NUCLEAR INNOVATION INSTITUTE

HEALTH: RADIATION EFFECTS RESEARCH

The radiation effects research programs are focused on improving our understanding of how radiation impacts biological systems. Programs explore both cancer and non-cancer endpoints related to removing background radiation, radiation exposure during sensitive life stages, to specific organs during medical diagnostics, with a focus on the low-dose range (0.01-25 mGy). Additional foci include improved dosimetry and low-dose radiation therapy for cancer treatment.

What we want to achieve

- Contribute to basic radiation science, particularly in the low dose range, to understand how radiation impacts biological systems.
- Inform regulations and practices for medical and occupational radiation exposure in Canada and internationally.

Key Activities

Programs explore both cancer and non-cancer endpoints related to:

- Sub-background radiation levels
- Radiation exposure during pregnancy and during early development
- Radiation exposure to the lens of the eye
- Radon exposure
- Radiation exposure related to medical diagnostics
- Improved dosimetry
- Low-dose radiation therapy for cancer

Outcomes

- Low-dose radiation research at the Sudbury Neutrino Observatory (SNOLAB) featured in a special edition of Radiation Research (Vol. 188, No. 4.2, October 2017).
- Low-dose radiation researchers contributed to May 2018 hearing for Bruce Power 10-year PROL licence renewal through an intervention and with a research poster session.
- Research published in over 13 peer-reviewed publicly available publications to date, available for use by the general public, researchers and regulators.

Partners & stakeholders

Institutional Research Partners: *McMaster Nuclear Reactor, Northern Ontario School of Medicine (NOSM), Laurentian University, Lakehead University, Université de Laval, University of Regina, NASA Ames Research Centre, Centre for Probe Development and Commercialization, University of Iowa*

Funding Partners: *NSERC, Mitacs*