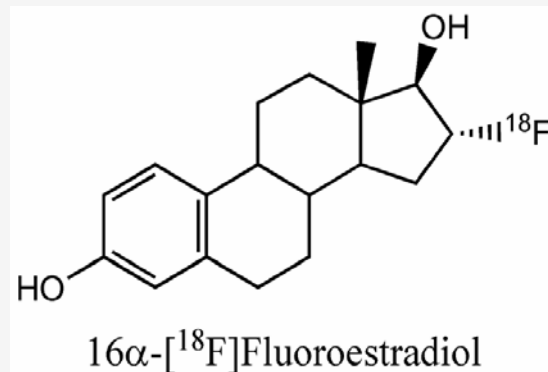
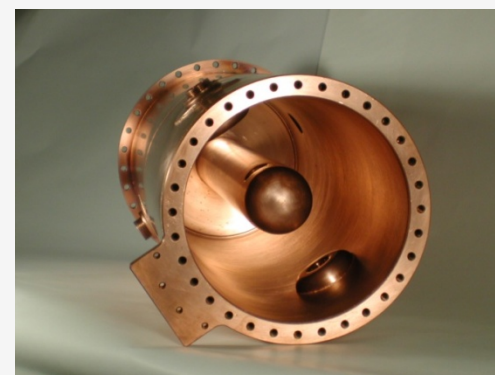


# Une Vision pour la prochaine décennie atteindre les objectifs de recherche du Canada et paver le chemin de l'économie du savoir



**PET Radiotracer**



**Superconducting Cavity  
1<sup>st</sup> Made in Canada**

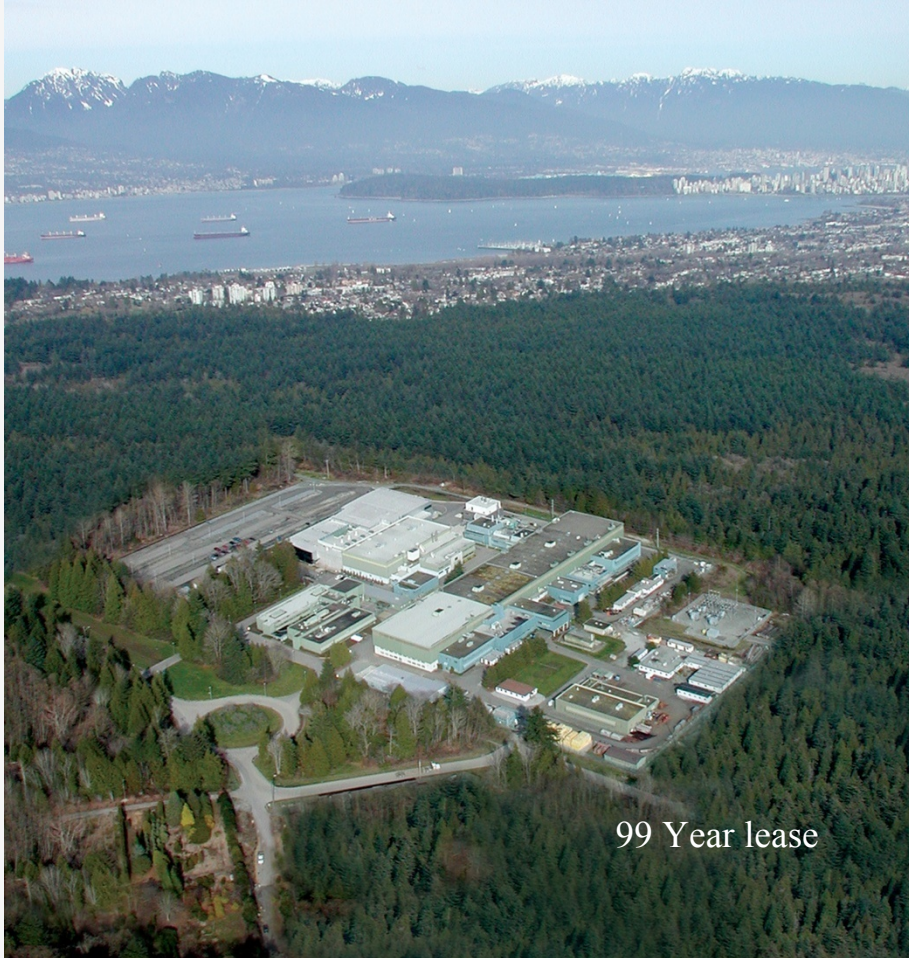
## A Vision for the Next Decade

### Achieving Canada's Research Goals & Leading the Knowledge-Based Economy

**Nigel S. Lockyer, Director/Directeur**

LABORATOIRE NATIONAL CANADIEN POUR LA RECHERCHE EN PHYSIQUE NUCLÉAIRE ET EN PHYSIQUE DES PARTICULES

*Propriété d'un consortium d'universités canadiennes, géré en co-entreprise à partir d'une contribution administrée par le Conseil national de recherches Canada*



### Members

Carleton University  
Simon Fraser University  
University of Alberta  
University of BC  
Université de Montréal  
University of Toronto  
University of Victoria

### Associate Members

McMaster University  
Queen's University  
Saint Mary's University  
University of Guelph  
University of Manitoba\*  
University of Regina  
York University

