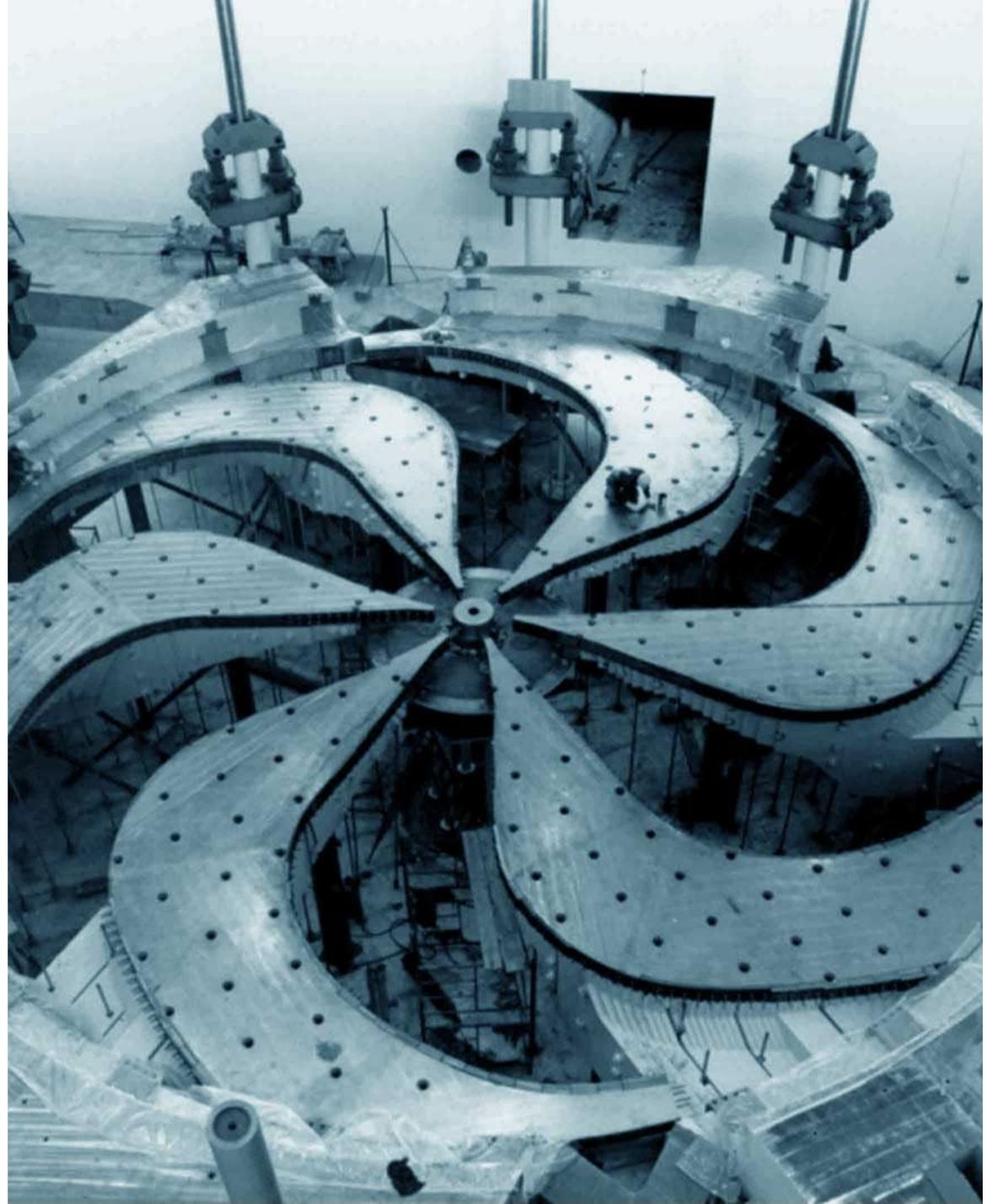


# SRAI 2024 AM Session T509: What Does it Really Take to Go from Bench to Bedside?

Ann Fong

Head, Office of Research Services





Email: [Ann.Fong@triumf.ca](mailto:Ann.Fong@triumf.ca)

Tel: +1-604-222-7471

**TRIUMF** Canada's particle accelerator centre

[www.triumf.ca](http://www.triumf.ca) [@TRIUMFLab](https://twitter.com/TRIUMFLab)

