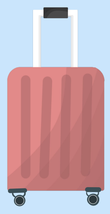
XENON

Explore the invisible

LIFE @ Xe

Travelling a lot

- **2 Collaboration Meetings** per year
- Wanna go to a specific **conference**? **Ask directly** to the bureau
- **In-person** analysis Workshops
- **Visiting** period, why not?



In XENON you do not perish

- XENON publishes on average **6 papers per year** (considering 2018-2022). See here
- Check the INSPIRE page of XENON

Big young community

- We are **180** scientists
- The majority is represented by **PhD students** and **young post-docs**
- **Experts** of XENONnT systems and analysis **coordinators** are in the vast majority of cases **young researchers**
- The discussion environment is **inspiring** and chill

On-site duties

- Being on-site means that **you can follow** every **underground operation**
- Opportunity to meet **experts** from all over the World

Xe LOCAL GROUP

X s2 position

You?

INFN LNGS

DARWIN

R&D

R&D ACTIVITIES YOU CAN JOIN

- **ABALONE** — PHOTOSENSORS
- **SiPMs** — PHOTOSENSORS
- **ELECTRODES** — Novel prototypes
- **WAVELENGTH SHIFTERS** — Light Collection Efficiency studies

JOIN US

We are **happy** to **welcoming** you in our group!
We have **n ton** projects you can follow for **your thesis**!

Want some more info?
Write to:

alfredo.ferella@aquila.infn.it
marcello.messina@lngs.infn.it

Or pass by Cecilia's office in ex-INPS building.

Xe DETECTOR - LNGS HALL B

DAQ System

- The DAQ system is not just about digitizers. It also comprises all the **software** that makes possible the data acquisition.
- You will have the opportunity to work with very young researchers
- Interested in a visiting period abroad? DAQ experts are located in **Germany** and in the **Netherlands**

Purification System

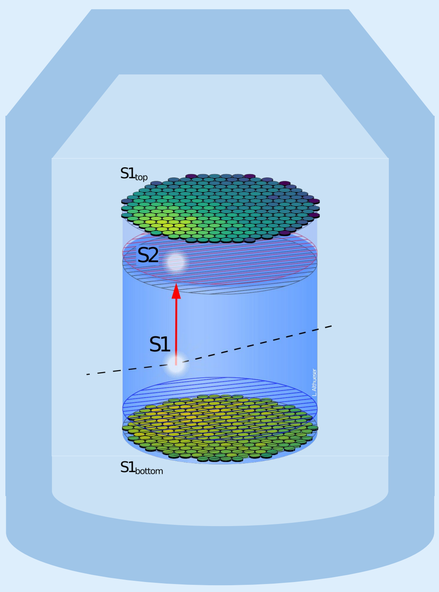
- Rn purification system needs an **upgrade.**
- You can be part of the team **involved** in on-site operations allow XENONnT to reach the **lowest background ever reached**.
- Opportunity to **become an on-site purification and distillation expert**
- Interested in a visiting period abroad? Purification and distillation experts are located in **US**, **Germany** and **Japan**.

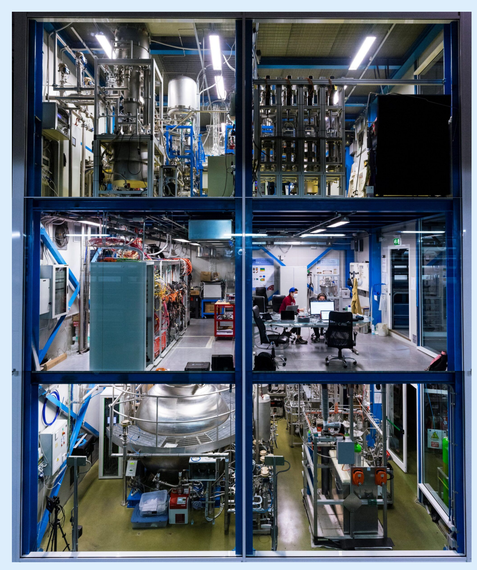
Cryogenic System

- Cryogenic system is central in the XENONnT experiment. Working on a such sophisticated system will allow you to operate every other little chambers, like the ones we have in LNGS-lab 7.
- Opportunity to **become an on-site expert**
- Interested in a visiting period abroad? Cryogenic experts are located in **NY** and **Japan**

Gadolinium Plant

- The **upgrade** of gadolinium plant is planned for the near future. You can be part of the team **involved** in **finalization** of the project and **data analysis**.
- Opportunity to **become the expert** on-site and to be the one **improving** the **WIMP searches** for the current science run





ANALYSIS

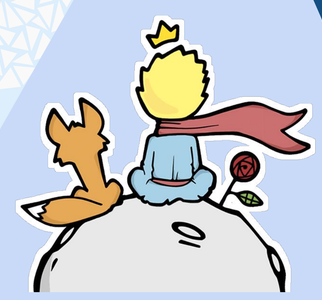
- **S2 only**
  - Sub-Gev DM
  - Migdal effect
  - Supernova Grav. Waves
- **Low E ER**
  - Solar pp ν
  - ^{124}Xe 0νECEC
  - Solar axions
- **NR**
  - 8B CEνNS
  - Mirror DM
  - SI-SD WIMPs
- **High E ER**
  - ^{136}Xe $\beta\beta$
  - Cosmic muons
  - Millicharged particles

Why should you join us if you want to do high-level analysis?

- Because we have **brand new data** and in the next years we will **publish unprecedented results** on never-explored-before physics (not only dark matter)
- Because the working groups are **young** and the environment is super **stimulating**
- Because we code in **python** and if you have any problem you can ask on **slack** and somebody will help you out

What do I do?

- I do **high-level analysis** with XENONnT data in the **high-E ER** channel
- I am developing with other 3 PhDs a novel model and inference software, **flamedisx**
- I give also an hand in the **photosensor** lab @ LNGS
- I join **underground operations** when I am interested in



It is only in the heart of the mountain that one can see rightly;
What is fundamental in physics is invisible to the eye.

Edited from Antoine de Saint-Exupéry, The Little Prince