## Owned and Operated by a Consortium of 14 Universities

# The 5-Year Plan



# Dates

- **Dates:**
  - Provincial Budget next Tuesday
  - CFI interview e-linac Toronto Feb 16<sup>th</sup>
  - NRC Executive with Rolf-Dieter Heuer Feb. 19<sup>th</sup>
  - Rob Thompson & Calgary visit Feb 20<sup>th</sup>
  - ACOT March 6<sup>th</sup> Nuclear Medicine &-Astro
  - ACOT March 13,14 Full Committee
  - ACT-II Ottawa March 11
  - NRC Council presentation March 18<sup>th</sup>
    - **After dinner speech for NRC Council Dinner**

# A Few of our Visitors

- Visited BC Minister Coell Jan. 7, 2009
- Visit of Minister of State for Science & Technology
  - Minister Goodyear (good visit)
    - Complimentary about 5-year plan
  - Also Catherine Peters (Ottawa), Doug Kinsey (Vancouver), Industry Canada
- Andrew Saxton MP Vancouver North
  - Secretary to Treasury Board
- Visit of Bruce Ralston MLA Surrey-Whalley
- Visit of BC Minister J. McIntyre (InterGov't Relations)
- STIC presentation (Ottawa) Big Science Funding

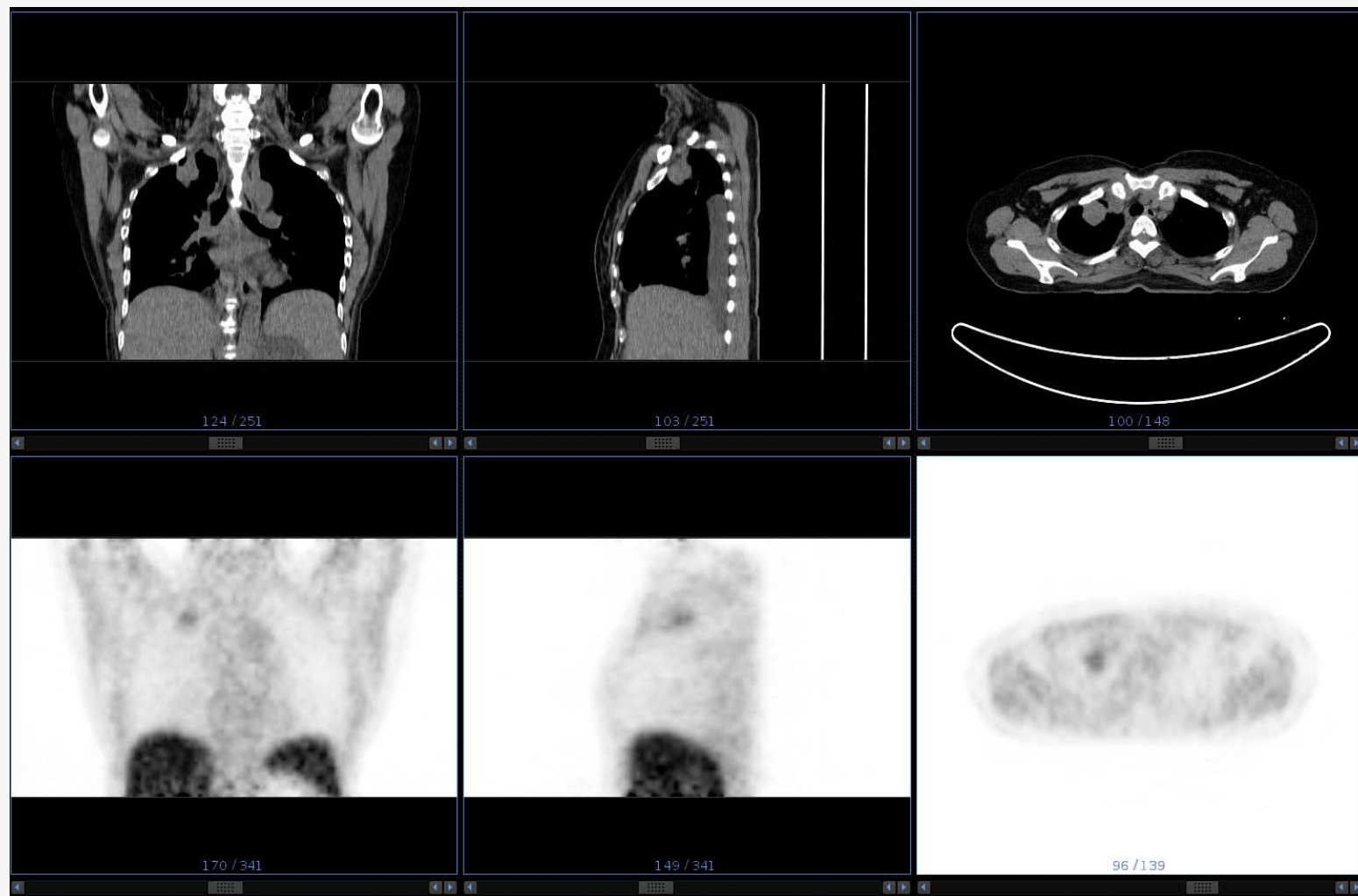
# 5-Year Plan

## *Building on Opportunities*

- **TRIUMF is poised for a transformation**
  - Opportunities, skills, and past investments are coming together
- **Future plan seizes 3 new strategic opportunities**
  - Platform technology: superconducting RF (SRF)
    - Accelerators, medical-isotope production, flue-gas scrubbing
  - Platform technology: nuclear medicine
    - Lead emerging revolution
  - Playing a major role in world's largest scientific project: LHC
    - Canadian Physics Analysis Centre & Tier-1 Data Centre
- **Requested investments**
  - \$328M for 2010-2015 operations
  - \$60M for capital infrastructure (buildings)



