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SNOLAB: 15 Year Plan

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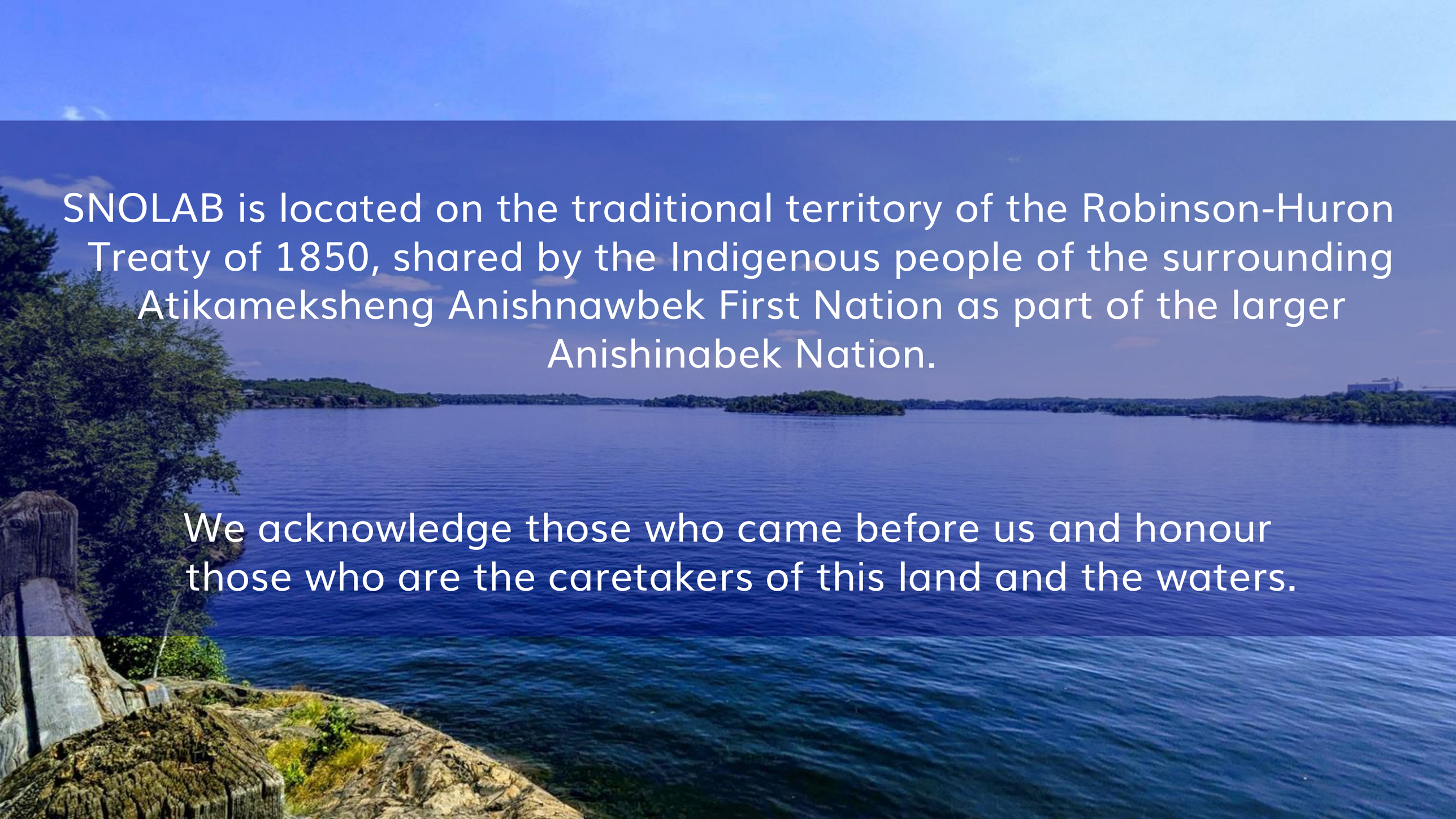


SNOLAB is located on the traditional territory of the Robinson-Huron Treaty of 1850, shared by the Indigenous people of the surrounding Atikameksheng Anishnawbek First Nation as part of the larger Anishinabek Nation.

