

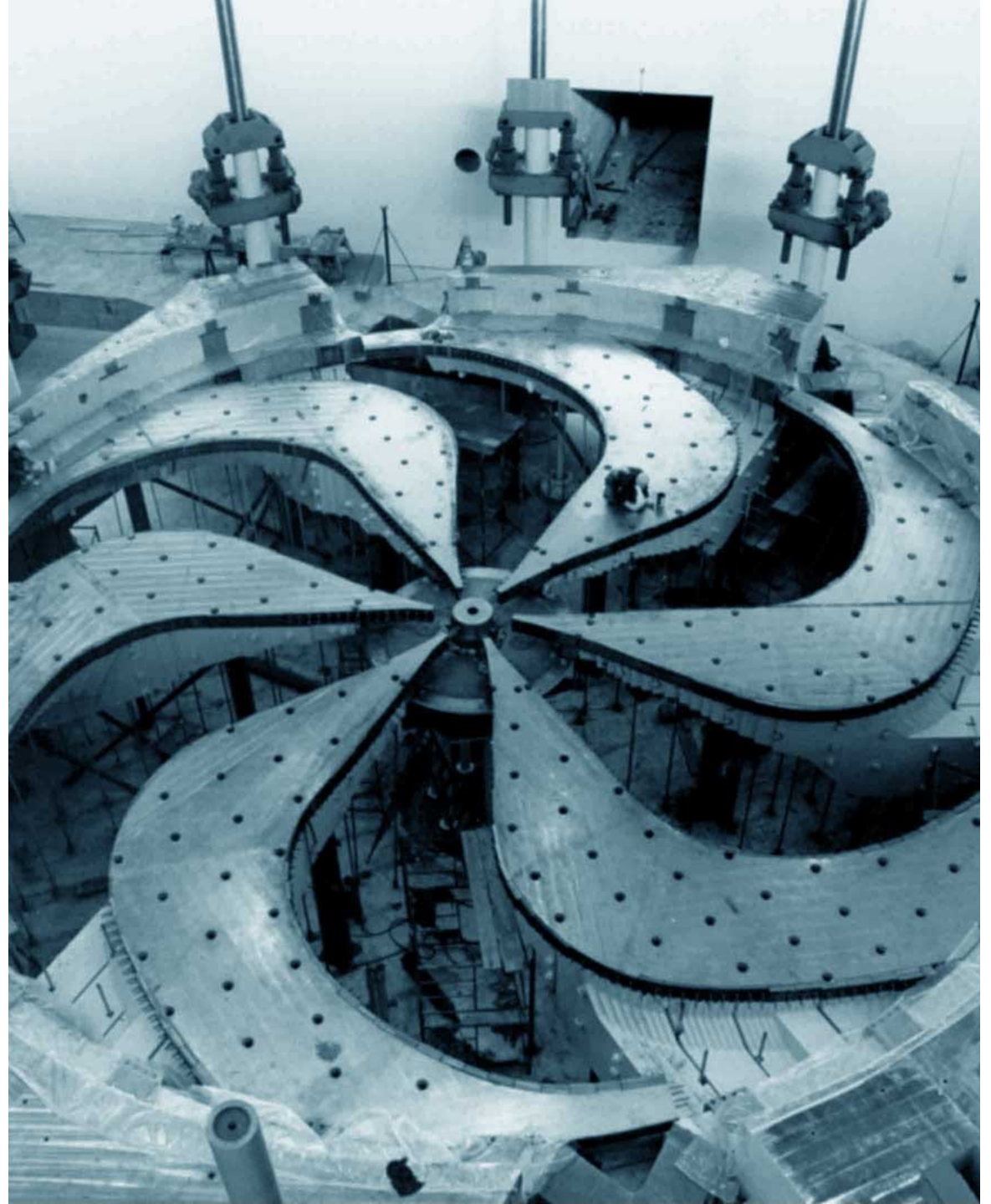
Accelerator Science in the next 5YP

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Steps towards the 5YP development in Accelerator Science and technology

