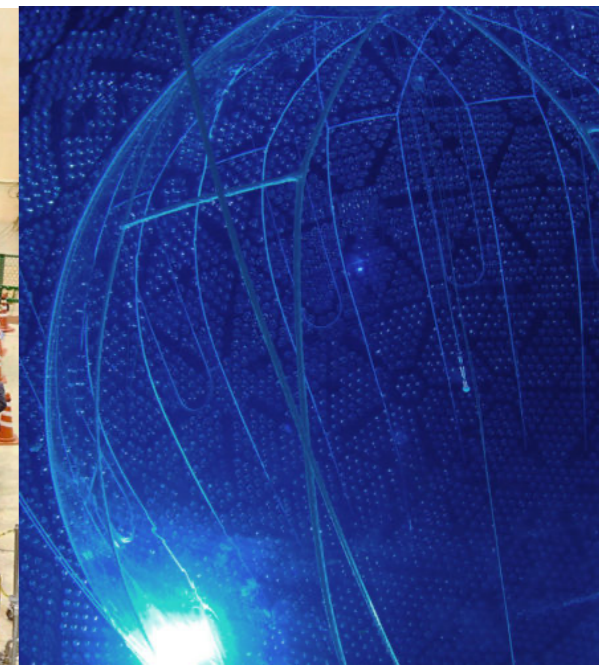
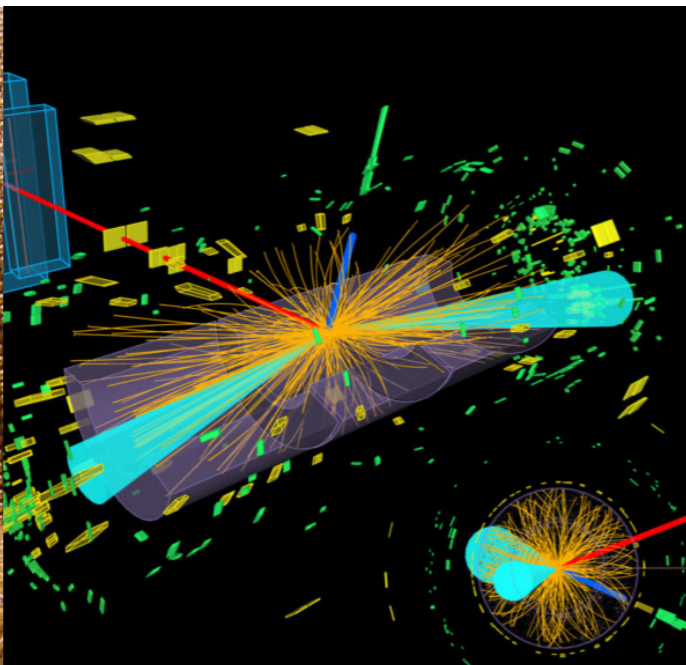
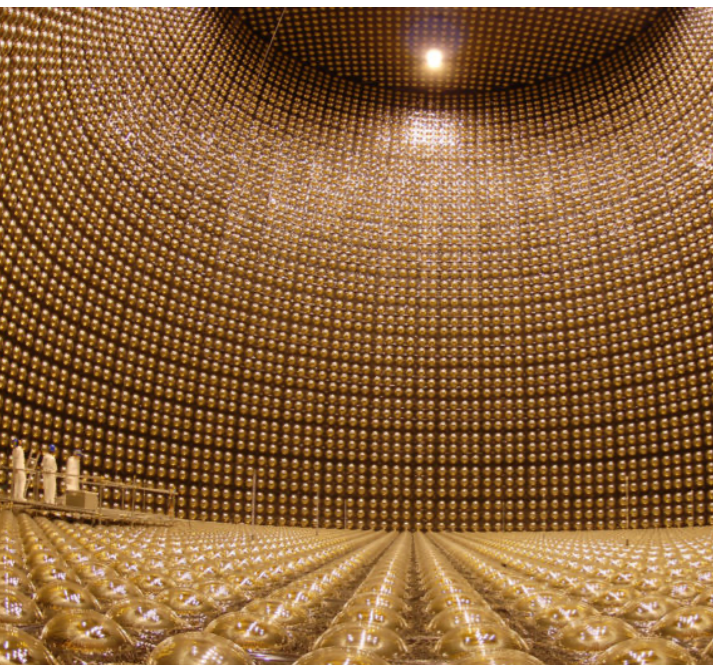




INSTITUTE OF  
PARTICLE  
PHYSICS

# Particle Physics Perspective

Matthias Danninger, SFU (IPP Councillor) for the IPP  
director (Carsten Krauss)