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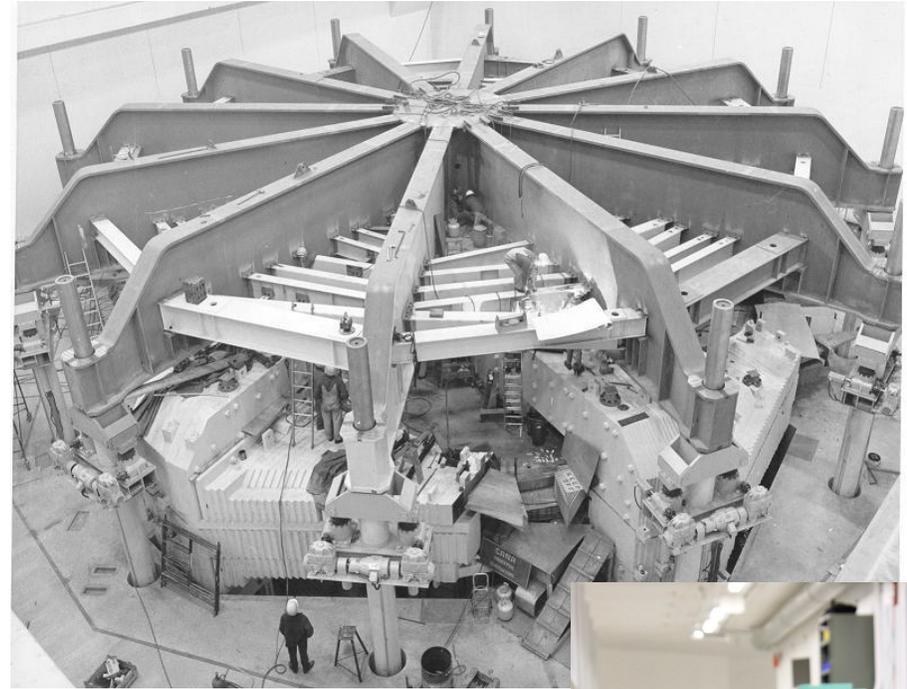
4004 Wesbrook Mall, Vancouver BC

V6T 2A3 Canada

- ❑ Oversight of research and commercialization contracts, grants facilitation and admin, controlled goods and export controls, research security, IP portfolio management.
- ❑ Helped to secure \$15M government funding and to establish TRIUMF's commercialization company, AAPS Inc.
- ❑ Returned to TRIUMF in late 2017 to start up TRIUMF's first Off. of Research Services
- ❑ 21 years experience in contract drafting and management; 16 years in IP management
- ❑ 10 years as AAPS Corporate Secretary, managing governance and corporate affairs, and assisting start-ups with governance
- ❑ 2 years overseeing trade compliance; certified as Canadian CGP Designated Official
- ❑ 1.5 years overseeing research security and responsible for establishing the program at TRIUMF

## Who is TRIUMF?

- Canada's particle accelerator centre, established in 1968
- Home of the world's largest cyclotron, as well as a new superconducting linear accelerator
- Our scientists study things from the nature of the nucleus to the creation of the cosmos
- The TRIUMF cyclotron accelerates 1000 trillion particles per second up to speeds of 224,000 km/s ( $\frac{3}{4}$  the speed of light)