# Success: EF5- $^{18}\text{F}$ (a first in Canada)



**Tests for Hypoxia – radiation-resistant tumours**

# National CFI Interview Nuclear Medicine

- **CFI Interview: Tom Ruth & great team**
  - Dinner meeting night before with group including Robert Beanlands (Head of Cardiology OHI) and Sandy McEwan ( Cross Cancer), Frank Prato (London) and Roget LeCompte (Sherbrooke) and Don Brooks (UBC)—
  - Jan12th ....tough interview



# Excellence in Nuclear Medicine

- Program started in neurology, expanding to oncology
  - World leading Pacific Parkinson's Research Centre (PPRC) (1500 patient visits a year)
    - Entire program depends on TRIUMF
    - Major discoveries: Placebo effect; Trauma origins
  - Core competencies
    - PET Imaging (synergy with \$43M animal care facility—rabbit line)
    - Radiochemistry and biomarkers ( $^{18}\text{F}$ ,  $^{11}\text{C}$ ....)
    - Target development techniques
- “This entire field of application is predicated on radiotracer creation, radiopharmaceutical preparation, radiochemistry and interpretative radiobiology—all aspects established within the practical and intellectual domain of TRIUMF.”
  - Simon B. Sutcliffe, CEO BCCA

# Nuclear Medicine Revolution Drives Personalized Medicine

- “The level of knowledge and expertise within TRIUMF and MDS Nordion gives us a unique global competitive advantage...”
  - Steve West, President, MDS Nordion
- Disease metabolism subject to detailed investigation with targeted labeled molecules --- amino acid transporters, peptides... etc
- Establish cancer staging (metastasis) & efficacy of treatment with quick turn around (FDG PET)
  - Dr. Dan Worsley stated that the introduction of PET/CT scans at the BCCA resulted in changes to more than 50% of the treatments for scanned patients
- Move towards imaging and therapy isotopes for cancer treatment (alpha emitters), e.g.,  $^{211}\text{At}$
- Leads to mini SC cyclotron (espresso maker) in every hospital → AAPS
  - has caught attention of GE Health Care, MDS Nordion, Minister Goodyear...

# Institutions Partnering w/TRIUMF

## Active Cyclotron Based Programs

- UBC/TRIUMF (Lead)
- McMaster University
- Cross Cancer Institute
- MNI
- Ottawa Heart Institute
- Université de Sherbrooke

Terry Fox Research Institute

## Establishing Cyclotron Programs

- BC Cancer Agency
- St Joseph's Health Care
- Sunnybrook
- Thunder Bay
- University Health Network (PMH)
- University of Calgary
- Dalhousie University
- University of Manitoba
- Université de Montréal

## CECRs Partnering w/TRIUMF

- Advanced Applied Physics Solutions, Inc. (AAPS), Vancouver, BC
- Centre for Drug Research and Development (CDRD), Vancouver, BC
- The Prostate Centre's Translational Research Initiative for Accelerated Discovery and Development (PC-TRIADD), Vancouver, BC
- Centre for Probe Development and Commercialization (CPDC), Hamilton, ON