# Canadian Labs and University Involvement



# Canadian Labs and University Involvement



**TRIUMF**  
National Particle and Nuclear  
Physics Lab  
Supporting the entire community



**BRITISH COLUMBIA**  
.....  
UBC  
UFV  
UNBC  
SFU  
TRIUMF  
UVic

**NEWFOUNDLAND**  
.....  
MemorialU

**ALBERTA**  
.....  
UAlberta  
UCalgary  
ULethbridge

**NOVA SCOTIA**  
.....  
AcadiaU  
SMU

**SASKATCHEWAN**  
.....  
URegina  
USaskatchewan

**MANITOBA**  
.....  
BrandonU  
UManitoba  
UWinnipeg

**ONTARIO**  
.....  
CarletonU  
GuelphU  
LaurentianU  
McMasterU  
Perimeter  
QueensU

SNOLAB  
UToronto  
UWaterloo  
WesternU  
YorkU

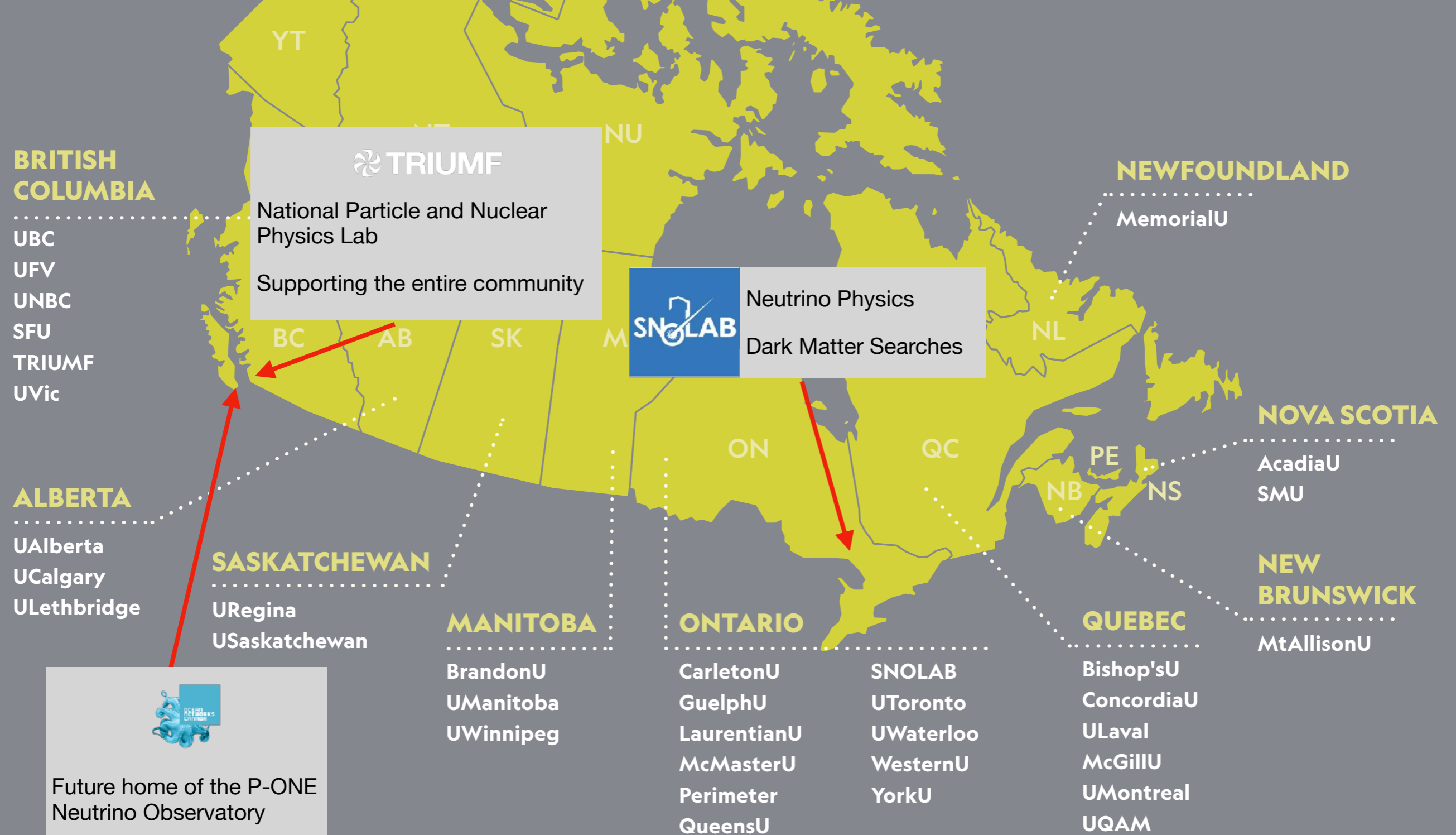
**QUEBEC**  
.....  
Bishop'sU  
ConcordiaU  
ULaval  
McGillU  
UMontreal  
UQAM

