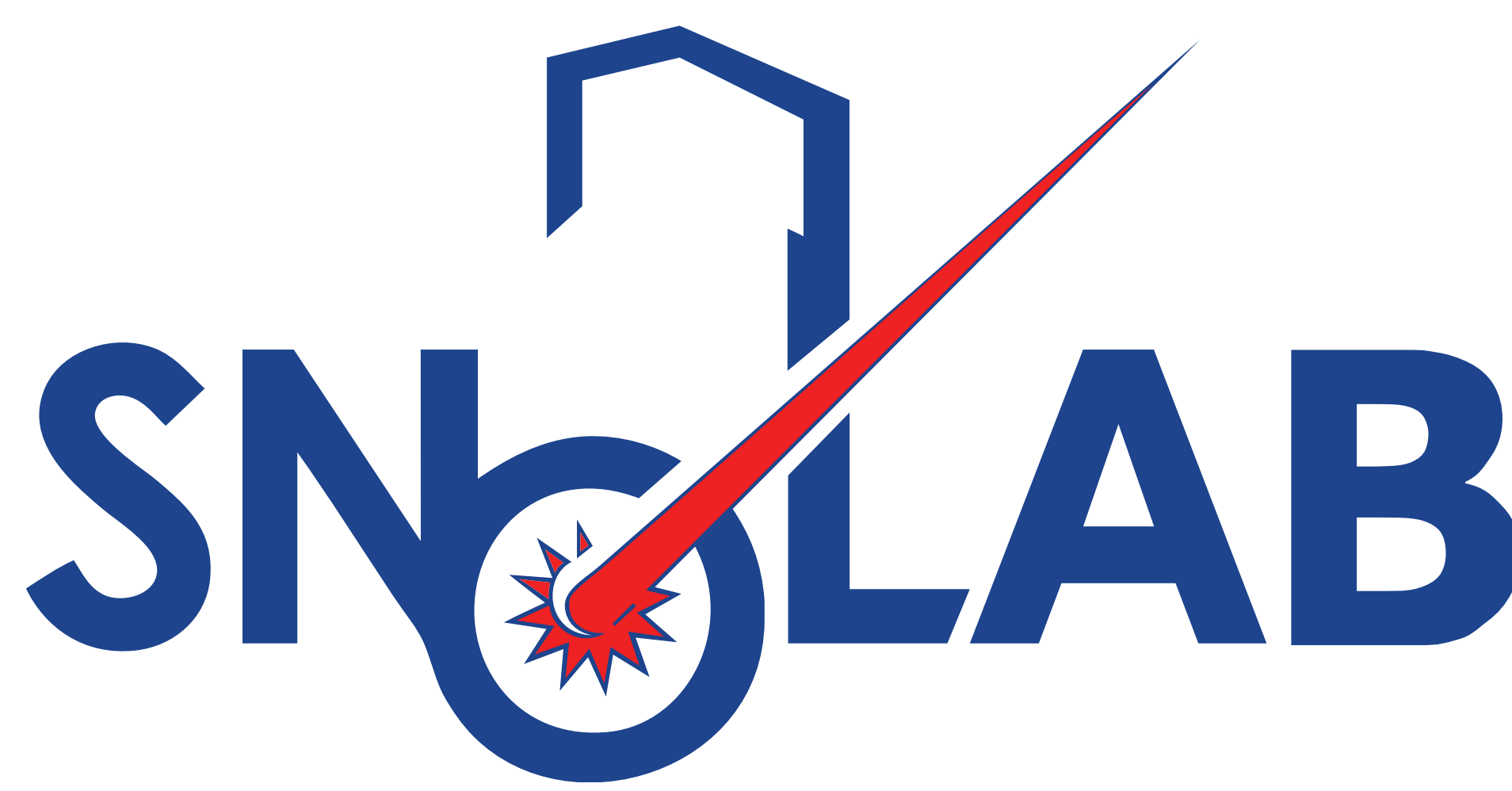


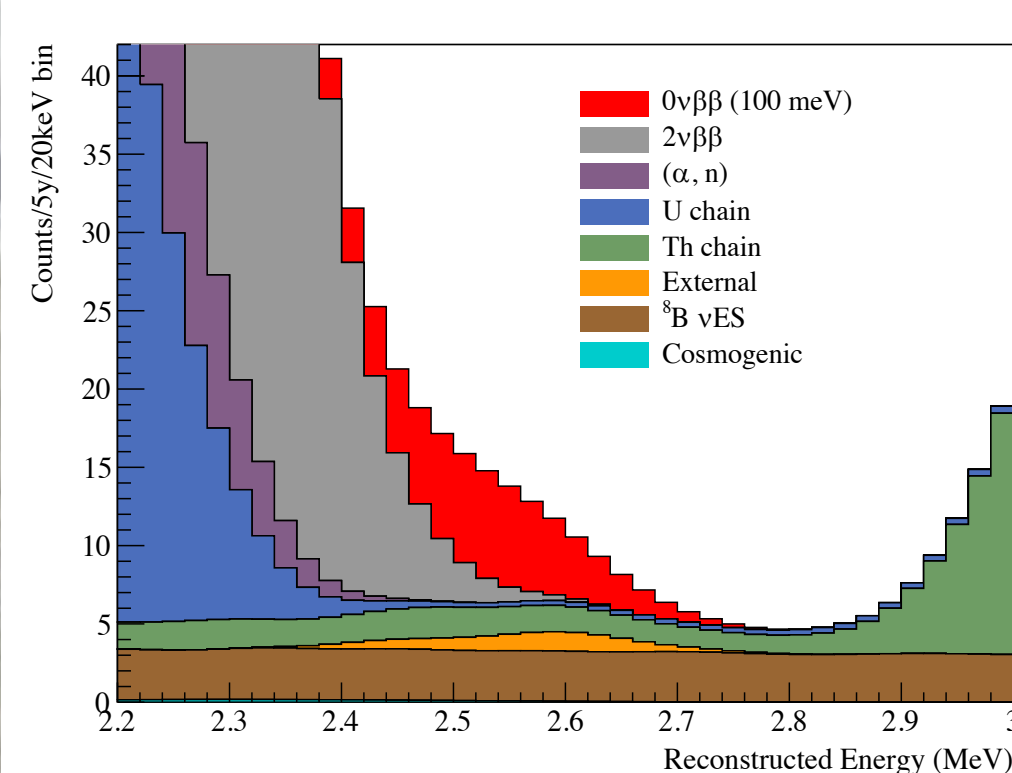