# SRF at TRIUMF: past, present, future

ISAC II Phase I  
106 MHz  
 $\beta = 0.057, 0.071$   
 $E_p = 30$  MV/m

ISAC II Phase II  
141 MHz  
 $\beta = 0.11$   
 $E_p = 30$  MV/m

E-linac/VECC  
1.3 GHz  
 $\beta = 1$   
 $E_p = 20$  MV/m

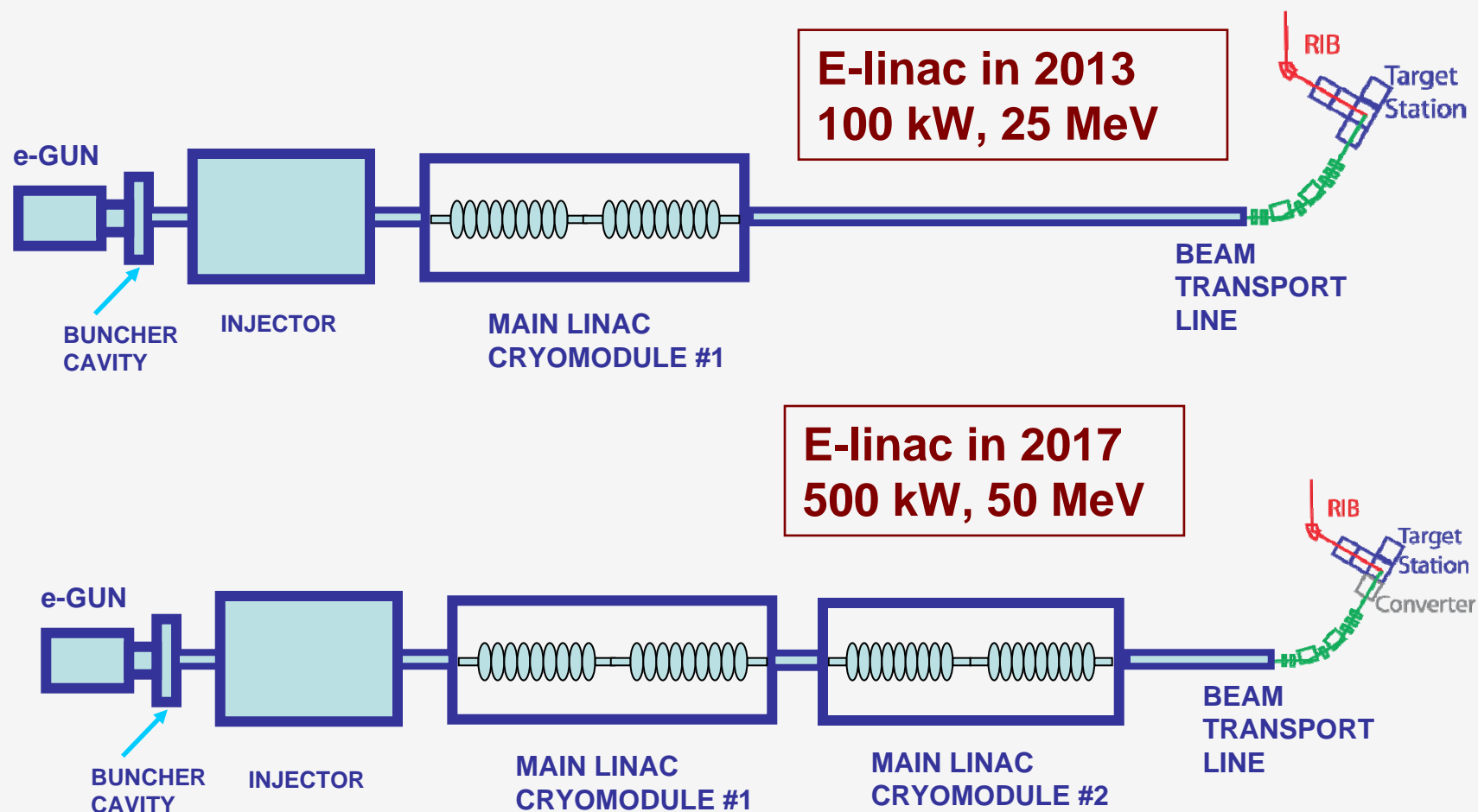
SPL  
704 MHz  
 $\beta = 0.65, 1$   
 $E_p = 50$  MV/m

ILC  
1.3 GHz  
 $\beta = 1$   
 $E_p = 63$  MV/m



*TRIUMF is becoming a leading SRF science and technology center.*

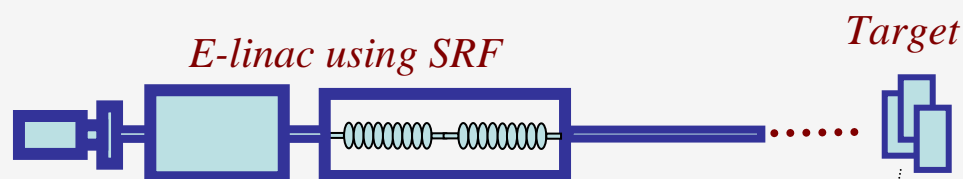
# The e-linac Design Concept



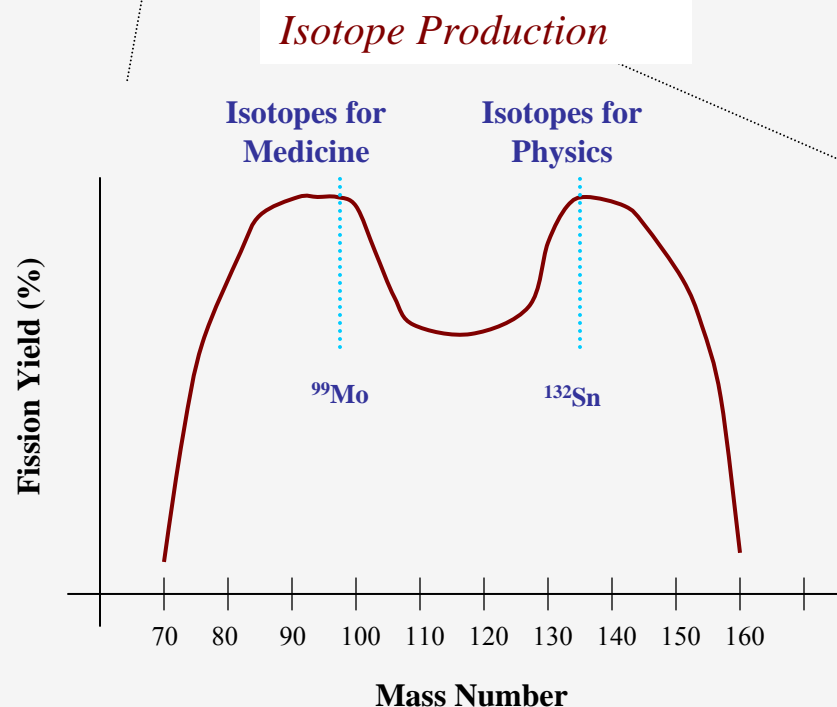
This will be a unique World-Class Machine (highest power at 50 MeV)