**NEW BRUNSWICK**  
.....  
MtAllisonU

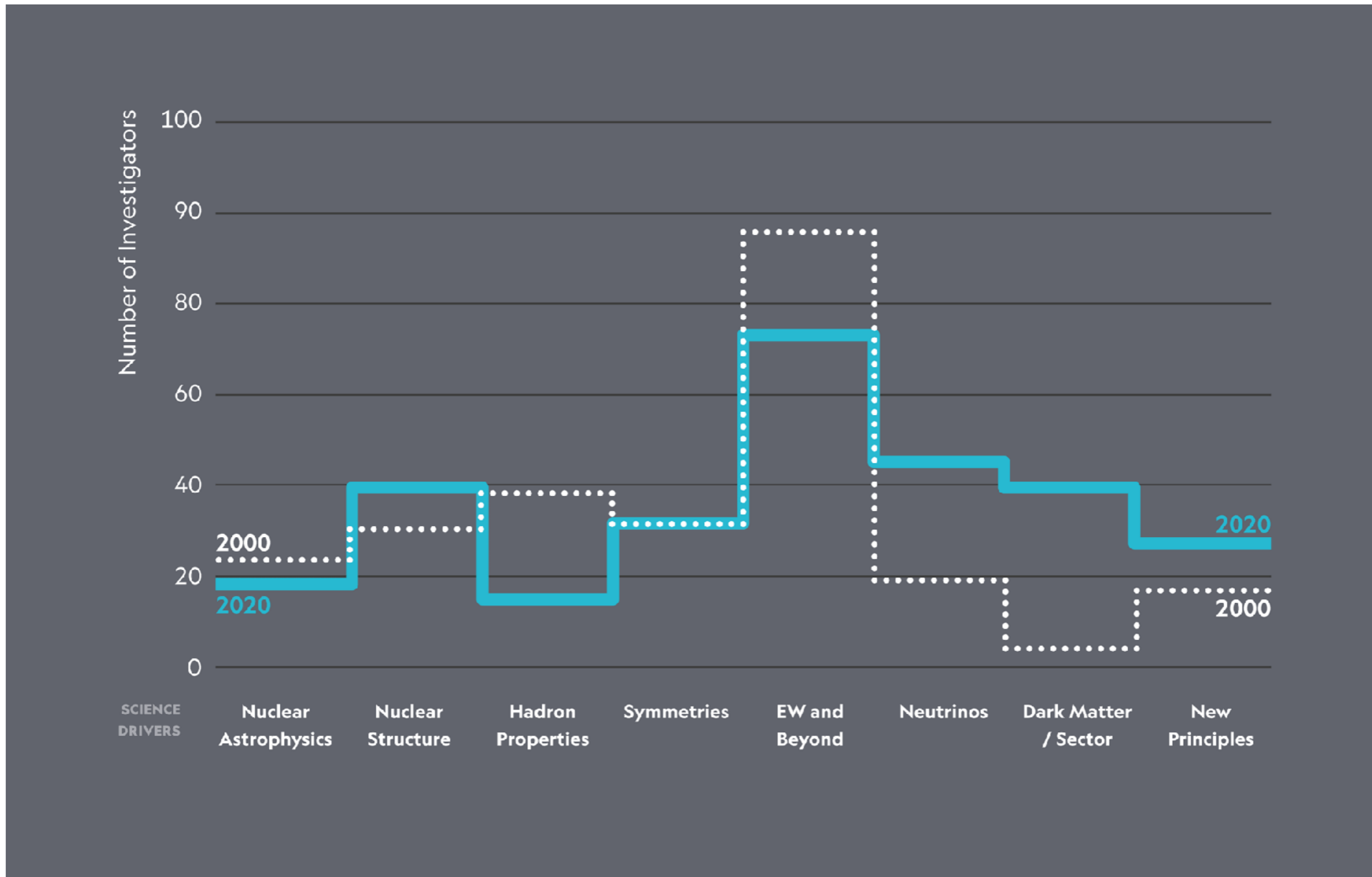
# Canadian Labs and University Involvement



