



# Technical Talk

*Majid OUNSY on behalf of SOLEIL-EXPANDS team*

*8<sup>th</sup> of October 2020*



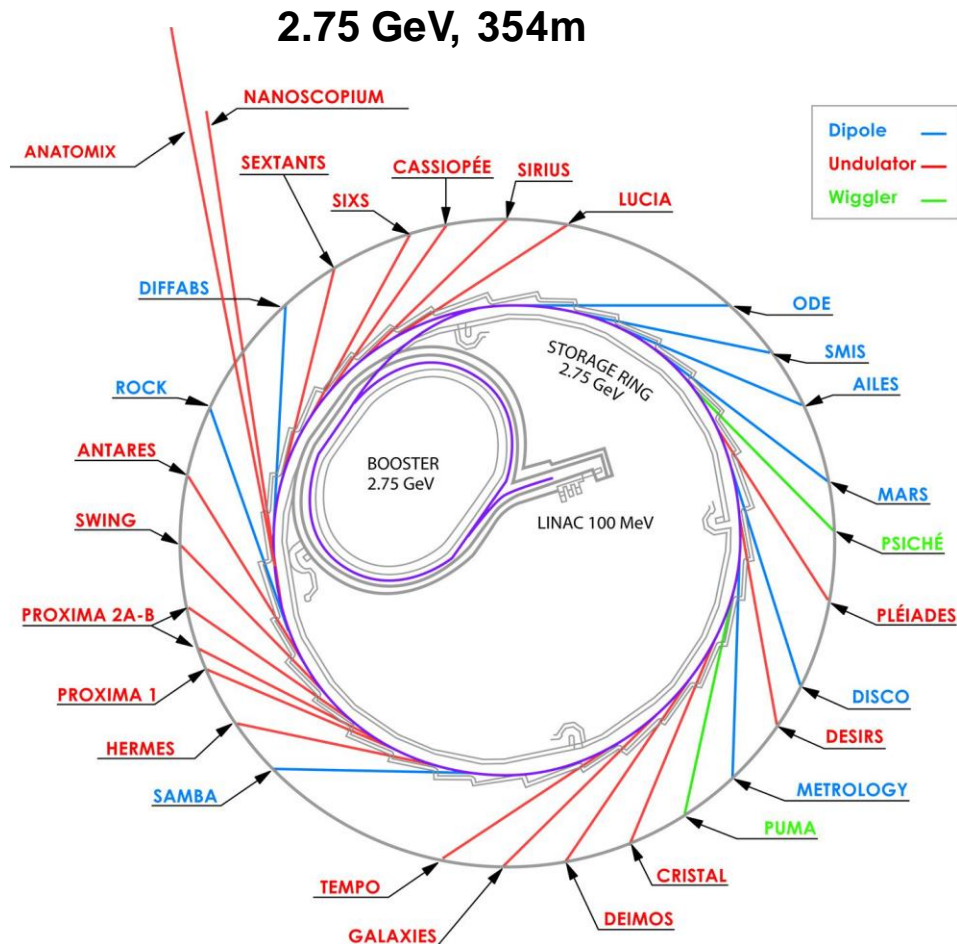
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# Overview

- SOLEIL and ExPands team
- The Portal Architecture test experience
- COVID and the impact on the IT staff

# Synchrotron SOLEIL in a nutshell

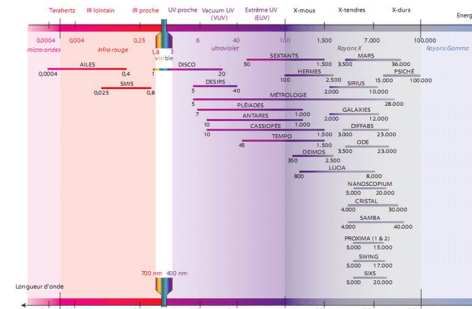
Located near Paris, France  
Open to users since 2008



## 29 Beamlines in operation :

- ✓ 26 built in 2 phases; then 3 on project funding.
- ✓ 24 on insertion devices; 5 on bending magnets.

## 9 orders of magnitude in energy:



- Support laboratories in 5 areas: Biology (2), Chemistry (2), Surface Science, High pressure, Microfluidics.