# Transforming Canada with Megawatt-class beams for science, health, and industry



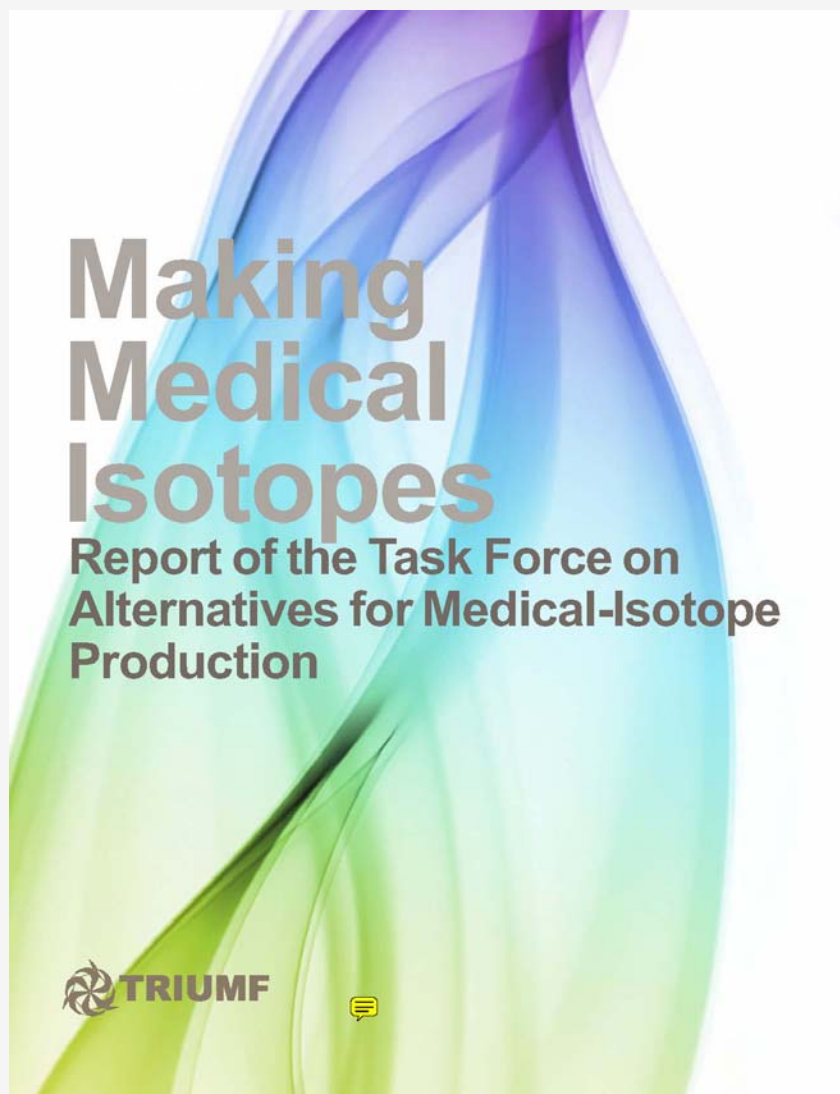
- Develop, deploy, & transfer SRF technology to Canadian industry
- Develop & produce novel isotopes for nuclear physics
- Demonstrate transformative approach for producing medical isotopes



# World Leadership in RIBs

- Goal of 5-yr plan – exploit SRF technologies for RIBS
- Unique moment to seize scientific discovery opportunity
  - Study neutron-rich nuclei important for element abundances, supernova explosions, neutron-star crusts, shell structure, theory advances, universal nuclear density functional, 3-nucleon interactions,...
  - Great opportunity in fundamental symmetries (one of holy grails in nuclear physics) --- Prize winning science
  - TRIUMF has strong fleet of experiments & eager young researchers
  - Large international user base wanting and waiting for varied beams
  - Accelerator team strong & unique in Canada
- Canada: Opportunity to lead on world nuclear physics stage

