

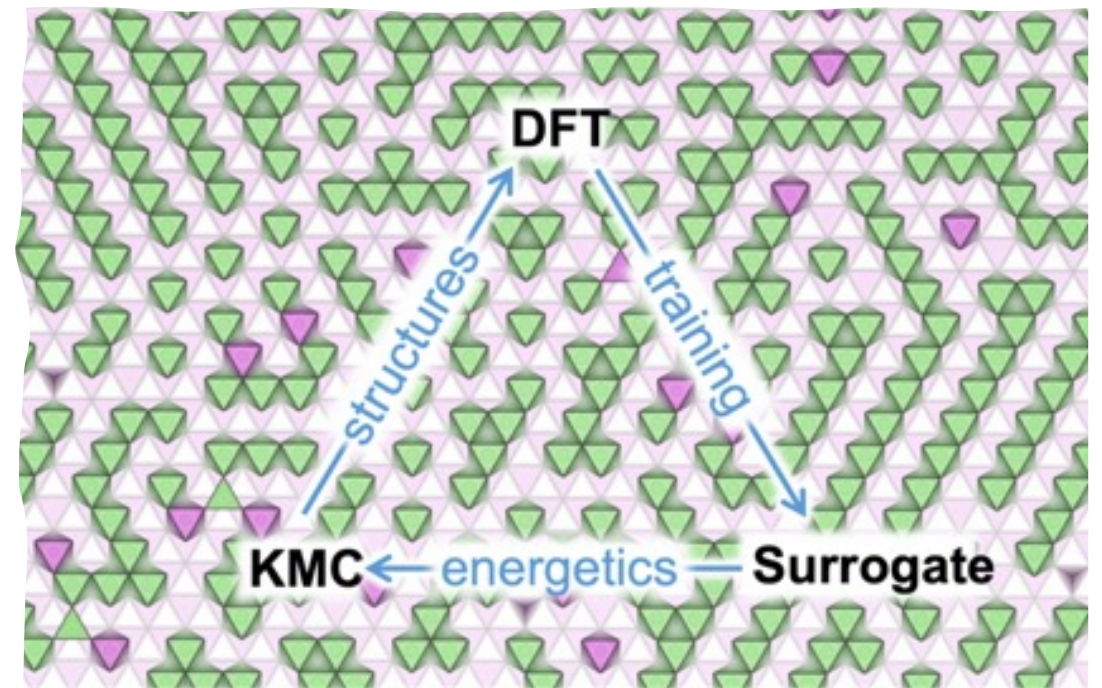
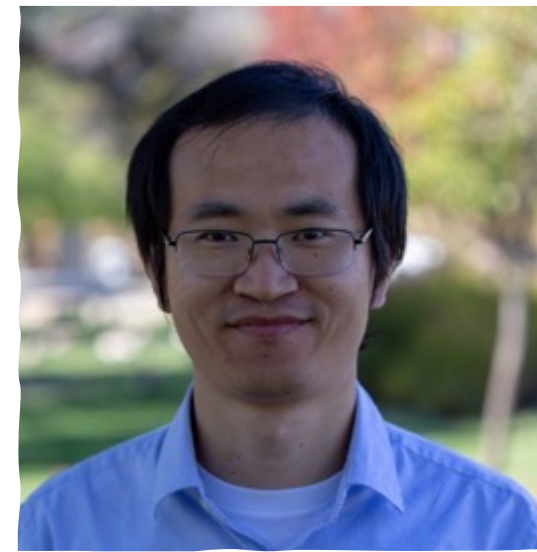
Profs Looking for Summer Students This Year



Penghao Xiao

- We run computer simulations to study how atoms dance in materials.
- We are interested in kinetic processes that affect the performance and durability of batteries and catalysts.
- Approach: Quantum + StatMech + Coding + Machine Learning.

