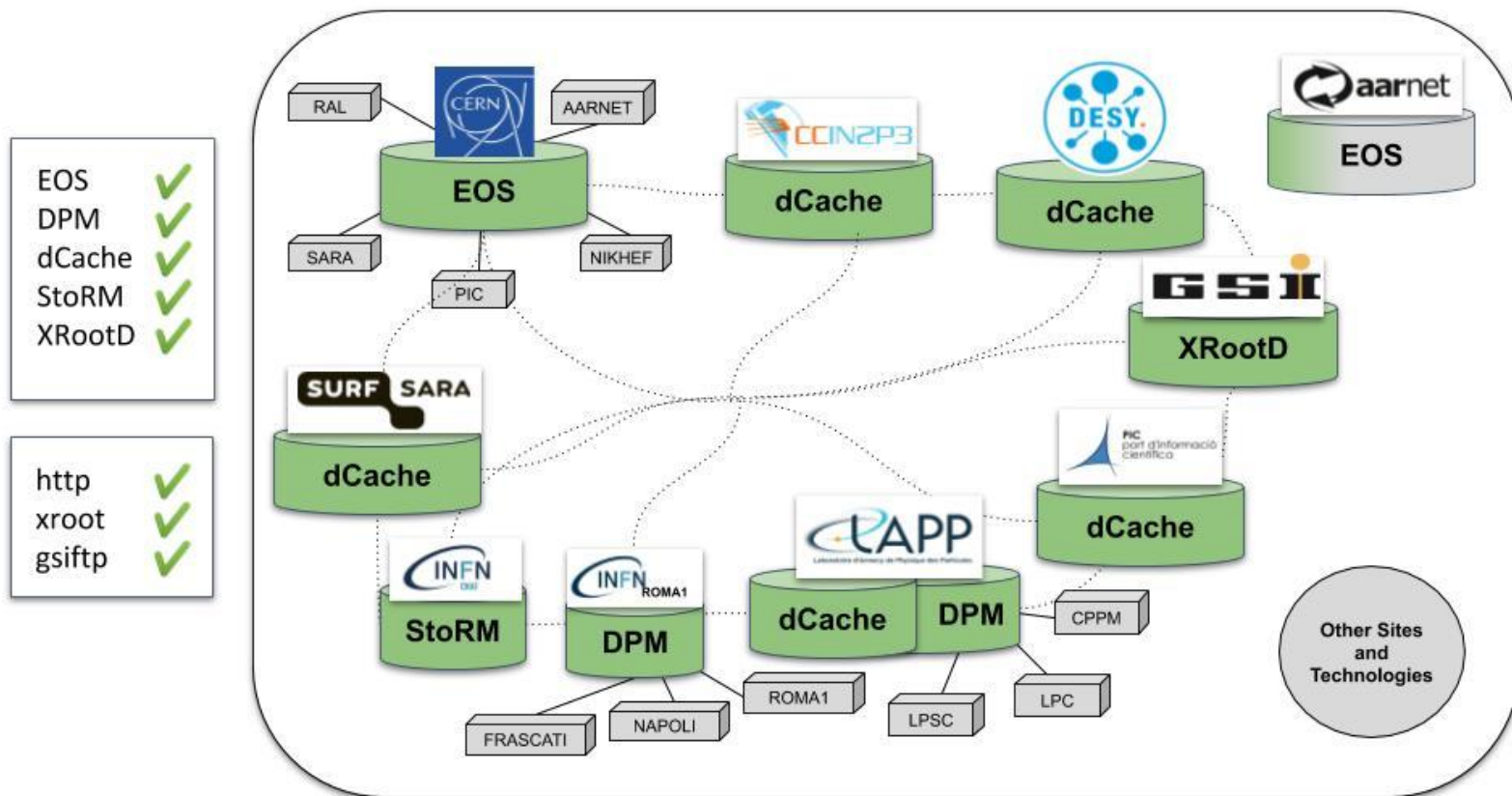
~~Simone Campana~~ Xavier Espinal (CERN) as WP leader, Rosie Bolton (SKAO) as deputy



