

PSD MIXER

July 2024

: Friday, July 5th, 2024

: 2:30pm

: via Zoom and in the Auditorium

: Pizza will be available in-person

: Kick back, relax, and have fun!

ZOOM

[https://ubc.zoom.us/j/64176118498?
pwd=30Qxw21TkCRDX72gMnJzwb4P9aJ82o.1](https://ubc.zoom.us/j/64176118498?pwd=30Qxw21TkCRDX72gMnJzwb4P9aJ82o.1)

Meeting ID: 641 7611 8498
Passcode: 238837

BY PHONE

Join by Telephone - For higher quality, dial a
number based on your current location.

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PLEASE KEEP YOUR MICS
MUTED

“WHAT’S THE GIST, PHYSICIST?”

Join us for another afternoon of division
updates, science, community, and good food!

Tentative Agenda:

- Division updates w/ Petr (~20 min)
- Q+A w/ Petr (~5 min)
- “Studying Battery Materials with β -NMR” presented by Iain McKenzie (~20 min).
[Abstract on the following page!](#)
- Pizza and pop!

✨ REJOICE! ✨

Physical Sciences now has a
subscription mailing list! [You can
subscribe here](#) to make sure you get
all the email updates for the division!

“Studying Battery Materials with β -NMR” – Iain McKenzie

The performance of a battery depends on the dynamics of Li^+ in the cathode, anode, and electrolyte materials that make up the battery and at the interfaces between these materials. Understanding how the diffusion parameters of Li^+ depend on composition and structure is essential for the rational design of new materials with improved performance (i.e. high lithium ion self-diffusivity and stability over many charge / discharge cycles). β -detected NMR (β -NMR) has been used to study the molecular-scale dynamics of lithium ions in battery materials. I will show how it can be used to measure the hopping parameters of lithium ions in a polymer electrolyte and how these can be affected by the addition of different lithium salts. I will also show how β -NMR has been used to characterize lithium ions in ultra-thin (30 nm thick) Al_2O_3 capping layers of promising nickel-rich cathode materials.