**600 Employees**

**Up to 2000 annually,  
if students, visitors,  
contractors are  
included.**



The main cyclotron vacuum tank



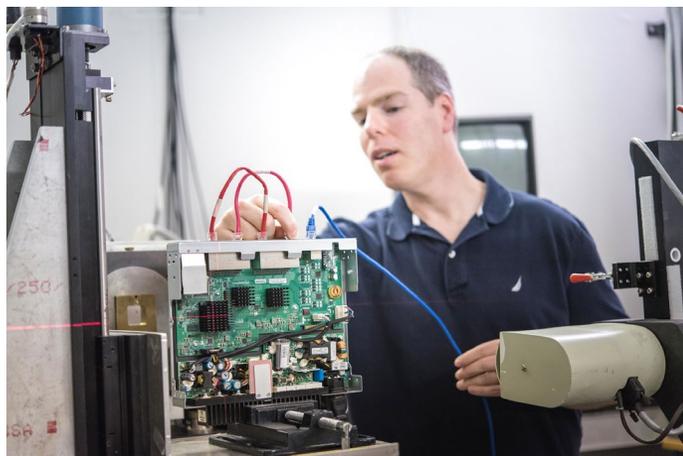
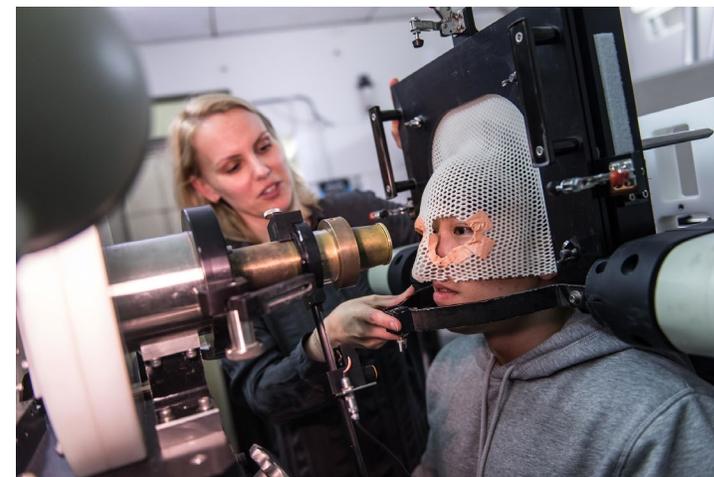
One of the Experimental Halls

# A Few Examples of TRIUMF's Contribution to Society



In 1982, TRIUMF successfully completed the manufacture of the first Canadian PET scanner, based on early designs provided by PET inventors.

From 1995 to 2018, TRIUMF provided the only Canadian facility for proton treatment of eye melanoma, in collaboration with BC Cancer and the UBC Dept of Ophthalmology.



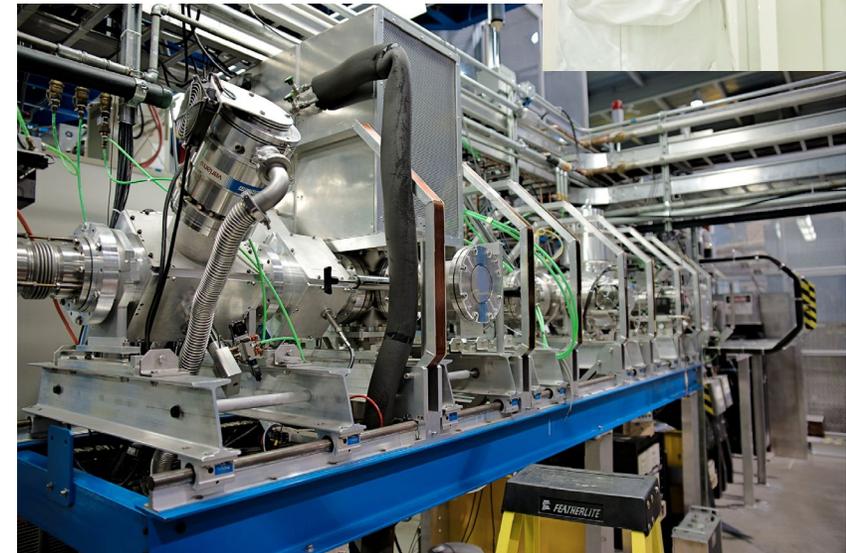
At the request of the Canadian Space Agency, in 1995 TRIUMF developed the facility for testing electronic components for radiation conditions present in ground, air and space environments. We serve ~195 users annually.

## Evolution of Technology Transfer @TRIUMF

- The Technology Transfer Office was first established in 1989, and then following the Canadian federal government's funding announcement for TRIUMF's operations in 1995, it was promoted to a Division (TTD).
- The government funding mandated TRIUMF to, in addition to carrying out science, pursue tech transfer activities to enhance its economic and social impact on Canada, especially Western Canada.
- The TTD's Focus was thus on: transferring technical knowledge and skills to the Canadian economy (expanded in 2000), and generating income for further R&D.
- Activities: encourage invention disclosures; engage with commercial entities (road shows in each province); maintain relationships with, and increasing revenues from licensees; knowledge mobilization

## Evolution of Technology Transfer @TRIUMF (2)

- In 1995, there was a major licensee, whose business was primarily in producing and distributing medical isotopes for nuclear medicine procedures, both diagnostic and therapeutic.
- In 2001, we licensed designs for cyclotron components to another licensee, founded by a TRIUMF PhD student in 1995.
- The TTD continued to protect IP and explore commercialization opportunities.