Rucio to be used as the Data Management System



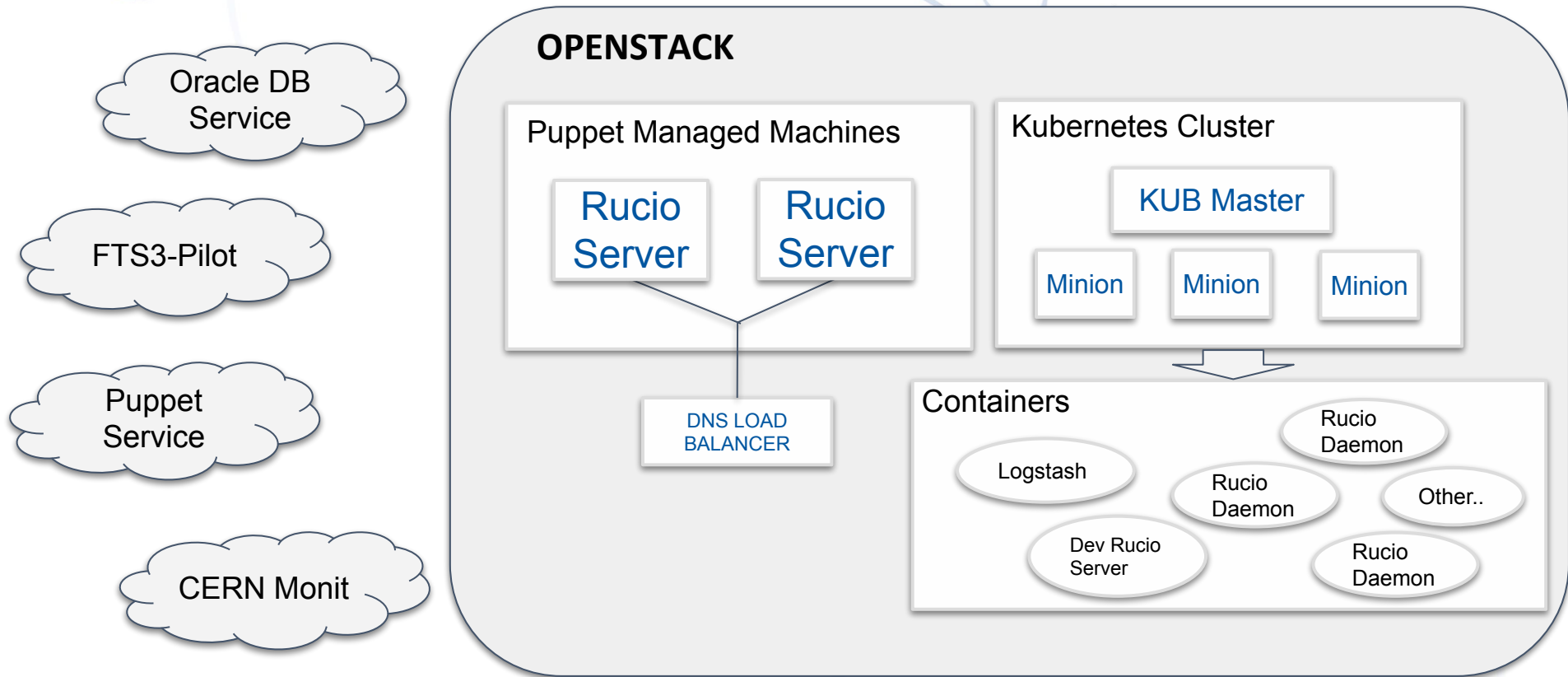
Current RSEs