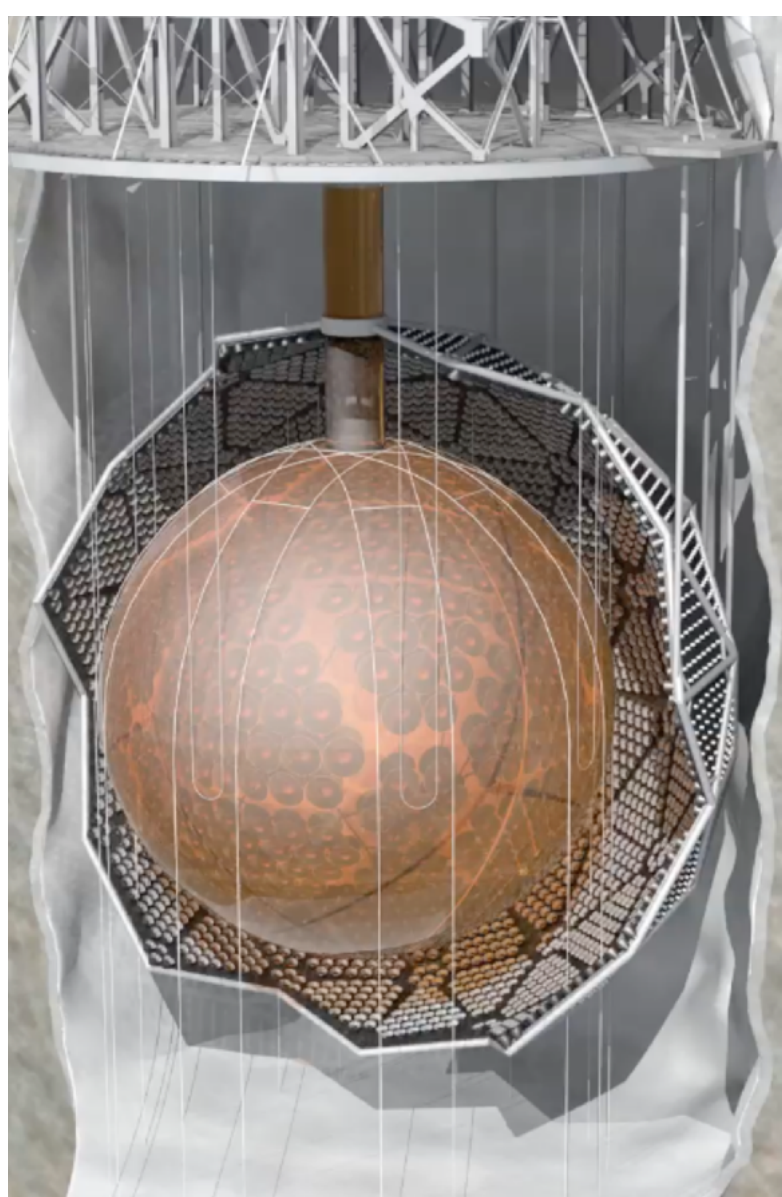


