

1) What accomplishment are you most proud of in the last five years?

- Operating the cyclotron with improved performance due to a new main magnet power supply, detailed understanding of cyclotron beam physics and improved infrastructure like the H- source.
- Installing and commissioning of e-linac utilizing made-in-Canada technologies like SRF.

2) What do you hope/expect to be most proud of in the next five years?

- Enabling ARIEL's full potential as world's leading ISOL facility by reliably operating the e-linac at design performance, enabling world's highest power (100 kW) RIB production via photo fission and simultaneous beam delivery of three RIB beams.
- Constructing, power testing and delivering 5 crab cavity cryomodules to CERN for HL-LHC.

3) What are your top 1-2 concerns going forward?

- Risk of insufficient budget required for the refurbishment of the TRIUMF accelerator complex to enhance reliability, efficiency and performance.
- Risk of insufficient budget allocated for the personnel required to transition and operate the TRIUMF accelerator complex in the ARIEL era.

Particle Physics had excellent success in all four of its flagship projects in the current 5YP: ALPHA, ATLAS, T2K, and UCN, with technical and scientific leadership in all four. We anticipate this success and leadership to continue.

Particle Physics Past – Highlight

- Formation, trapping, and precision spectroscopy of anti-matter (ALPHA) under TRIUMF leadership.

Particle Physics Future Direction – Example

- World-leading neutron electric dipole moment search at the TRIUMF ultra-cold neutron facility.

Concerns

- Support for detector development and infrastructure.

Nuclear Physics Past – Highlight

- Discovery of significant changes in the shell structure of atomic nuclei in exotic isotopes with large excesses of neutrons (lithium, beryllium and calcium), and the underlying effects of many-body forces in this development, guided by theory predictions

Nuclear Physics Future Direction – Example

- Understanding the formation of the heavy elements in the universe, using ARIEL in the era of multi-messenger astronomy

Concerns

- The tension between ongoing operations and projects, i.e. providing users with reliable rare isotope beam time for cutting edge experiments, and building new facilities

CMMS Past – Highlight

- CMMS has focused and excelled in the areas of fundamental research related to energy storage (batteries), environmental sustainability (green chemistry) and information technologies (quantum materials).
 - For example, using muons, a novel NH₃ synthesis was established. The aim is to develop sustainable food supplies using advanced fertilizer production processes.

CMMS Future Direction – Example

- Study of novel quantum materials for potential use in advanced technologies and quantum information applications.

Concerns

- BL1A operation and sustainability

What accomplishment are you most proud of in the last five years?

- Tc-99m – cyclotron produced, from concept to clinic
- Therapeutic isotopes – production and use of alpha-emitting isotopes

What do you hope/expect to be most proud of in the next five years?

- IAMI – and the five programs within
- ARIEL symbiotic target – and the associated science enabled

Concerns?

- Resources to operate IAMI/Life Sciences program
- Reliability of BL1A – continued output of therapeutic isotopes

What accomplishment are you most proud of in the last five years?

- Five successful, sustainable spin-off companies with private investment and/or revenues including ARTMS Products (cyclotron production of Tc-99m)
- New, more flexible business model with creation TI – a sustainable commercialization arm for TRIUMF

What do you hope/expect to be most proud of in the next five years?

- Actinium-225: Successful production company and therapeutics company initiatives with progress toward curing currently untreatable cancers and providing sustainability for TRIUMF
- IAMI – other expanded opportunities in other isotopes with industry partners – imaging, diagnostics, therapeutics development

3) What are your top 1-2 concerns going forward?

- Private and public sector funding and resources for new commercialization initiatives (e.g. BL1A and IPF target station)
- Identifying, recruiting and retaining specialized business talent