# Canadian Labs and University Involvement



# Profile of Topics in Canadas Subatomic Landscape

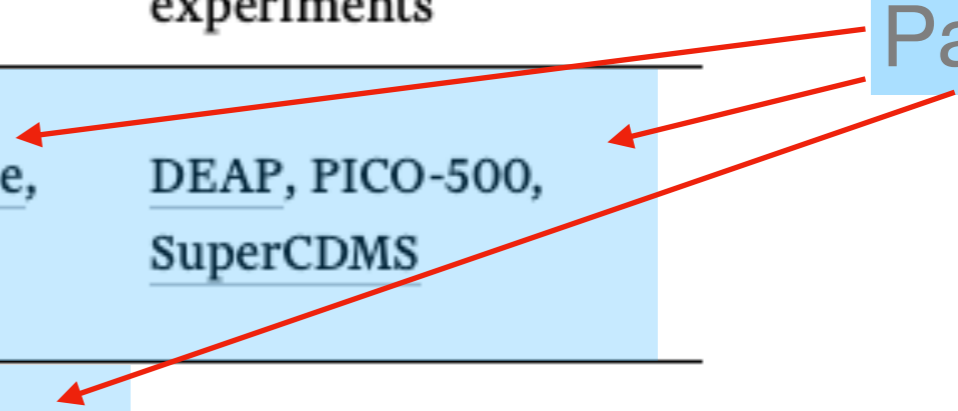


# Long Range Plan (2022-2026)

- To maximize international impact with limited investments, the Canadian community organizes 5 year planning exercises to prioritize funding decisions and to maximize impact

	<b>FLAGSHIP PROJECTS WITH BROAD PHYSICS OUTCOMES</b>	<b>FLAGSHIP PROJECTS WITH STRATEGIC PHYSICS OUTCOMES</b>
<b>FROM QUARKS AND GLUONS TO NUCLEI</b>	TRIUMF <u>ARIEL-ISAC</u> experiments, <u>EIC</u>	JLab 12 GeV program, Offshore <u>RIB</u> experiments
<b>MATTER IN THE WEAKLY COUPLED UNIVERSE</b>	<u>T2K/HK</u> , <u>IceCube</u> , SNO+	<u>DEAP</u> , <u>PICO-500</u> , <u>SuperCDMS</u>
<b>BEYOND THE ELECTROWEAK ENERGY SCALE</b>	<u>ATLAS(LHC/HL- LHC)</u> , Belle II	<u>ALPHA/HAICU</u> , <u>MOLLER</u> , <u>TUCAN</u>

Particle



## Projects with current TRIUMF involvement:

- ATLAS
- Belle II
- Dark matter searches@SNOLAB
- T2K/HyperK, DUNE
- IceCube/P-ONE
- nEXO

## Projects with past TRIUMF involvement:

- SNO+



## Need:

- Support for projects that fall outside of what can be supported within the existing University labs and NSERC MRS framework
  - E.g. projects on a longer time-scale, complex, or space intense projects
  - Support includes specialized shops, floor space, logistical support, technical support

## Status:

- Access to TRIUMF resources (without or with a local BAS) is cumbersome and commitments are hard to get
  - Priority allocations are not very transparent within the community
  - The role of TRIUMF in PP has been overall declining driven by a lack of opportunity of getting things done at the lab.
- 
- The effort of nationally organizing the MRS resources makes the desire for generic community support from TRIUMF apparent (National MRS board with TRIUMF, IPP and CINP as observers, chair F. Retiere)

# Thoughts, based on the Proposed Plan

## Establish an **opportunity fund** specifically for particle physics

- In light of current & future worldwide developments such as CMB experiments, neutrino telescopes, R&D for new accelerators and detectors, high luminosity Higgs factories, post LHC experiments, etc.
- In order for TRIUMF to stay relevant for the PP community, it needs to be:
  - enabling Canadian innovation;
  - education of HQP;
  - and engagement of Canadian industry .
- **One thought/idea** for TRIUMF could be:
  - As part of the capstone organization to establish a LDRD-like funding mechanism to fund forward looking operational requirements.
  - This opportunity would be open to **all** funded infrastructure labs/projects to compete for.
- It is vitally important to figure out the role of universities and their cash flow in relation to such a capstone organization and MRIs.
  - There needs to be a path from a university initiated new idea to a new MRI/capstone funded project (without cutting universities out)
  - The full lifecycle of such projects needs to be part of the planning process.

# Summary

- TRIUMF plays a **central role** in the Canadian Particle Physics landscape
- The Particle Physics role of TRIUMF has been under strain due to overcommitments in the past years
- For upcoming new project developments it would be good to understand what level of resources can be made available
- The lab appears centred on ARIEL and IAMI in the past years. The particle physics community is large and has been impacted by this - **Canadian Particle Physics relies on TRIUMF – We hope TRIUMF's role in PP in Canada can grow again**