SNOLAB is a 5000 m² facility, 2 km underground in Sudbury, Ontario, Canada. Operating in an active mine site, the entire laboratory is maintained as a Class 2000 clean room.

Vision: To be an internationally recognized laboratory and partner of choice for deep underground science, delivering world-class research, scientific discovery, and benefits to Canada and her global partners, by facilitating national and international access to its unique capabilities, facilities, and expertise.

1 SNO+

- Double Beta Decay, Te-130
- Reactor antinu
- Geo antinu
- Solar nu
- Supernovae
- **Nucleon Decay**



After 5 years:

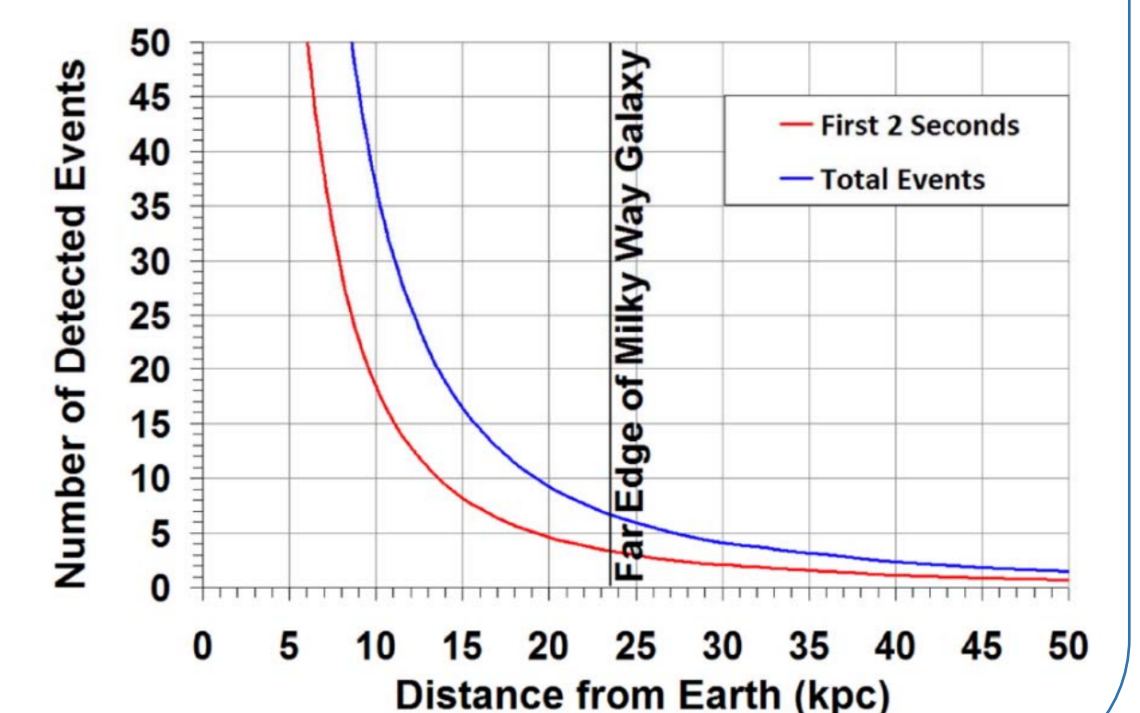