# Mo-99 Alternative Production

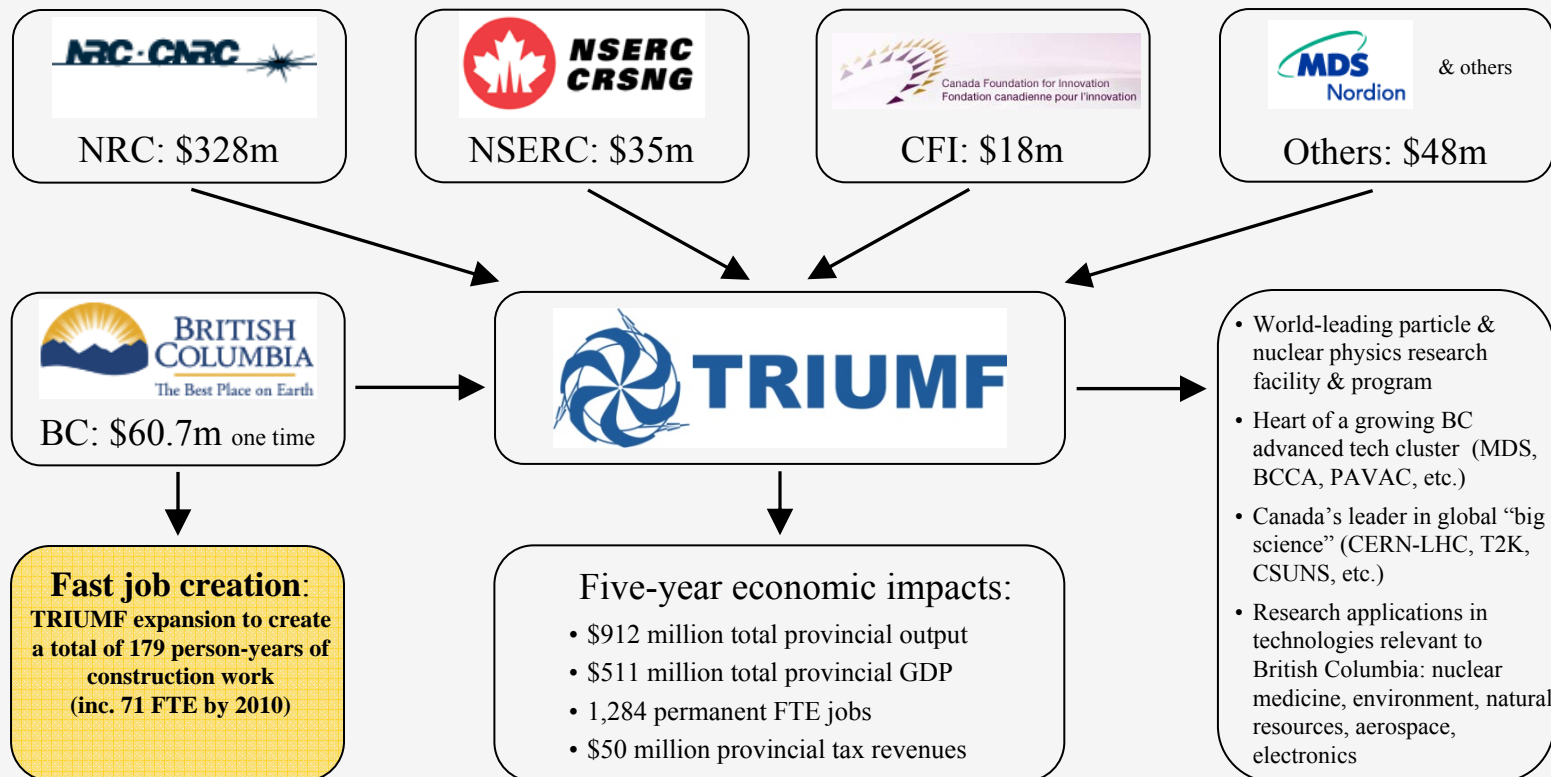


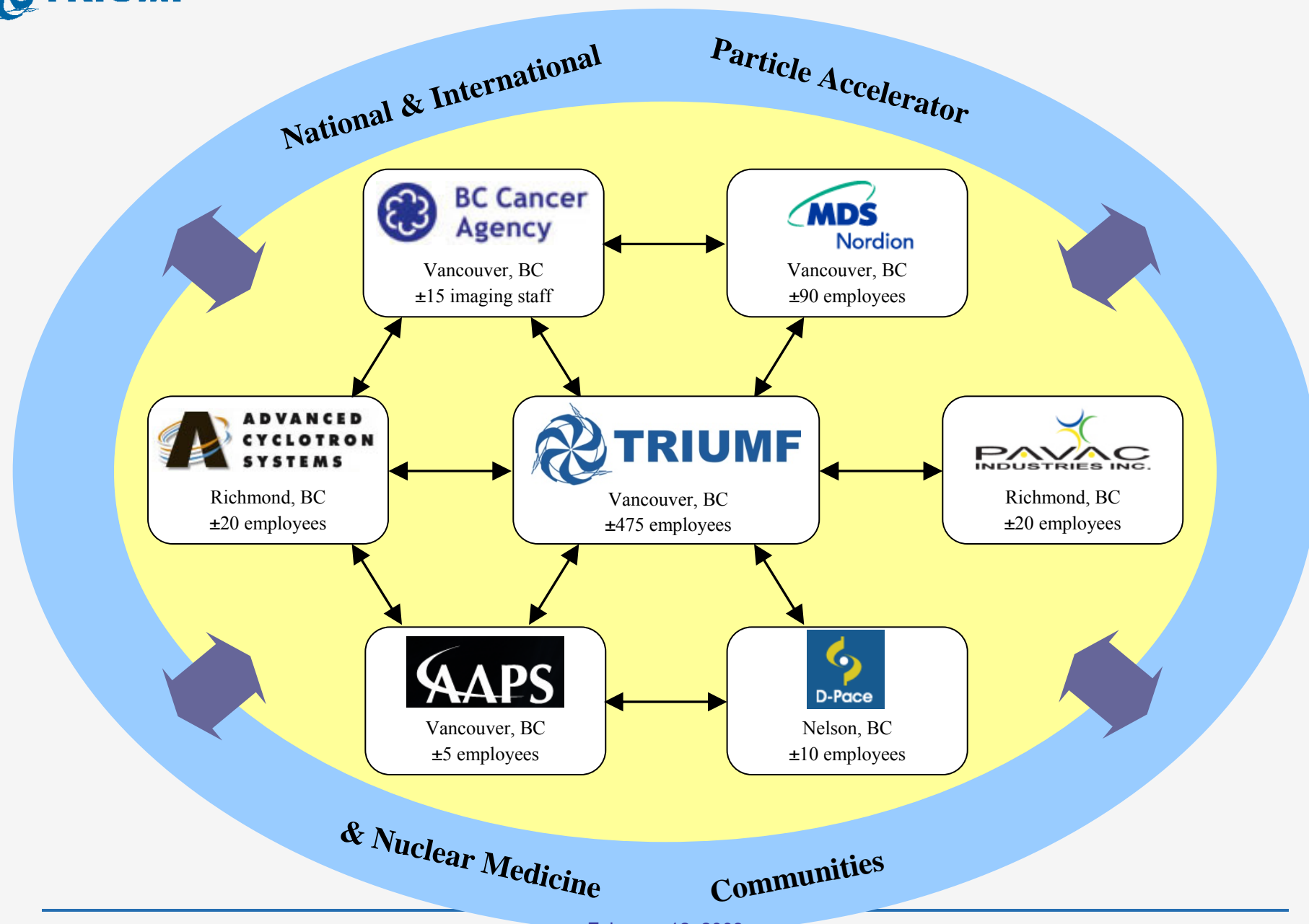
- National press coverage
- Nature Essay
- CBC Radio “Current”
  - Tom Ruth