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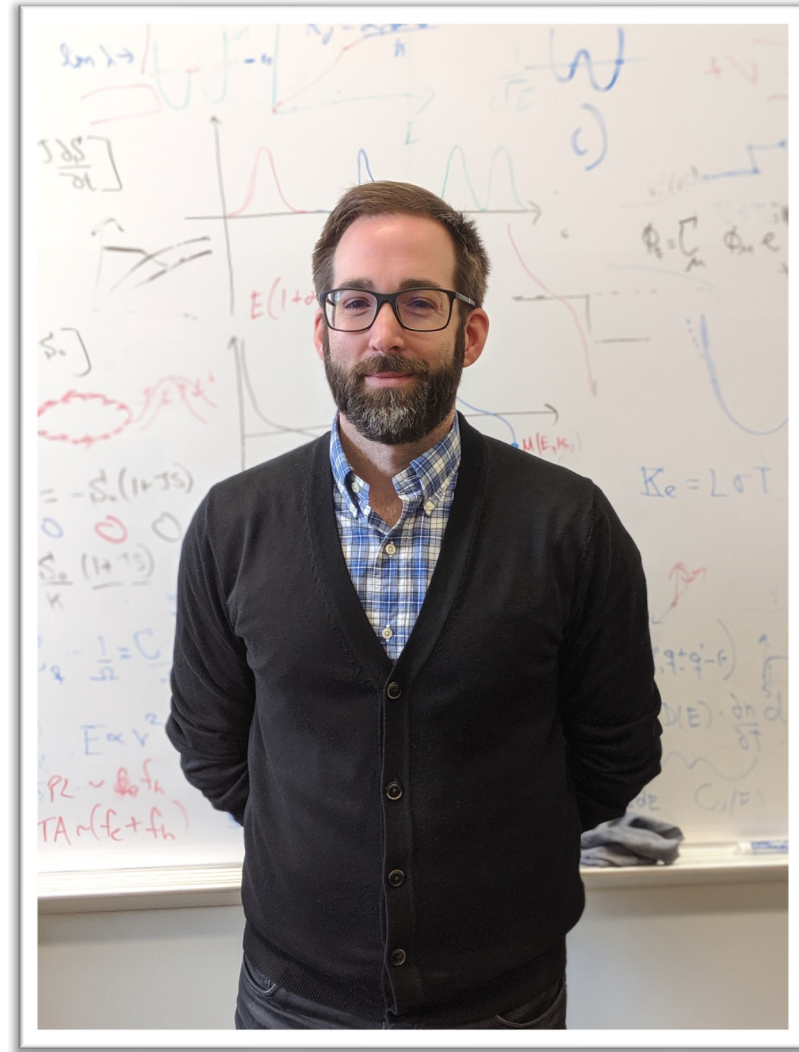
Simulations show the Li (green) and Ni (purple) distribution in a battery cathode.

Jesse Maassen

My group's research focuses on:

- understanding how electrons and heat flow in materials, using theory and modeling,
- Goal: addressing important technological challenges.
- Recent projects have looked at nanoscale heat transport and improving thermoelectric energy conversion.

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Andrew
Rutenberg

My group's research focuses on:

- Theoretical and computational research
- Soft and statistical physics of biology and health

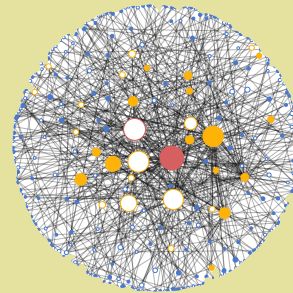
andrew.rutenberg@dal.ca

Rutengroup:

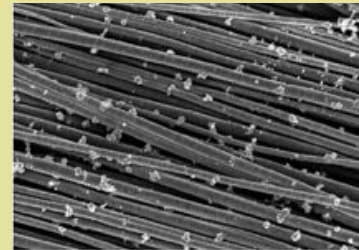
Soft and statistical physics in biology and health:

non-linear
stochastic
non-equilibrium

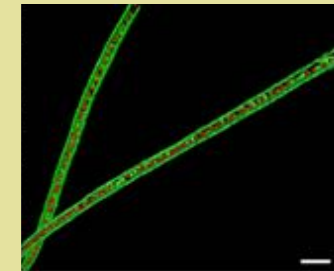
computational, collaborative: model and data-driven



human aging
machine learning
complex networks



collagen fibrils
soft-matter
elastomers



single-file diffusion
statistical physics
transport



Michael Metzger

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We work on Advanced Batteries in a Research Partnership with Tesla. Our Research Areas Include:



Lithium-ion Batteries

We make advanced battery materials with high energy density, safety and lifetime.



Sodium-ion Batteries

We work on the next generation of sustainable, low-cost batteries.