## Evolution of Technology Transfer @TRIUMF (3)

- In Feb 2008, TRIUMF was awarded ~CAD\$15M for a Centre of Excellence for Commercialization and Research (CECR), and Advanced Applied Physics Solutions, Inc. (AAPS) was incorporated as a not-for-profit to carry out the mandate.
- AAPS's mission was to commercialize TRIUMF-developed technologies, then expand to those emerging from worldwide subatomic physics research.
- During the 5-year term of the CECR funding, AAPS spun out 5 companies and all are still active today, with varying levels of success.



**MICROMATTER**<sup>TM</sup>  
Technologies Inc.



**ideon**<sup>TM</sup>



## Evolution of Technology Transfer @TRIUMF (4)



- In 2017, with the hiring of a new President and CEO, AAPS was rebranded as TRIUMF Innovations, Inc. (TI).
- TI continues to be a separate not-for-profit corporation but under a management (agency) agreement with TRIUMF. It officially acts as TRIUMF's commercialization arm, by streamlining access to TRIUMF's globally-recognized expertise and infrastructure, and by connecting TRIUMF researchers to industry partnerships, business development and licensing opportunities.
- TI also manages TRIUMF's IP portfolio, in collaboration with TRIUMF's ORS.
- The TI CEO is now part of TRIUMF's leadership team, reporting to the TRIUMF ED & CEO on operational matters.

## Evolution of Technology Transfer @TRIUMF (5)

- The TI CEO built up the Team and focused their efforts on promoting an entrepreneurial and business culture at TRIUMF, engaging with potential commercial receptors of TRIUMF technologies, and negotiating and concluding deals.
- These efforts have led to increased revenues for TRIUMF and further recognition by industry of TRIUMF's ability to translate their expertise to solve real world problems.
- Notwithstanding current levels of success, we have learned many lessons along the way.



# Commercialization 101

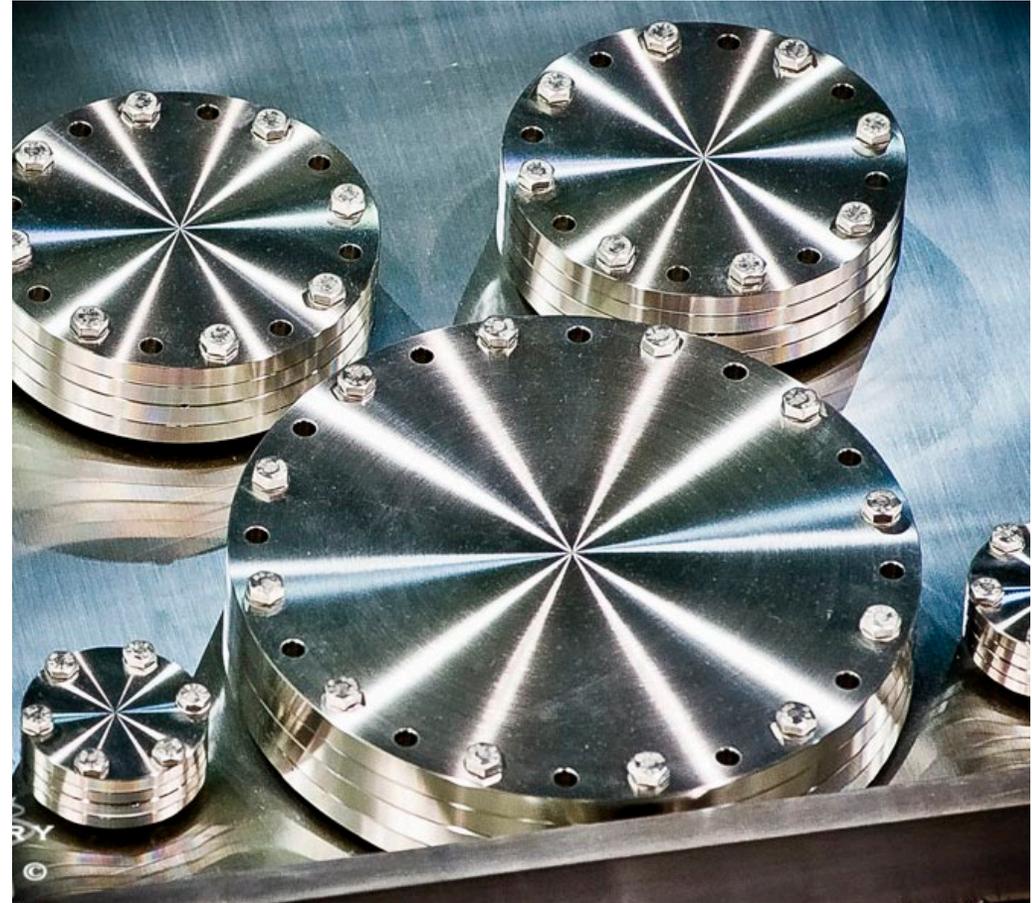
	University/ Institution	For-profit Company
Mission & Vision		
Culture		
Existing Stakeholder Obligations – e.g. funding, IP (incl. co-owners, inventors), research and business collaborations (clinical trials, export controls)		
Desired Outcome		
Conditions of Engagement – IP ownership, confidentiality, permitted uses (incl. publication), responsibilities (incl. milestones and financial), compliance, indemnification and liabilities, governing law and dispute resolution, term/duration		