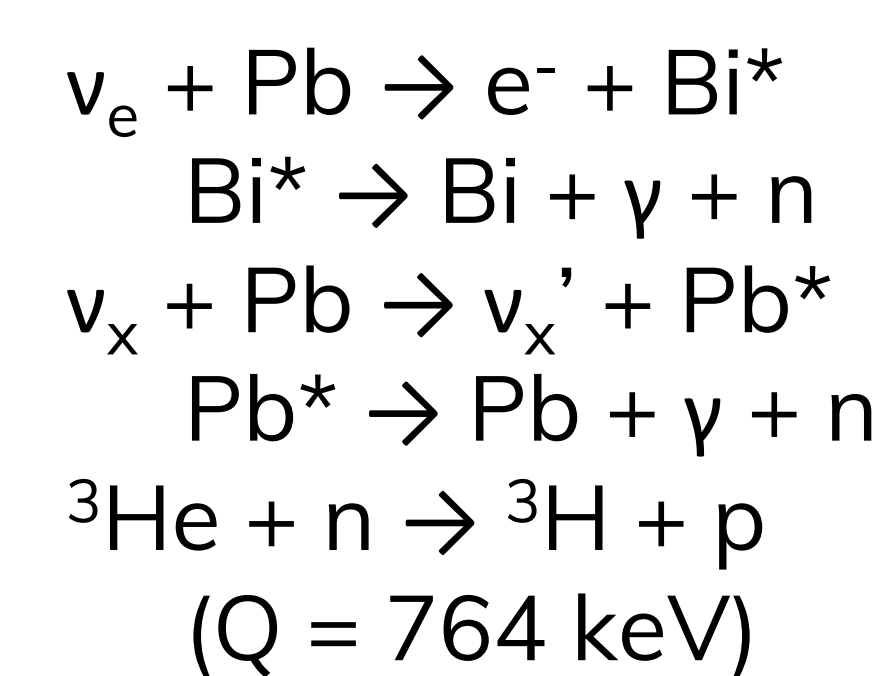
$$T_{1/2} > 1.9 \times 10^{26} \text{ yrs}$$

$$m_{\beta\beta} \approx 41 - 99 \text{ meV}$$

2 HALO



Lead has a large ν -scattering cross section and a low n-capture cross section, making HALO sensitive to ν_e , complementing water Cherenkov and scintillator detectors.



Facility Expansion & 3 Low Background Laboratory

Low Radon Air Supply:

Currently, ambient radon levels in the UG lab are 135-150 Bq/m³. A radon free room will be constructed for sample preparation and sample storage underground. Surface air (3 – 9 Bq/m³) will be used and further purified to reduce radon levels to the order of $\sim 0.1 \text{ Bq/m}^3$.