New Methods

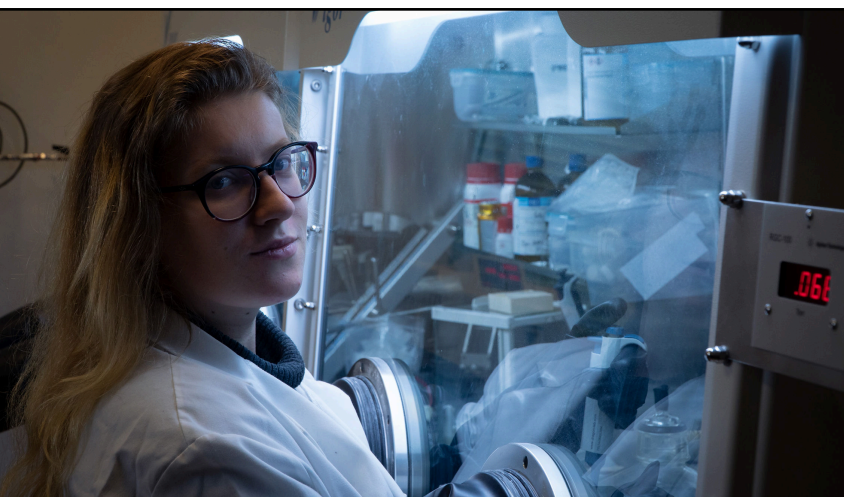
We create instrumentation to study complex degradation mechanisms in batteries.



Desalination Batteries

We apply our battery knowhow to energy-efficient water desalination.

Find out more at: metzger-group.com



Chongyin Yang

My research group is studying:

- 1) High-performance materials for advanced lithium-ion batteries, and
- 2) Sustainable electrode materials that contain no transition metals.

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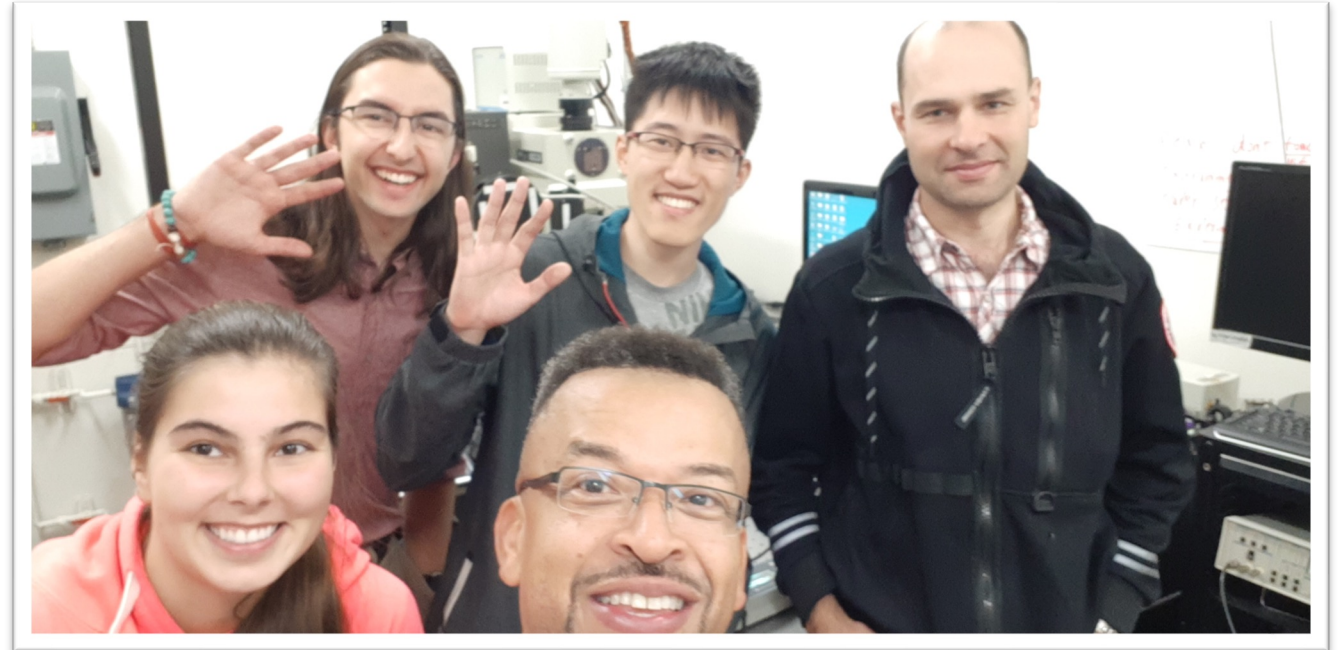
Kevin Hewitt

My group is developing a:

- portable,
- accurate, and
- cost-effective

optical device for real-time liver fat determination, in aid of transplantation.

<https://hewitt-lab.com/>



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Jeff Dahn

We study the physics and chemistry of materials for energy storage

- primarily in Lithium-ion batteries.

Our goals are:

- to improve the energy density,
- increase the safety,
- decrease the cost and
- improve the cycle and calendar lifetime of

lithium-ion batteries primarily for electric vehicles.



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