# Economic Impact

# Economic Impacts of TRIUMF & Proposed Expansion

Estimated Impacts 2009 – 2014









CANADA'S NATIONAL LABORATORY FOR PARTICLE AND NUCLEAR PHYSICS

*Owned and operated as a joint venture by a consortium of Canadian universities*

*via a contribution through the National Research Council Canada*

# Quality Management System



## **QMS Core**

Rolf Keitel, Chair

Ken Buckley

Don Dale

Remy Dawson

Phil Jones

Issue 1: TRIUMF's Quality Management Newsletter

## **One year only**

Did you know that TRIUMF has a Quality Management System (QMS)?

Have you been to talks about Quality Assurance (QA) then wondered why you never heard any more about it? Have you heard about NCRs (Nonconformity reports), document templates, independent verification, or metrics, and wondered what they were? These newsletters will answer these questions and ones you haven't even thought of!

The TRIUMF QMS Implementation Panel has been working to bring all activities on site up to current quality practice standards. The goal has been to create a system that works for a unique environment like TRIUMF and that satisfies our regulators. We are not interested in simply satisfying a requirement of our Canadian Nuclear Safety Commission license but rather, we want to do something that improves our ability to deliver Science to the larger community. We believe we have always done



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# Quality Management

- TRIUMF is in transition from a small to a large laboratory
  - In order to deal with this increase in complexity we must
    - ensure we clearly plan and define what we are doing
    - leave records that show we have achieved what we set out to do
    - leave a trail for others to follow and to understand how and why things are the way they are and how to operate them
-

# QMS Implementation Panel

- Pierre Bricault
  - Ken Buckley
  - Iouri Bylinski
  - Don Dale
  - Barry Davids
  - Remy Dawson
  - John Drozdoff
  - Greg Hackman
  - Andy Hurst
  - Phil Jones
  - Rolf Keitel
  - Shane Koscielniak
  - Amiya Mitra
  - Colin Morton
  - Roman Ruegg
  - James Somerville
-

# QMS Implementation Panel

- Released new versions of the Quality Manual and TRIUMF Standard Operating Procedures
  - Is now performing group training through beneficial assessments
  - Is available to provide advice and guidance
  - Started QMS Newsletter
-

## CNSC Audit

- Last audited in 2006 and TRIUMF did not meet requirements
  - Next audit scheduled for the week of March 9, 2009
  - TRIUMF staff must demonstrate progress in QMS implementation
-

# Quality....

....is the responsibility of everyone

Get involved!

Understand the TSOPs

Ask what your group is doing

---



# New face of TRIUMF

- Web sites are now synonymous with an organization's personality, culture, and "relevance"
  - For a new TRIUMF, need a new approach for managing & presenting the website
  - Creating a new web platform isn't easy
    - Need new tools & technologies
    - Migrating old content
    - Modernizing content
  - In early 2008, serious effort to develop a new website got underway
    - Today marks "end of the beginning"
    - Please bear with this process and contribute!
-

# First phase launches today

- New platform for creating, managing content
    - Drupal content management system
    - Once training is deployed, will allow many more people to contribute to the website with a standard workflow that ensures consistency & clarity
  - New look (of course!) and new navigation (of course!)
  - Promise of new features (many still in development)
    - Highly improved search capabilities
    - Searchable image database
    - Seamless integration of .ca, .info, and user/employee information
    - Compatible with “Web 2.0”
  - Tremendous amount of work by Glenn Jones, Brian Leathem, Jennifer Kaban, and Xeno Media consultancy, with help from Tim Meyer, Mel McLean, Ting Wang, Dana Giasson, Steve Macdonald, Jean-Michel Poutissou, and others
-