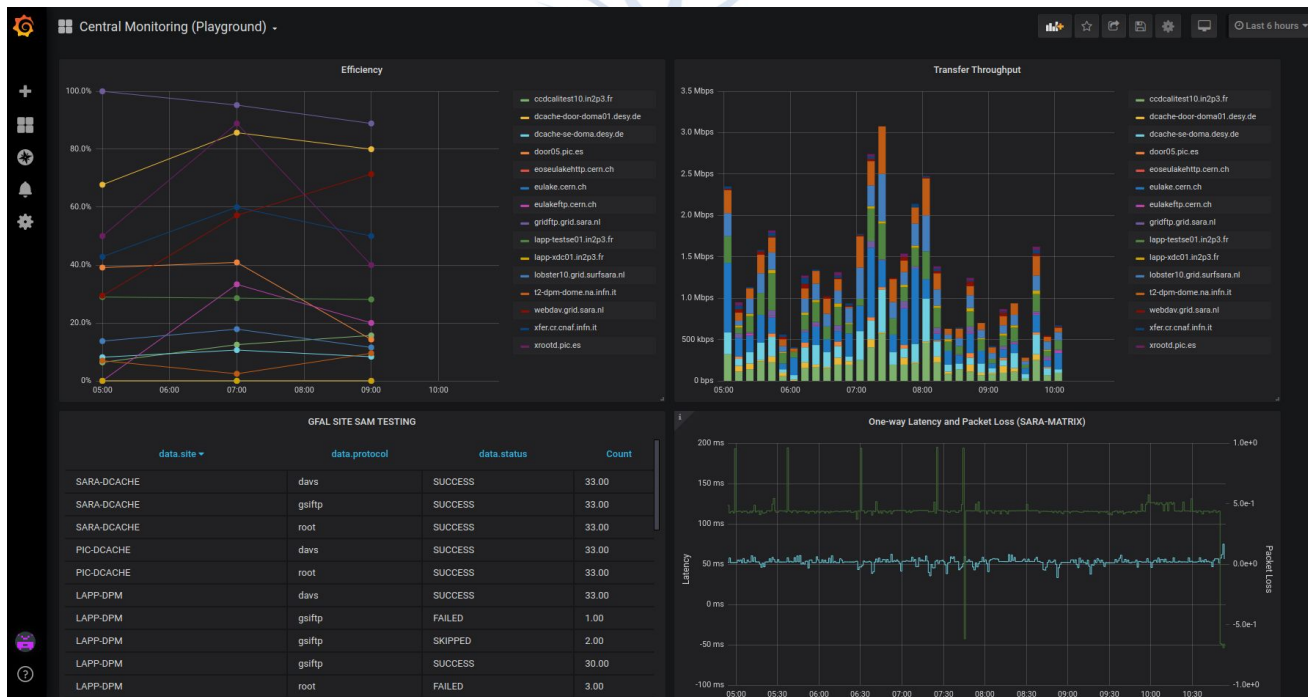
ESCAPE WIKI: https://wiki.escape2020.de/index.php/WP2_-_DIOS#Datalake_Status



