General Meeting

3 Apr 2025

News

- On the fifth of May, LIME was shutdown;
- Gas flow and high voltage are now Off, and in the next weeks the decommissioning will start

	Time slot	Number of pictures	Event rate	Number of events
RUN 1: No-shielding	3 Nov 2022 - 15 Dec 2022	$4\ 10^5$	35 Hz	$4\ 10^6$
RUN 2: 4 cm Cu shielding	15 Feb 2023 - 15 March 2023	$4.5\ 10^5$	3.5 Hz	$5\ 10^5$
RUN 3: 10 cm Cu shielding	5 May 2023 - 16 Nov 2023	$1.6\ 10^6$	1.5 Hz	$7.3\ 10^5$
RUN 4: 10 cm Cu + 40 cm water shielding	30 Nov 2023 - 31 March 2024	$2\ 10^6$	1.0 Hz	$6\ 10^5$
RUN 5: 10 cm Cu shielding (neutron flux measurements)	17 May 2024 - 1 Dec 2024	$12\ 10^6$	1.5 Hz	$5.4\ 10^6$

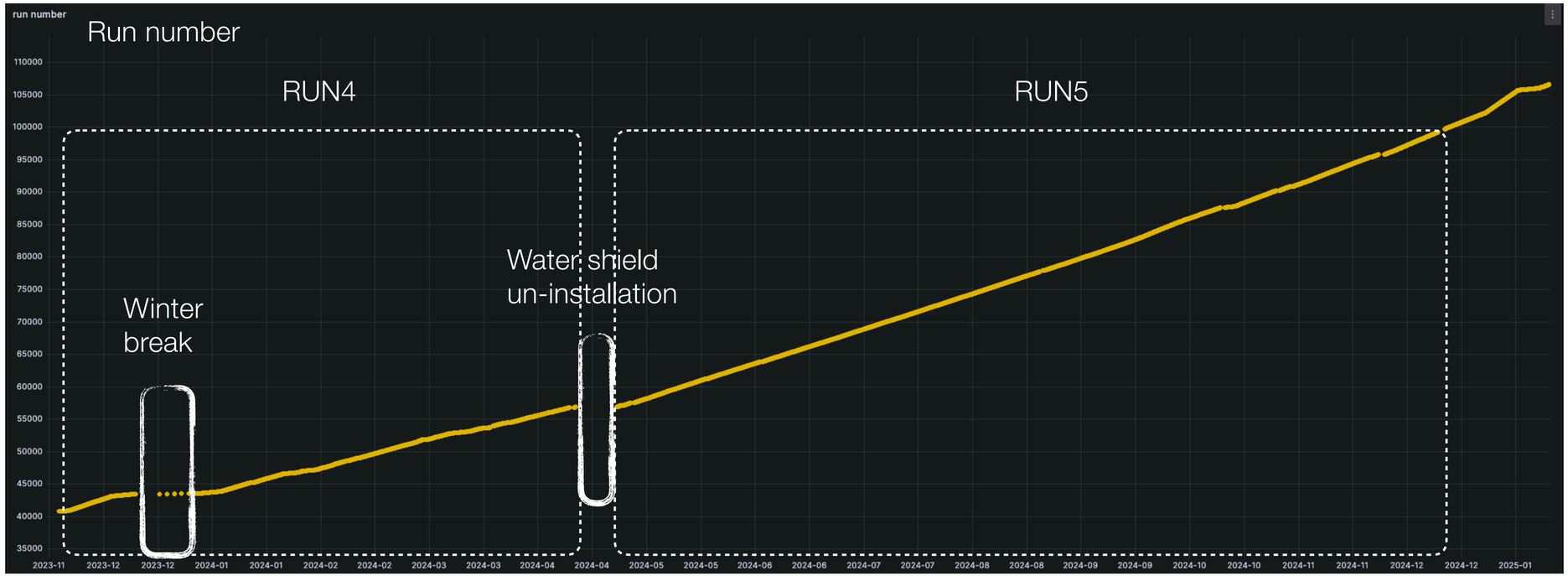
Special data takings

AmBe for Nuclear Recoils	2-4 Aug 2023	$2\ 10^5$	0.04 Hz of NR	$2.5\ 10^3$ NR
^{241}Am for Electron Recoils	7-16 Nov 2023	$7\ 10^5$	50 Hz	10^6
AmBe for Nuclear Recoils	5-15 Dec 2024	$6\ 10^5$	0.04 Hz of NR	$7.0\ 10^3$ NR

Ancillary systems: DAQ, Slow control

Data taking started in October 2023 never stopped;

More than **7x10^4 runs** have been taken for a total of **28 x 10^6 pictures**;



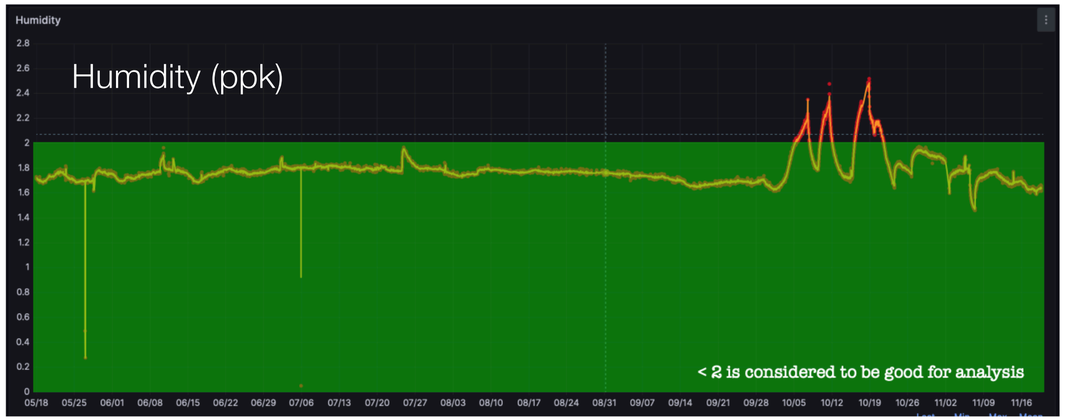
All of them have been **promptly transferred** on the INFN-Cloud and **reconstructed**;

