

Building on domestic capabilities in the medium-term: Fostering pan-Canadian leadership

Dr. John Root

A discussion starter for Day 2 (Session 4)

Canadian Neutron Initiative roundtable towards a National Neutron Strategy

2020 December 16

The Sylvia Fedoruk Canadian Centre for Nuclear Innovation Inc. (Fedoruk Centre)

- Established in 2011 under *Canada Not for Profit Corporations Act*
- Independent Board of Directors (3-12 members)
- Sole Member is the University of Saskatchewan
- Funded by an Agreement with Innovation Saskatchewan and revenues from third parties
- Purpose: “To place Saskatchewan among global leaders of nuclear research, development and training through investment in partnerships with academia and industry for maximum societal and economic benefit.”
- [Strategic Plan 2020-2025](#) at www.fedorukcentre.ca

Fedoruk Centre – Four Key Activities

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1. Program Partnerships with Saskatchewan Institutions
 - a. Nuclear Imaging Program for life sciences (plants, animals, humans)
 - With University of Saskatchewan and University of Regina 2015-2020
 - b. Policy and public engagement with nuclear science and technology
 - With Johnson Shoyama Graduate School of Public Policy 2017-2021
 2. Project funding for research led by Saskatchewan scientists

Since 2012, the Fedoruk Centre has awarded over \$6.5 million to 38 projects for research in nuclear medicine/imaging, materials research, energy, environment and social impacts.
 3. Operate the Saskatchewan Centre for Cyclotron Sciences (SCCS)
 - a. Support research and innovation in nuclear imaging for life sciences (~ 75%)
 - b. Manufacture FDG for PET-CT medical scanning in regional hospitals (~ 25%)
 4. Consultative Service for public, policy-makers and others

Inviting SK institutions to consider partnerships

- Expanding the Nuclear Imaging Program to attract academic leaders to advance crop and soil sciences with knowledge from nuclear imaging ?
- Establishing a cluster of faculty who can apply neutron-scattering methods to materials science (physics, chemistry, agriculture (imaging), biology, materials science, engineering...) ?
- Building capacity for research and training related to nuclear energy ?

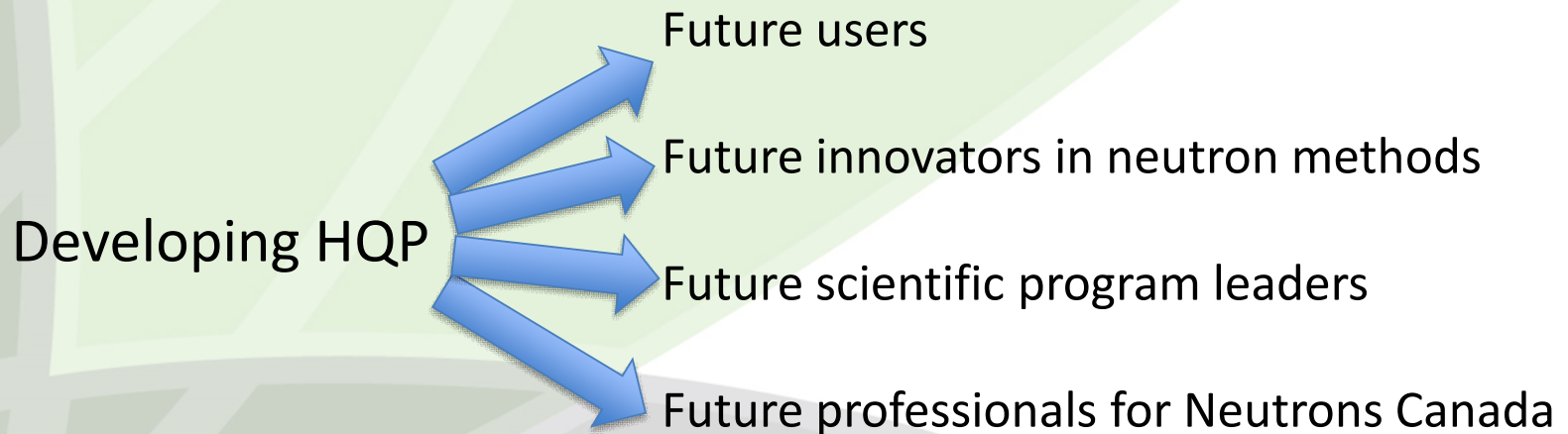


Neutron tomographic imaging to inform crop genotyping / phenotyping and enhance resilience to climate change.

Paul Arnison, Emil Hallin, Dean Chapman (USask, GIFS) and Ron Rogge (CNL)

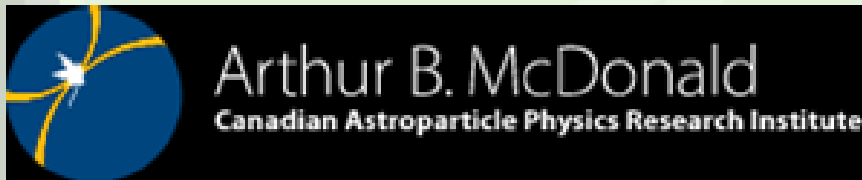
Establishing Canadian Neutron Program Leaders ?

- Faculty at Canadian institutions lead programs of research and education.
- Faculty leaders participate in national planning and prioritizing.
- Professional scientists, engineers, technicians operate and develop tools.
- Professional staff support effective user access to distributed facilities.
- Professionals reach out to industry clients, new users, public.
- Professionals manage agreements with facilities, clients, funding agencies.



Establishing Canadian Neutron Program Leaders ?

Example for scale:



Canadian hub for astroparticle physics research, uniting researchers, theorists, and technical experts within one organization.

\$64M (CFREF led by Queen's)

- 41 faculty, professionals
- 8 universities
- 5 partners

[Arthur B. McDonald Institute | Canadian Particle Astrophysics Research Centre](#)