

A National Laboratory



TRIUMF is owned & operated by a consortium of 19 universities Founded 47 years ago in Vancouver

NSERC LPD 2015



TRIUMF Research Program & Vision





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RIUMF

TRIUMF - ISAC and ARIEL

ISAC (Isotope Separator and Accelerator):

- Highest power ISOL facility (500 MeV, 50 kW p+)
- 18 world-class experiments for:
 - Nuclear Structure and Nuclear Astrophysics
 - Electroweak precision physics beyond the SM
 - Materials Science (β-NMR)

ARIEL-I: C\$67M projected completed

- Civil construction
- 0.5MW SRF electron linac as photofission driver
 - Canada-built 1.3 GHz cavities (PAVAC)
 - First accelerated beam at 23 MeV Sept 2014

ARIEL-II: C\$34M proposal by 19 Canadian universities

- Approved by Canada Foundation for Innovation May 4, 2015
- 2nd proton driver, isotope production & delivery systems
- Interleaves science with construction first physics 2017/18
- Triples production of rare isotopes delivered to ISAC
- Unique multi-user capabilities enables precision experiments
- Significantly expands Nuclear Medicine (α-emitters), Materials
 Science (thin films, interfaces)









International connections



Over 40 international agreements for cooperation Highlights:

- CERN (LHC, ATLAS, ALPHA, ELENA, ISOLDE)
- KEK and J-PARC in Japan (T2K, UCN, Muon g-2, MuSR, Belle 2)
- VECC India (eLINAC, targets)



5-Year Plan 2015-2020 Realizing the Vision

- Secure Canada's global leadership in isotope science by completing TRIUMF's new Advanced Rare IsotopE Laboratory (ARIEL)
- Uphold scientific excellence in particle and nuclear physics
 - Forefront rare isotope science program with ISAC and ARIEL
 - Nuclear Structure, Nuclear Astrophysics, Fundamental Symmetries
 - Continue leading contributions to high-profile international particle physics projects
 - Top priorities: ATLAS, T2K, ALPHA
 - Important involvement: DEAP, nEXO
 - Building the vision of the Electric Dipole Moment Lab
 - neutron (UCN/nEDM), atom (RnEDM), and evtl. electron (FrEMD)
- Elevating Canada's leadership in accelerator science via world-leading user program and a strong component in accelerator research and education

03/08/2015



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