

Join Canada's Next-Generation Battery Engineering Research Team

Fully Funded PhD Opportunities in Sodium-Ion Batteries

\$40,000/year for 4 years • Starts 1 Sep 2026 • Experimental/Modeling Research
Industry Collaboration • Research Network • Travel

Opportunity: Experimental and modeling PhD engineering research of the newest sodium-ion battery systems for electricity grid storage, solar/wind integration, and powering remote/northern sites. You will join a skilled, experienced, and diverse research team in a well-equipped laboratory, along with collaborating partners including First Nations, industry, NGOs and Government. Explore your battery research interests, create new innovations, and contribute findings to Canadian society!



Project 1: Mixed Battery Array Control

- Lithium-ion and sodium-ion together in large scale electricity grid storage operations
- Repurposed second-life full-packs from EV batteries
- Control methods and performance assessment
- Operate and optimize a large experimental test chamber composed of several unique batteries, power converters, and a grid connection



Project 2: Extreme temperature system design

- Design for harsh off grid and remote northern climates
- Devise techniques to maintain capacity, power, and energy efficiency
- Operate sodium ion batteries in specialized chambers below $-20\text{ }^{\circ}\text{C}$ and above $+60\text{ }^{\circ}\text{C}$ (ultra-cold/hot)
- Exploit the unique broad temperature range for performance/safety boundary determination

Institution and lab: Dalhousie University is Atlantic Canada's largest University, located in Halifax, Nova Scotia, Canada, which offers a high quality of life, coastal living, and affordable living costs relative to major Canadian cities. The Renewable Energy Storage Laboratory ([RESL](#)), part of Mechanical Engineering, conducts research of battery energy storage technologies to support electrification of generation and loads; examples include wind, solar, electric vehicles, heat pumps, etc. We focus on developing reliable, efficient, practical and cost effective battery systems. The lab is led by Dr. Lukas Swan, P. Eng., who has 20+ years experience, and includes post-doctoral fellows, PhD and MAsc students, as well as research engineers and technicians. RESL is equipped with battery cyclers capable of testing cells, modules, and packs up to 800 VDC and over 500 kW of charge and discharge power.

How to apply: Please send your CV, research vision statement (1 page), university transcripts, and sole-authored report/publication that represents your work quality to Lukas.Swan@Dal.Ca with the subject "Sodium ion PhD opportunity".