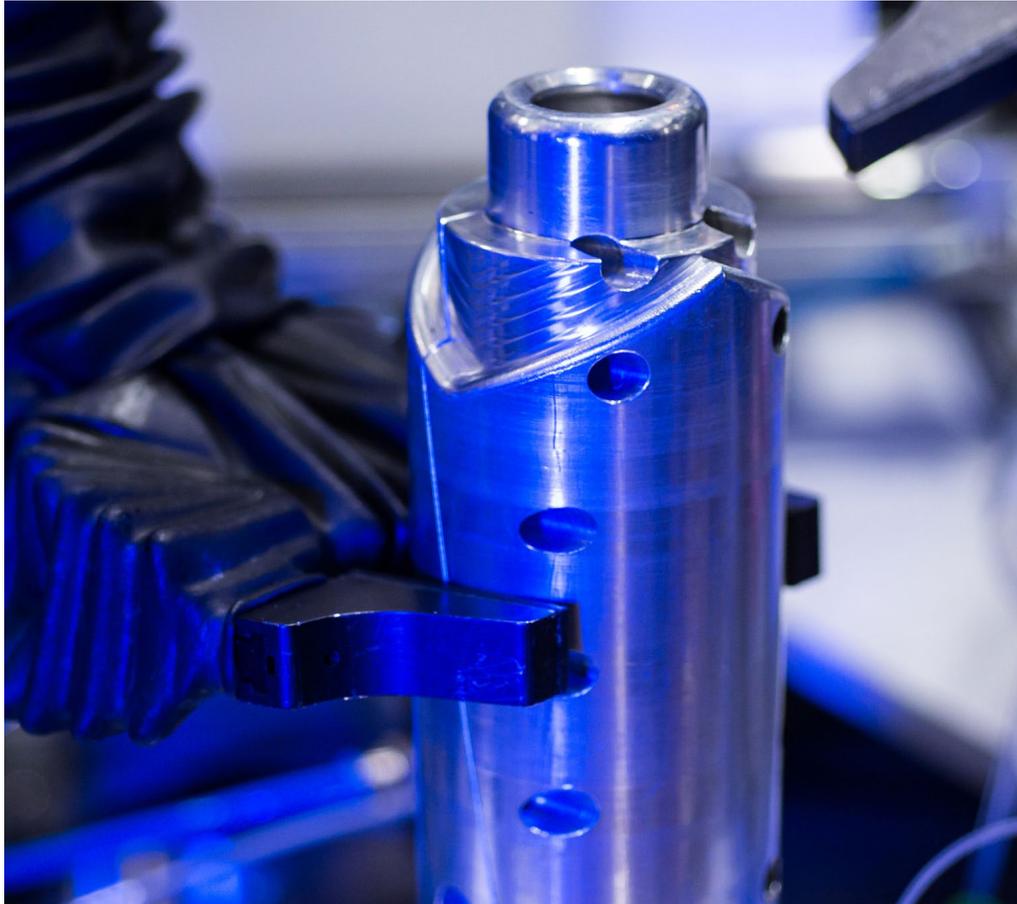
## CASE STUDIES DISCLAIMER

The two scenarios in the following slides are provided for illustrative purposes only. The details may not reflect accurately all the events that have transpired.