Surface Clean Lab Counters:

- XIA Alpha Detector: $< 0.0001 \alpha/\text{cm}^2/\text{hr}$
- Beta-Alpha PSD Coincidence Counters
- Electrostatic Counters (ESCs)

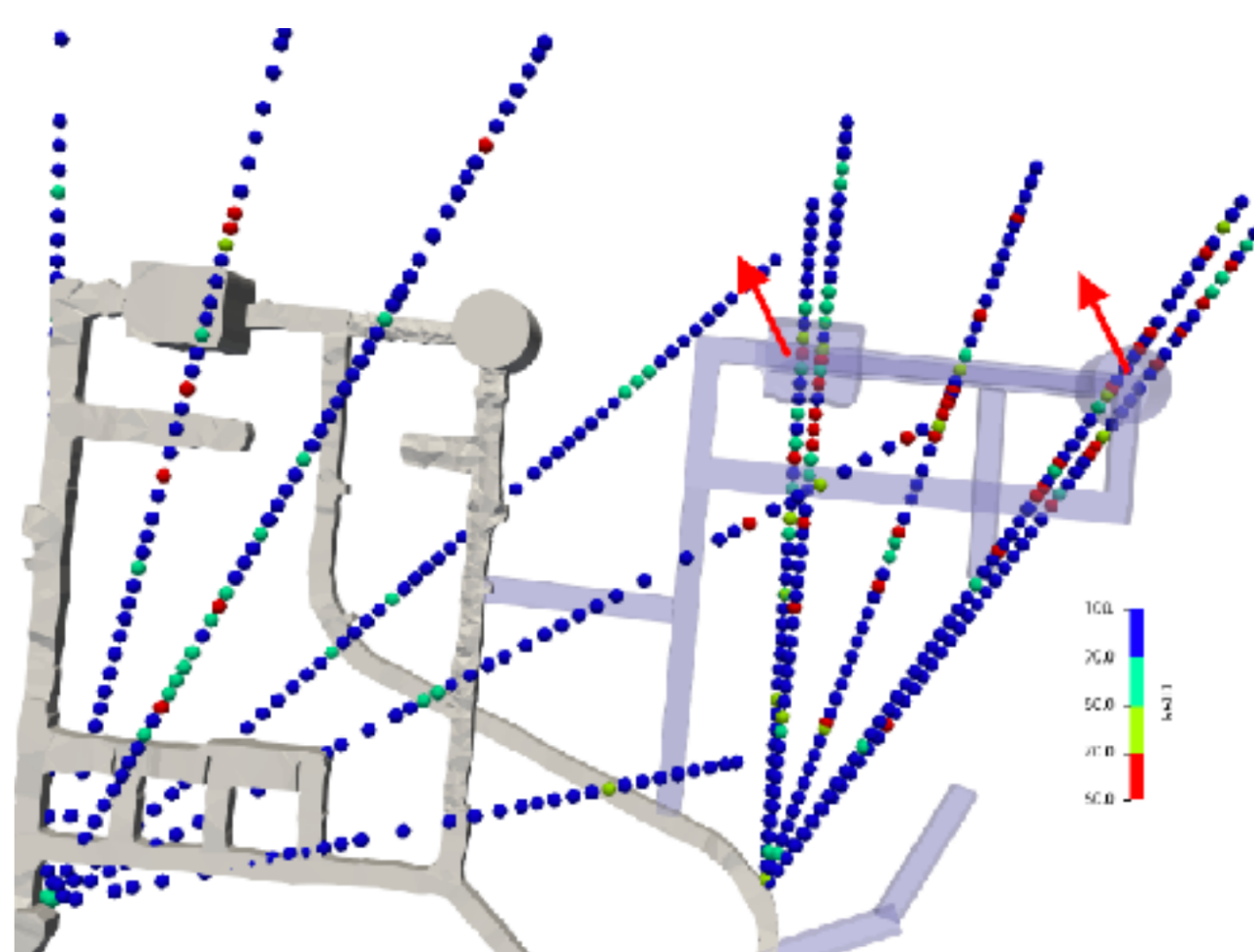
Low Background Lab Counters:

- PGT Ge Detector
- Canberra Well Ge Detector
- Canberra Large Ge Detector
- Gopher HPGe Detector (shown)
- Vue des Alpes Ge Detector
- XRF Detector
- Tennelec Alpha Counters
- Radon Emanation Board