We acknowledge those who came before us and honour those who are the caretakers of this land and the waters.

15 Year Plan: Why Now?

New decision-making framework was introduced in the 2024 Canadian federal budget to support Canadian Major Research Infrastructures.

– *Six research facilities introduced including SNOLAB*

Central Pillar Lifecycle funding for designated facilities

– *Requires CFI to assess long-term capital and operational needs of each MRF*

SNOLAB was asked to provide detailed and reliable budget estimates for the next 15 years under three budget scenarios.

1. *Maintaining current levels of operation*
2. *Fully supporting the needs of the Canadian research community*
3. *Increasing global competitiveness.*

Process for Developing the 15 Year Plan

- **Engagement with SNOLAB staff (Dec and Jan).**
- **Roth consulting on asset management plan and JLR & EXP consulting on architectural estimates.**
- **Multiple engagements with SNOLAB community.**
  - SEF meeting
  - SNOLAB Future Projects
  - Town Hall at CAP
  - Annual MI meeting

Delivery of World-Class Science: Astroparticle and Neutrino Physics, Quantum Techologies, UG Biology

Future Project Workshop: many ideas for potential experiments

- Deep Underground Biology
- HeLIOS (superfluid He)
- Small-scale Experiments for light dark matter
- Cryogenic solid-state detectors for dark matter detection
- Skipper CCDS and related efforts
- Liquid Noble Bubble Chambers
- 0νββ decay w/ bolometers
- R&D for normal hierarchy

- Beyond SNO+ Te
- ARGO, ARGO-lite, Darkside-LM
- nEXO 2.0
- NEXT
- XLZD
- Theia at SNOLAB

**This list is illustrative. It is not exhaustive, nor does it indicate SNOLAB approval or space allocation.*

***Community Report from the 2025 SNOLAB Future Projects Workshop. [arXiv:2507.11368]*

New Capabilities to Support Science Initiatives

Surface:

- Expansion of material assay and counting capabilities.
- Large scale equipment assembly & testing facility
- Surface quantum facility (“CUTE-0”)
- Surface bio-science laboratory w/ wet chemistry
- Radiochemistry lab
- Materials fabrication lab

Underground:

- Expansion of material assay and counting capabilities
- Expansion of services
- Materials fabrication lab
- Restoration of rail access to lab
- Second CUTE facility
- Expanded chemistry/life sciences lab
- Cleanrooms w/ reduced radon air
- 200-300 metre distillation column

This list is illustrative. It is not exhaustive.

New Campus Key Features

New building --

Scenario 1

- Located outside the industrial controlled zone
- Auditorium space large enough to accommodate current staff, collaborations, and SuSi programs, kitchenette
- Training space
- Additional surface lab space
- Additional office and collaboration space
- Warehouse