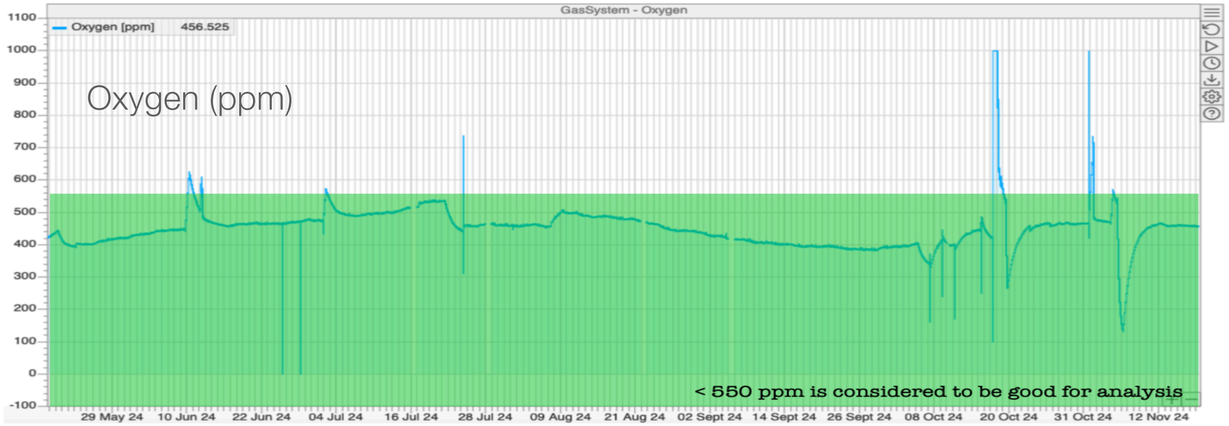
Reco-files are made available to the CYGNO users **few minutes after** the run was taken;

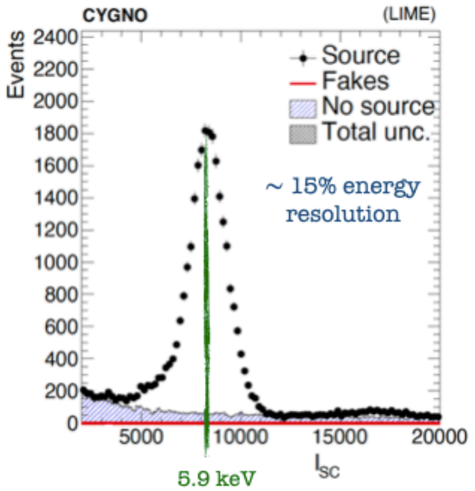
Ancillary systems: Gas and HV

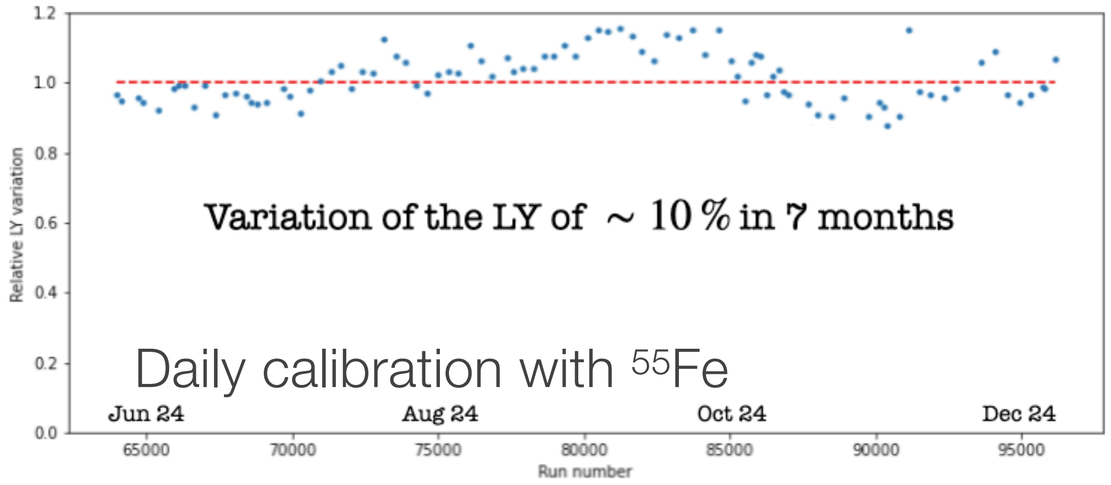
Less than one **spark-**like every 3 days was recorded in 2024 (12 times lesser than previous best limit …)

Gas **humidity, oxygen** and other **contaminants** were **under control** for the whole **2024**









Detector calibration with **^{55}Fe** is now a **completely automated** procedure and showed a **stability with 7% RMS** over 6 months

LIME data analysis

- A huge amount of data were collected;
- despite the large amount of work of the young people in particular, much of the data collected has not yet been fully analysed and the studies of some of the detector performance were just touched:
  - 3D reconstruction;
  - ER/NR identification;
  - directionality sensitivity;
  - detection efficiency for low energy interactions (sub-keV);
- I invite all people to actively contribute to this effort;