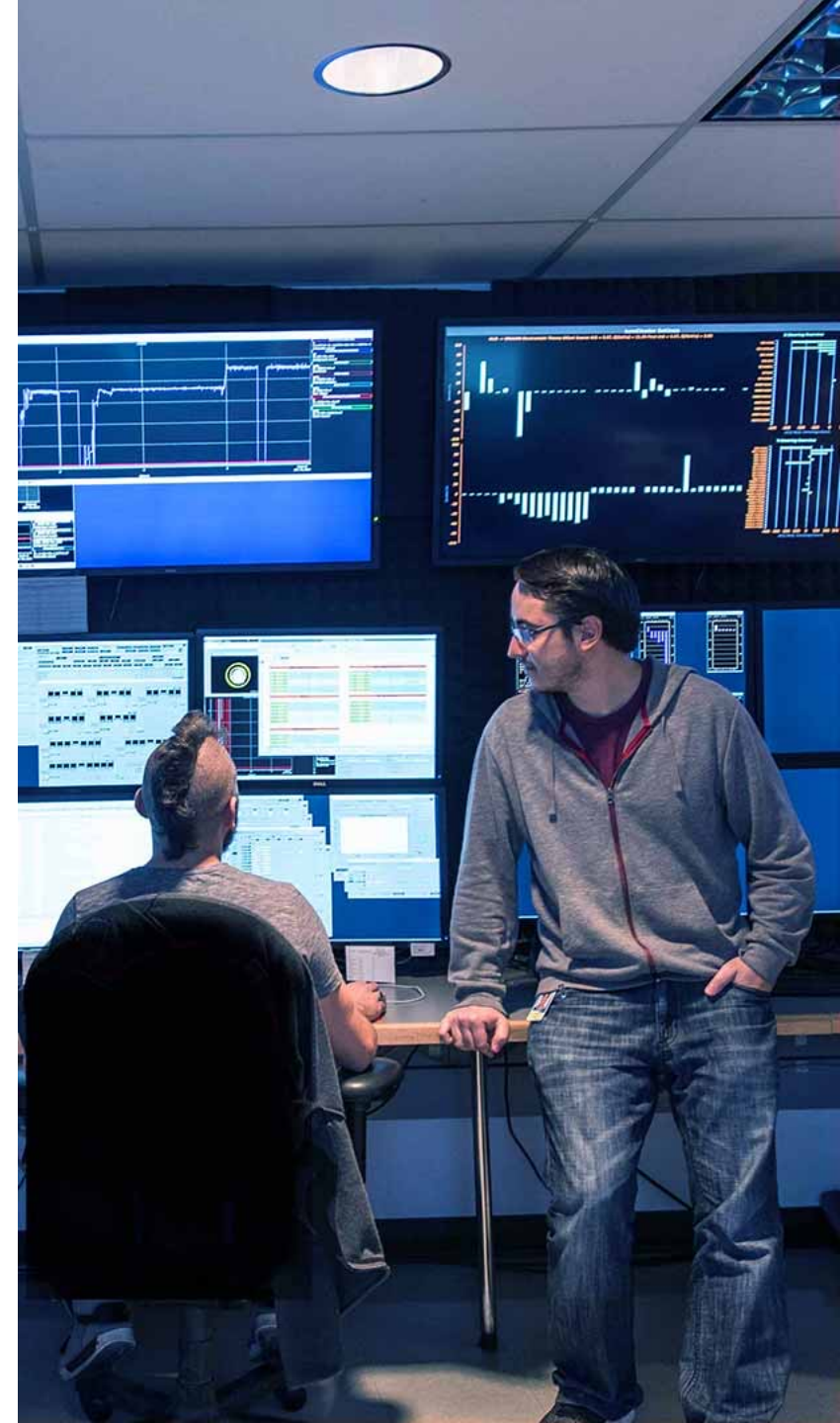
- Input to the Canadian subatomic physics (SAP) Long-Range Plans (LRP).
→ discussion with CLS about a long-term vision for ACC Science in Canada
- Document on “Accelerator Science and Facilities” for the TRIUMF 20-year vision development (<https://beamphys.triumf.ca/~tplanche/20-year-vision-acc.pdf>)
→ Isotope valley, Canadian hub for accelerator science, Big Science support (like HL-LHC)
- Approach to the divisional planning of the 5YP 2025-2030 development
→ several retreats of the ACC division lead team
 - ✓ Updated Divisional Mission
 - ✓ Defined Core Competencies
 - ✓ Performed SWOT Analysis
 - Bottom-Up Analysis of Operating Budget and Personnel (ongoing)
 - Proposals for Major Activities & Initiatives
→ refurbishment, operations development, external engagement and research (ongoing)

ACC division mission statement

- The TRIUMF accelerator division safely operates the TRIUMF accelerator complex with high performance and availability. We develop and implement new accelerator facilities and related technologies to support world class science nationally and internationally.
- We lead accelerator physics research in Canada and foster TRIUMF's position at the forefront of accelerator science. We advance our core competencies and transfer our knowledge to industry for the benefit of society.
- We leverage infrastructure and expertise to provide world class training of HQP in accelerator physics and engineering.

Based on: TRIUMF expertise and the accelerator development and research program

- Accelerator science at TRIUMF provides Canada with a world-class platform in
 - beam physics and instrumentation
 - secondary particle productionand
 - SRF technologies.
- Accelerator science supports the high performance and availability of TRIUMF's accelerator complex, including new facilities such as ARIEL and international projects such as HL-LHC.



Topics to be addressed in the next 5YP

The 5-year plan 2025-2030 must address

- the operation and refurbishment / upgrade of the accelerator complex
- ARIEL completion and transition to standard operation
- Engagement in domestic and international collaborations (CANS, HL-LHC etc.)

Driver accelerators:

- Cyclotron refurbishment and upgrades (RF, controls, etc.)
- e-linac towards full performance
- beam lines (BL1A – CFI project), BL4N completion for APTW

TCC – TRIUMF Control Center (combines Driver and RIB control room)

Topics to be addressed in the next 5YP (II)

RIB facilities:

- ARIEL completion and commissioning
- ISAC target hall consolidation, target module refurbishment, labs, ISAC accelerators
- Target ion sources, RILIS

Research and education:

- HLA, model coupled beam tuning, machine learning
- High power beams – e-linac, HL-LHC, EIC
- Cyclotron technology (injection, beam loss reduction, SC cyclotron)
- SRF research - plasma conditioning, new SRF heat treatments & materials, particulate migration,

External projects:

- CERN HL-LHC and TIS
- SCK-CEN and RAON – TIS and accelerator technologies
- PC-CANS, DarkLight and FLASH irradiation

Presentations of the three Accelerator Science Pillars:

09:35	Targets and Ion Sources and the FYP	GOTTBERG, Alexander
09:50	Beam Physics and the FYP	PLANCHE, Thomas
10:05	RF/SRF and the FYP	YAO, Zhongyuan