1455 proposals in 2019 : 604 accepted ;  
2888 unique users in 2019 from ~900 laboratories  
(65% from France; 26% from UE; 9% other countries)

# Team

WP2 (Fair Data) & WP3 (Data Catalog) :

**Brigitte Gagey** (IT Strategy), **Idrissou Chado** (Management Information System) and Myself

WP4 (Data Analysis Services) :

**Alain Buteau** (Information System Infrastructure), **Emmanuel Farhi** (Data Reduction and Analysis) and Myself

WP5 (Training):

**Thibaud Cayla** and **Nazaré Guimard** (Scientific Partnerships)



To be hired: open position

[Software Engineer](#)

Expertise in web technologies (Full Stack)

Will contribute to WP3 Data Catalogue



To be hired: open position

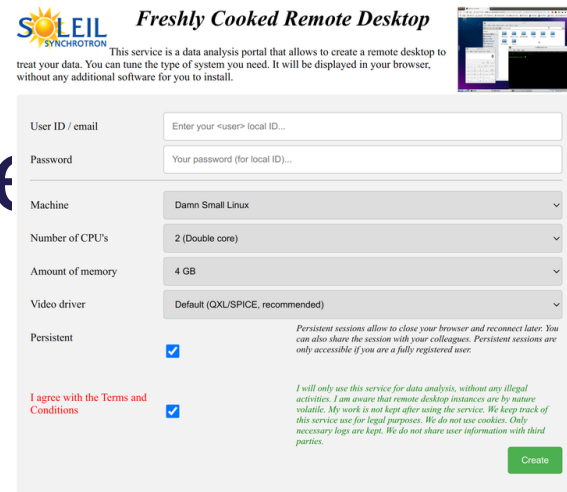
[Cloud and DevOps Engineer](#)

Expertise in HPC cluster and Kubernetes

Will contribute to WP4 Data Analysis Services

# The Portal Architecture test experience

- Portal yet to be installed
  - lack of resources (still waiting for people to be hired)
- gap between what's in SOLEIL and what the Portal needs?
  - We don't have operational kubernetes infrastructure.
- High priority needs
  - Slurm is heavily used at SOLEIL → need for a Slurm module to connect the Portal to our HPC infrastructure



# The Portal Architecture test experience

Lack of current resources + urgent needs for remote  
Solution → lightweight temporary solution

→ Testing/Prototyping a QEMU/noVNC on-demand VM service for Data Analysis.

<https://github.com/farhi/remote-desktop>

- Machines are launched on demand. Specify CPU/mem/system. Can attach GPU with 100% native speed.
- Runs on a 128 threads test machine/256 GB/4 GPUs. Will be ported to a set of load balanced servers.
- Similar to VISA in UX. Very simple architecture.
- VM: 300GB disk with Debian Buster and MANY apps/libs.

→ Testing JupyterHub with LDAP auth and access to experimental data.

- Jupyter Kernels: Python, R, Julia, Matlab, ...
- Runs on our dev server above.





# COVID-19 and the impact on IT staff roadmap

For 2020, the IT staff had to change its priorities :

Done in a hurry :

- Means for widespread teleworking:
  - Configuration of a virtual PC with minimum SOLEIL applications (Antivirus , windows update , VPN client and CITRIX connection) to be deployed on home computers
  - Larger number of VPN licenses
  - Teamwork :
    - global activation of RENATER Drive cloud storage solution for all SOLEIL employees (was previously under test and limited to a few people)
    - Videoconferencing via RENATER solutions : Jitsimeet (RENATER Rendez-vous), Scopia (Renavisio)

# COVID-19 and the impact on IT staff roadmap

Currently focusing on:

- Means for teleworking:
  - Deploy MS Teams as Enterprise solution for videoconferencing
- Remote Access:
  - Deploy NoMachine solution for all beamlines
  - Data Transfer :
    - 0 step: use of the existing solution (Home made solution to retrieve data remotely via https: SDR)
    - 1<sup>st</sup> step: Deploy sftp server (*in parallel with our existing "Data Portal" which suffers performances limitations*)
    - 2<sup>nd</sup> step: Complete GLOBUS tests
- Remote Control & Data Analysis Services
  - Set up of a Work Group to come up in a near future with a global and standard solution