# Case Study 1 – Local Machining and Fabrication Company





## Case Study 2 – Manufacturer of Radiopharmaceutical Production Equipment

## Good (Best) Practices

- Cultural and Goal Alignment
- Take care of your stakeholder obligations
- Ensure proper and up-to-date record keeping
- Establish ultimate goal of engagement – short term, long term or one-off? What level of effort does each one require?
- Be aware of contract negotiation fatigue and put in place contract management processes
- Remind yourself of your organization's mission, vision and values – and the greater impact of this work

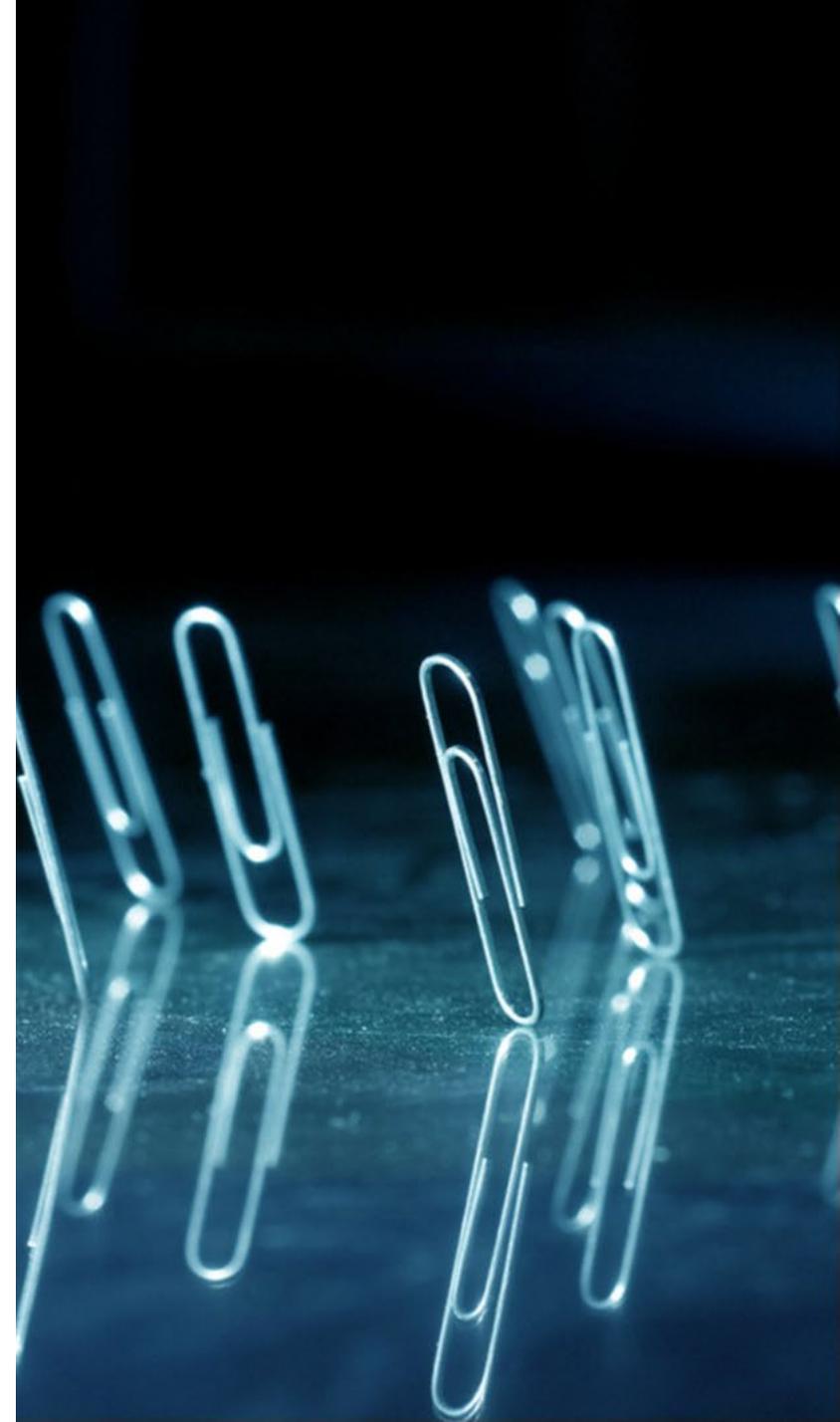


**Questions? Comments?**



## Contact Coordinates:

Ann Fong  
Head, Office of Research Services  
[awoon@triumf.ca](mailto:awoon@triumf.ca)  
+1-604-222-7471



Thank you  
Merci

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