ESCAPE Rucio Infrastructure



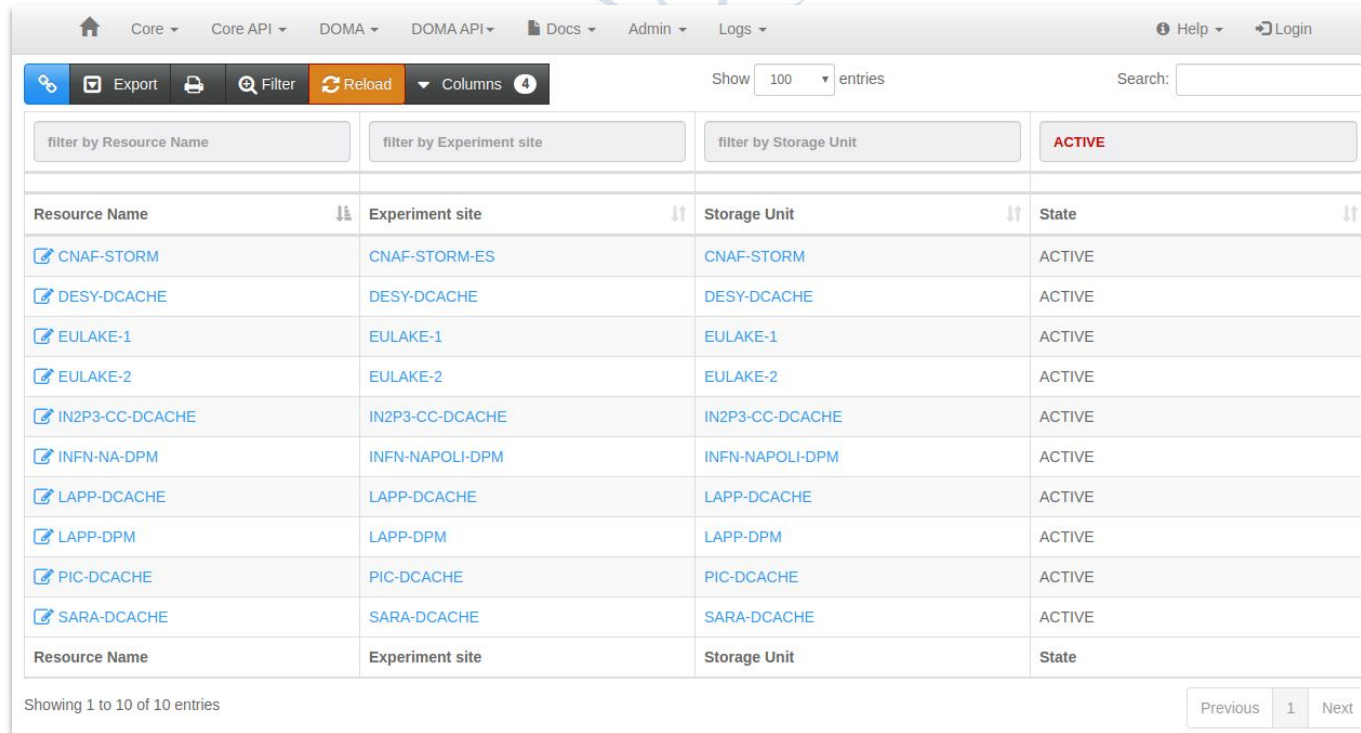
- Monit-Grafana as Central Monitoring Solution
- Use Monitoring Data already there (Host Metrics, perfSONAR, FTS)
- Push data from Hermes and custom scripts



RSE Configuration - CRIC Information System

- Syncing from CRIC
 - RSE Attributes
 - Protocols
 - Distances

- One way sync, CRIC is considered the master of information



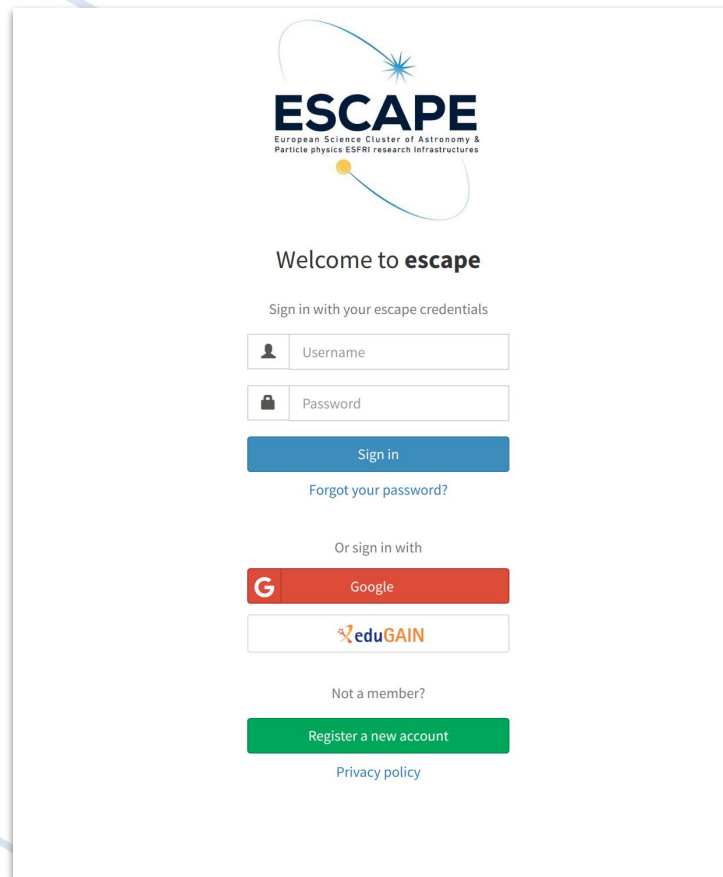
The screenshot shows the CRIC Information System interface. At the top, there are navigation menus for Core, DOMA, Docs, Admin, and Logs. Below that is a toolbar with buttons for Export, Filter, Reload, and Columns. The main content is a table with columns for Resource Name, Experiment site, Storage Unit, and State. The table lists 10 entries, all with a state of ACTIVE. At the bottom, there is a pagination control showing 'Showing 1 to 10 of 10 entries' and buttons for Previous, 1, and Next.