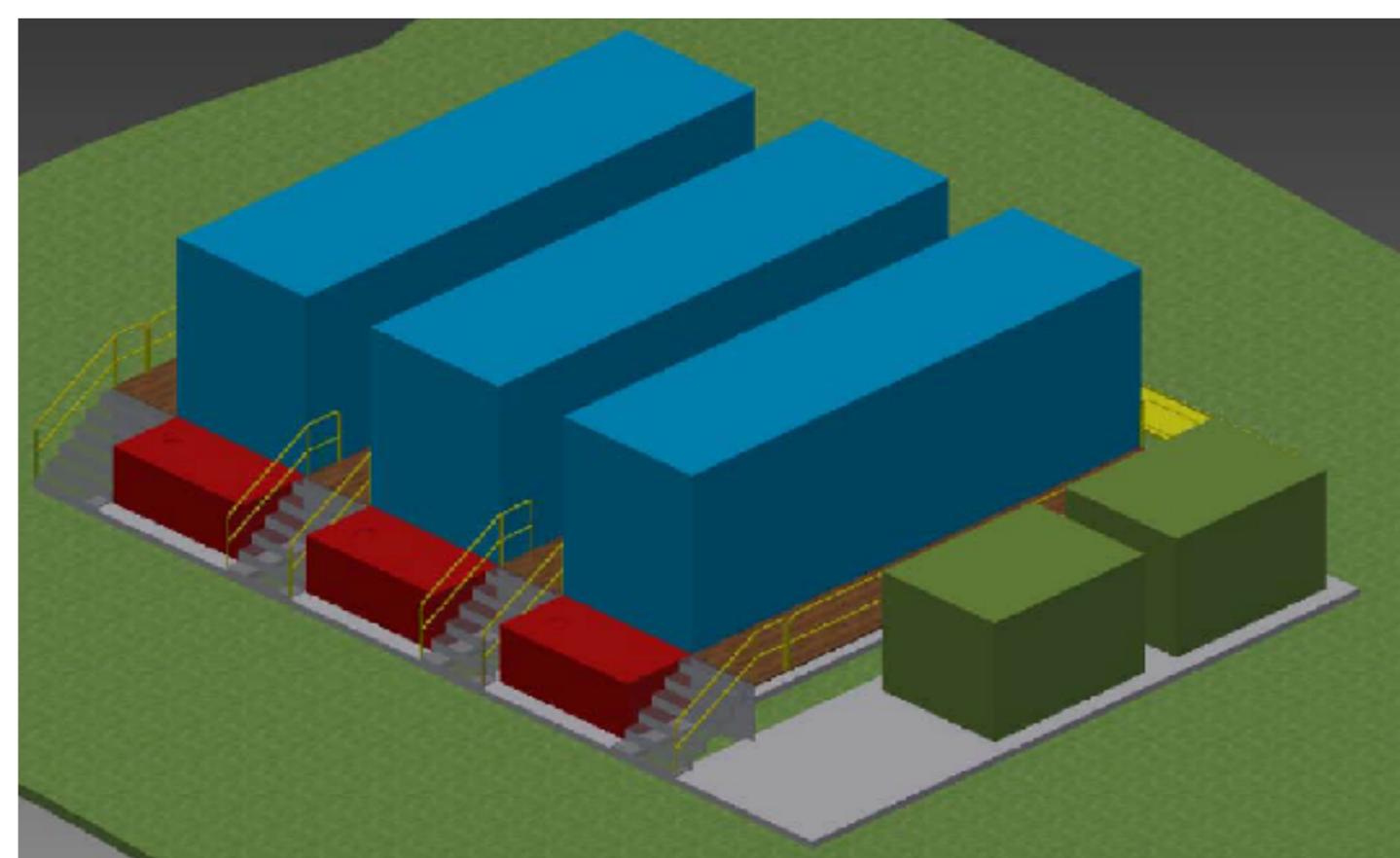
4 Exploratory Drilling:

Explore the possibility of adding two large halls similar in size to the Cube Hall and Cryopit to meet the needs of future experiments. It is possible to excavate new experimental space on 6800 level.



Backup Diesel Generators:

Three 1-MW diesel generators located on surface will have the capacity to run the entire underground lab now and for the foreseeable future.