Scenario 2

- Additional surface lab, office and collaboration space

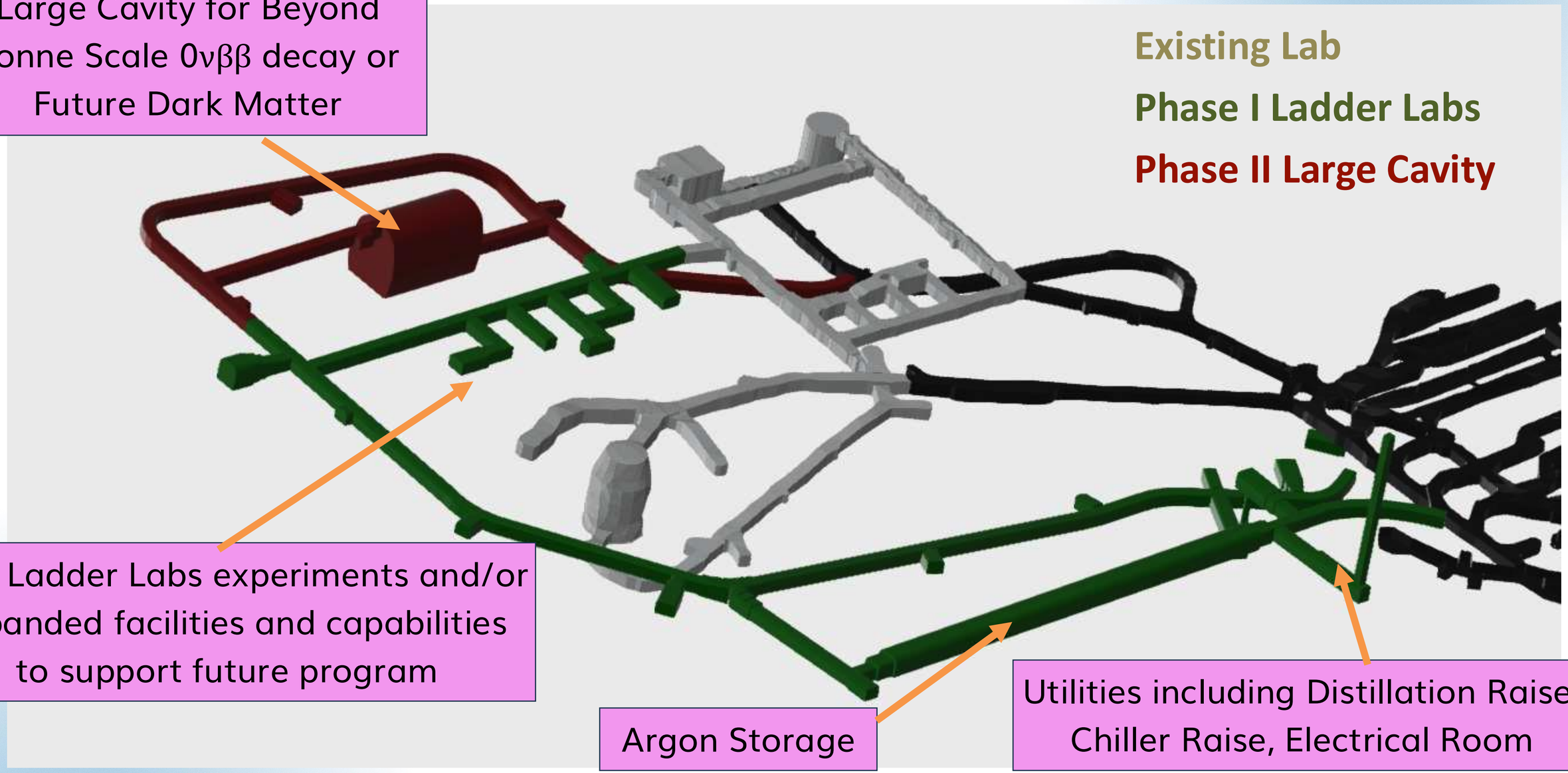
Scenario 3

- Visitor Center
- Guesthouse
- Day Care
- Cafeteria

Remodel of existing surface building to include additional “drys”.

New Underground Lab Space

Large Cavity for Beyond Tonne Scale 0νββ decay or Future Dark Matter



New Ladder Labs experiments and/or expanded facilities and capabilities to support future program

Argon Storage

Utilities including Distillation Raise, Chiller Raise, Electrical Room

15 Year Plan Summary

Maintaining current levels of operation

- Current laboratory at 100% occupancy
- New modest surface building offsite: “Lively Campus”.
- ~15% increase in staff

Fully supporting the needs of the Canadian research community

- Expand underground laboratory with new ladder labs to meet increased demands for space and capabilities.
- New larger surface building offsite: “New Campus”.
- ~55% increase in staff

Increasing global competitiveness

- Expanded underground laboratory with new ladder labs and large cavern to potentially host a beyond tonne-scale 0νββ beta decay, a beyond 3rd generation dark matter experiment, or something else
- “New Campus” with expanded facilities (guesthouse, cafeteria, day care, …)
- ~70% increase in staff

Conclusions

- SNOLAB is the world's deepest and cleanest underground research laboratory, SNOLAB has established Canada as a global leader in underground science, infrastructure, and expertise.
- SNOLAB's uniquely low-radiation environment enables a broad, multidisciplinary program of world-class research.
- Experimental collaborations at SNOLAB have already delivered impactful scientific results, with many additional world-leading discoveries anticipated in the coming decade.
- Our recently completed 15-year plan positions SNOLAB to support and enable future generations of scientific programs.
- We hope to see your experiment in our lab some day soon!

Discussion and Questions

Text