Resource Name	Experiment site	Storage Unit	State
CNAF-STORM	CNAF-STORM-ES	CNAF-STORM	ACTIVE
DESY-DCACHE	DESY-DCACHE	DESY-DCACHE	ACTIVE
EULAKE-1	EULAKE-1	EULAKE-1	ACTIVE
EULAKE-2	EULAKE-2	EULAKE-2	ACTIVE
IN2P3-CC-DCACHE	IN2P3-CC-DCACHE	IN2P3-CC-DCACHE	ACTIVE
INFN-NA-DPM	INFN-NAPOLI-DPM	INFN-NAPOLI-DPM	ACTIVE
LAPP-DCACHE	LAPP-DCACHE	LAPP-DCACHE	ACTIVE
LAPP-DPM	LAPP-DPM	LAPP-DPM	ACTIVE
PIC-DCACHE	PIC-DCACHE	PIC-DCACHE	ACTIVE
SARA-DCACHE	SARA-DCACHE	SARA-DCACHE	ACTIVE



Account Synchronization - INDIGO IAM

- Populating user base from IAM-ESCAPE
- ESCAPE specific INDIGO instance deployed at INFN-CNAF
- Currently only mapping Usernames to Accounts and X509 Certificates to Identities
- Groups and Token Based Authentication are ready on IAM-ESCAPE side, WIP for ESCAPE Rucio



The screenshot shows the ESCAPE login interface. At the top is the ESCAPE logo with the text "European Science Cluster of Astronomy & Particle physics ESFRI research Infrastructures". Below the logo is the heading "Welcome to **escape**". The main section is titled "Sign in with your escape credentials" and contains two input fields: "Username" and "Password". Below these fields is a blue "Sign in" button. A link "Forgot your password?" is positioned below the "Sign in" button. The next section is titled "Or sign in with" and features three options: a red "Google" button with the 'G' logo, a white "eduGAIN" button with the 'eduGAIN' logo, and a green "Register a new account" button. At the bottom, there is a link for "Privacy policy".



Rucio developments particularly interesting to ESCAPE

- Multi VO Rucio
- AAI - Token Based Authentication
- Rucio - DIRAC integration
- Qos



ESCAPE Contributions to Rucio

- Updating to latest version constantly, reporting issues on Rucio Slack
- Minor bug fixes [#3065](#) [#2911](#)
- Making the Rucio Importer configurable and RSE Cric synchronization probe [#3104](#)
- Metadata Interface (Work In Progress) [#3096](#)
- QoS (Upcoming Work)



Thank you!

Questions?

Comments?



Backup Slides



- **31** partners (including 2 SMEs)
- **7** ESFRI projects & landmarks: CTA, ELT, EST, FAIR, HL-LHC, KM3NeT, SKA
- **2** pan-European International Organizations: CERN, ESO (with their world-class established infrastructures, experiments and observatories).
- **4** supporting ERA-NET initiatives: HEP (CERN), NuPECC, ASTRONET, APPEC
- **1** involved initiative/infrastructure: EURO-VO
- **2** European research infrastructures: EGO and JIV-ERIC
- Budget: **15.98 M€**
- Started: **1/2/2019**
- Duration: **42** months (end date 31/7/2022)
- Coordinator: **CNRS**