TRIUMF Home Page - Mozilla Firefox

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http://www.triumf.info/

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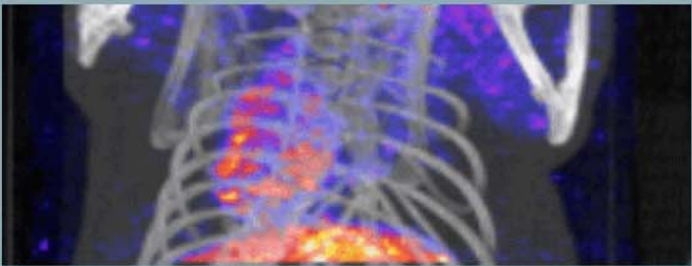
TRIUMF Fact Sheets | TRIUMF : Canad... TRIUMF Home Page



Canada's National Laboratory for Particle and Nuclear Physics  
Laboratoire national canadien pour la recherche en physique nucléaire et en physique des particules

**TRIUMF HOME**

- WELCOME AND NEWS FROM THE DIRECTOR
- ABOUT TRIUMF
- NEXT 5-YEAR PLAN
- CONTACT/FIND US
- CONFERENCES & VISITORS
- USERS AND EMPLOYEES
- FOR STUDENTS
- FOR MEDIA
- PUBLICATIONS & LIBRARY
- TECHNOLOGY TRANSFER
- EMPLOYMENT OPPORTUNITIES
- SEARCH THIS SITE




**Headline Story:**

**Awards & Honours: TRIUMF Scientist Muses on Medical Isotopes in Nature Magazine Essay**

Physicians and patients around the world are increasingly anxious about the shortage of nuclear isotopes used for medical imaging in the diagnosis and treatment of cancer, brain disease and cardiac problems. The Union of Concerned Scientists issued a call to improve supplies earlier this month.

[Read More...](#)

**Other Recent Headlines**

 Awards & Honours: 2008/2009 Carl Westcott Fellowship Awarded to Daniel

Thu 2009-02-12 04:26

**Today's News** [\[more\]](#)

Internal Announcements are available on the [Secure Site](#).

**Upcoming Seminars** [\[more\]](#)

Probing the Density Dependence of the Symmetry Energy — *Abigail Bickley*  
**Today, 14:00**  
Auditorium

Future GPD Experiments — *Ralf Kaiser*  
2009-02-13, 14:00  
**CANCELLED**

**Technical Seminar: "Lasers in Medicine and Analytics"** — *Walter Neu*  
2009-02-13, 14:00  
ISAC 2 conference rm

**This Week's Events** [\[more\]](#)

WNPPC  
2009-02-13  
Banff Centre, Banff, AB

Lake Louise Winter Institute  
2009-02-16  
Chateau Lake Louise, Alberta

**Today's Meetings** [\[more\]](#)

DCC meeting  
08:00 – 10:00  
Main Office Bldg. Boardroom

Web Committee Meeting  
08:30 – 09:30  
Main Office Bldg. Conference Room (Video)

Done

start TRIUMF Home Page -... About TRIUMF | TRIU... Inbox - Microsoft Out... SPCO-Report-V1.doc ...

4:26 AM

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Canada's National Laboratory for Particle and Nuclear Physics  
Laboratoire national canadien pour la recherche en physique nucléaire et en physique des particules


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Visiting TRIUMF  
Upcoming Events  
Conferences  
Students & Teachers  
News & Publications  
Employment Opportunities


The 5 Year Plan


Public Tours


Employment


**TRIUMF's Cylotron**  
Interior vacuum "tank" of TRIUMF's main cyclotron, the largest in the world.

## Headlines

**Current Events**  
New Faces on the WWW  
The [Institute of Particle Physics \(IPP\)](#) and [TRIUMF](#) are releasing new web sites this week. These sites aim to reach a broader audience of stakeholders, better serve members of the Canadian subatomic physics community and inform the general public about ongoing projects and e

**Current Events**  
New Event as of Right NOW! Whooh!  
This is an event. It's exciting. Trust me.

- And there will be balloons
- And cake

**Current Events**  
2008-09 Saturday Morning Lecture Series: Quantum P  
TRIUMF and UBC's Department of Physics and Astronomy are proud to present the 2008-09 Saturday morning lecture series on Quant

**Today's News**  
**Director's Office**  
[All Staff Meeting](#)  
**Site Network & Computing Alerts**  
[Server Upgrade - TRWINDATA](#)  
**Computing Services Announcements**  
[Staff Meeting overflow/video](#)  
[\[options\]](#)

**Today's Experiments**  
**Facility Schedule**  
BL2C [Sr/Rb](#)  
ISAC [S810](#)  
M11 [T2K](#)  
M13 [S1072](#)  
M15 [M1132](#)  
M20 [M1161](#)  
M9 [M1096](#)  
OLIS [S810](#)  
[\[options\]](#)

## Research Highlights

Experimental Result

Experimental Result

Experimental Result

Done

start TRIUMF Home Page ... Home | TRIUMF : Can... Inbox - Microsoft Out... SPCO-Report-V1.doc ... Microsoft PowerPoint ... 4:30 AM

## Next steps

- Next phase will add rigour and completeness to the new website, eventually turning off legacy website
  - Jennifer will work with other websites at TRIUMF to integrate their look and feel with templates, Drupal, etc., as desired
  - Explore and add selected “Web 2.0” features
    - TRIUMF website will be fun to use again!
-



# Thank you



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Vancouver, B.C. Canada V6T 2A3  
Tel: 604 222-1047 Fax: 604 222-1074  
[www.triumf.ca](http://www.triumf.ca)

# Merci

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February 12, 2009