5 Next Generation $0\nu\beta\beta$ Experiment

SNOLAB anticipates hosting a next generation Neutrinoless Double Beta Decay Experiment in the Cryopit:

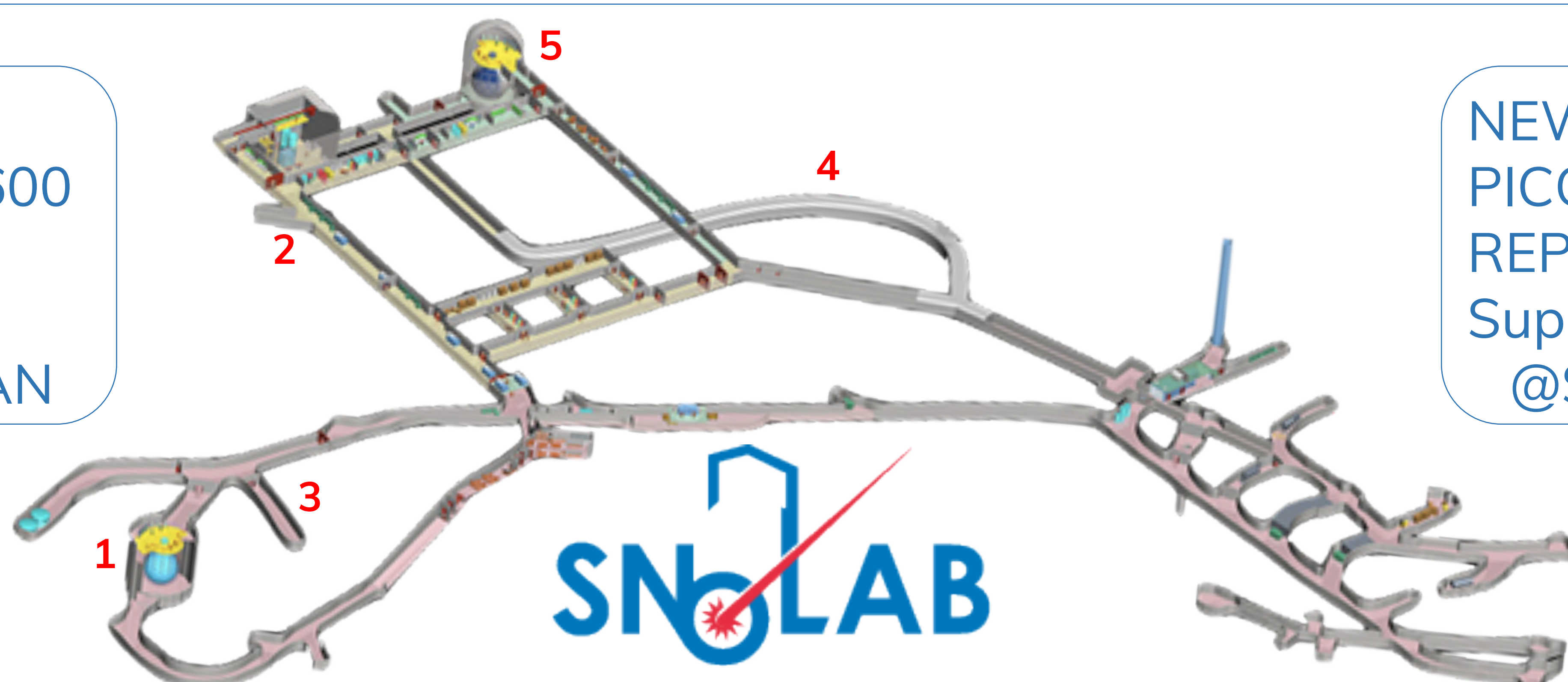
nEXO: 5000 kg enriched LXe TPC, extrapolated from EXO-200

LEGEND: 1200 kg enriched Ge, expands on GERDA and MAJORANA DEMONSTRATOR

SNOLAB eagerly awaits the results of the US DOE/NSF down-select process.

DAMIC
DEAP-3600
CUTE
FLAME
MiniCLEAN

NEWS-G
PICO
REPAIR
Super CDMS
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