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## Proton Therapy and Beyond - Defining Future Accelerator Technology for Medical Applications in Canada

*Wednesday 11 June 2025 16:15 (30 minutes)*

For over five decades, TRIUMF has been at the forefront of accelerator-driven secondary particle production, cementing Canada's role as a global leader in supplying essential accelerator technology for radioisotopes, neutrons, photons, and muons. These particles power groundbreaking research in nuclear, particle, and astrophysics, as well as solid-state physics and an expanding range of medical applications.

With the global rise in cancer incidence, the clinical demand for particle accelerators continues to grow. Simultaneously, emerging modalities in both diagnostics and therapy are driving the need for novel accelerator systems tailored to the unique requirements of medical applications. At TRIUMF, ongoing research and development efforts are focused on advancing accelerator platforms that support the exploration and optimization of new treatment and imaging techniques. These efforts are coupled with a robust technology translation pipeline that brings innovations from the lab bench to commercial deployment and clinical integration, where reliability and usability are critical.

Current initiatives at TRIUMF also include the development of advanced detection methods, innovations in dosimetry, and the production of novel radioisotopes. These are being evaluated through preclinical studies and early-phase clinical trials, reinforcing TRIUMF's commitment to improving patient outcomes and enabling the next generation of accelerator-based medicine.

### Keyword-1

Particle Accelerator

### Keyword-2

Medical Applications

### Keyword-3

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