



DATE

IFE-ÅPENT

Presentation of master student topics

IFE – Battery Technology

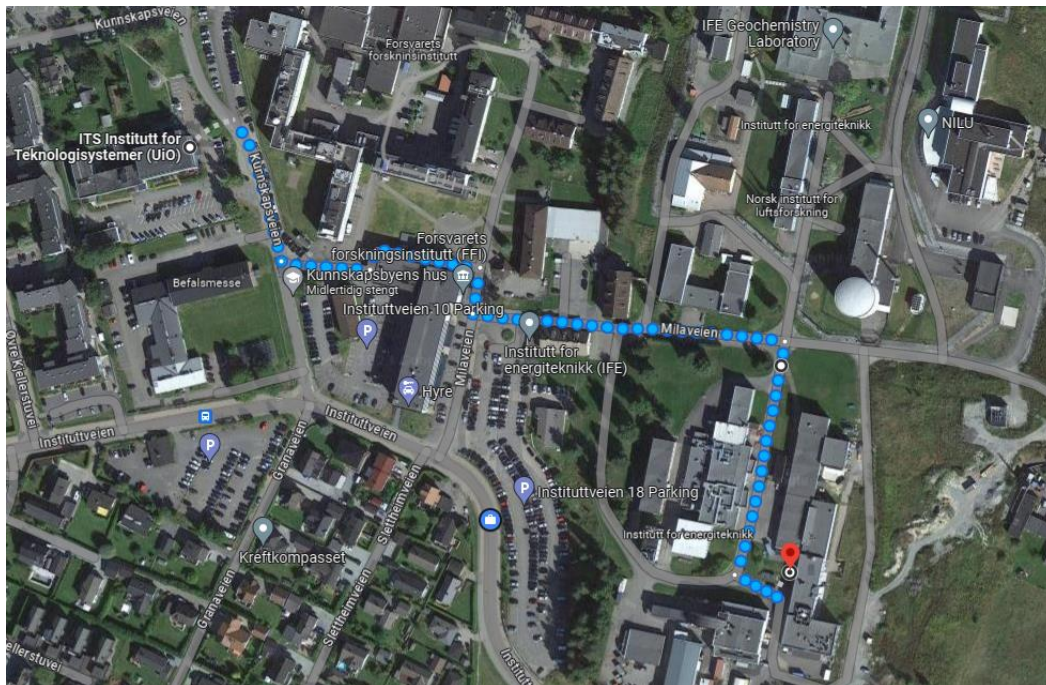
Hanne Flåten Andersen

Department of battery technology



Institute for Energy Technology

#2 | IFE



Close neighbor to ITS (8-minute walk to battery labs)



Teaching TEK5440 course this semester

Eight scientific goals 2023–2026

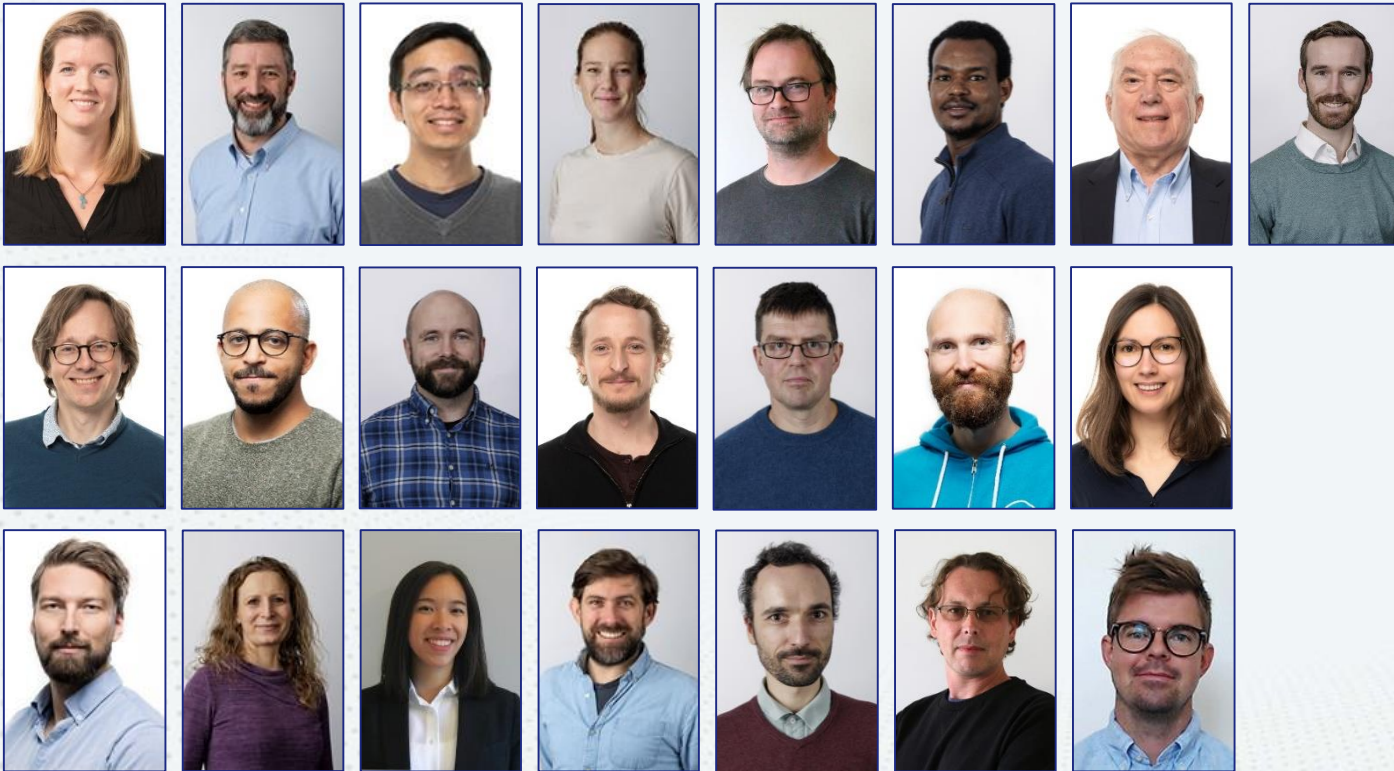
1 Hydrogen	2 Energy systems	3 Solar power	4 Batteries	5 CCS	6 Resilient city	7 Nuclear	8 Transport
							
Number one national technology center for hydrogen	Leading Norwegian actor in Energy Systems	Best in Norway in PV Technology	Best in Norway in Batteries	Best in Norway in CO ₂ Flow and materials testing	Become a national research actor in Smart City on resilience	National Competence hub in nuclear matters	Recognized partner for Safety HTO in intelligent & autonomous transport systems

Human Centred Digitalization

Battery Technology Department

22 people working exclusively with batteries - batteries also central in other departments

Battery department at IFE



Other relevant departments

Computational
Materials Processing



Environmental
Industrial Processes



Solar Power
Systems



Energy Systems
Analysis



... and others

Some of our partners

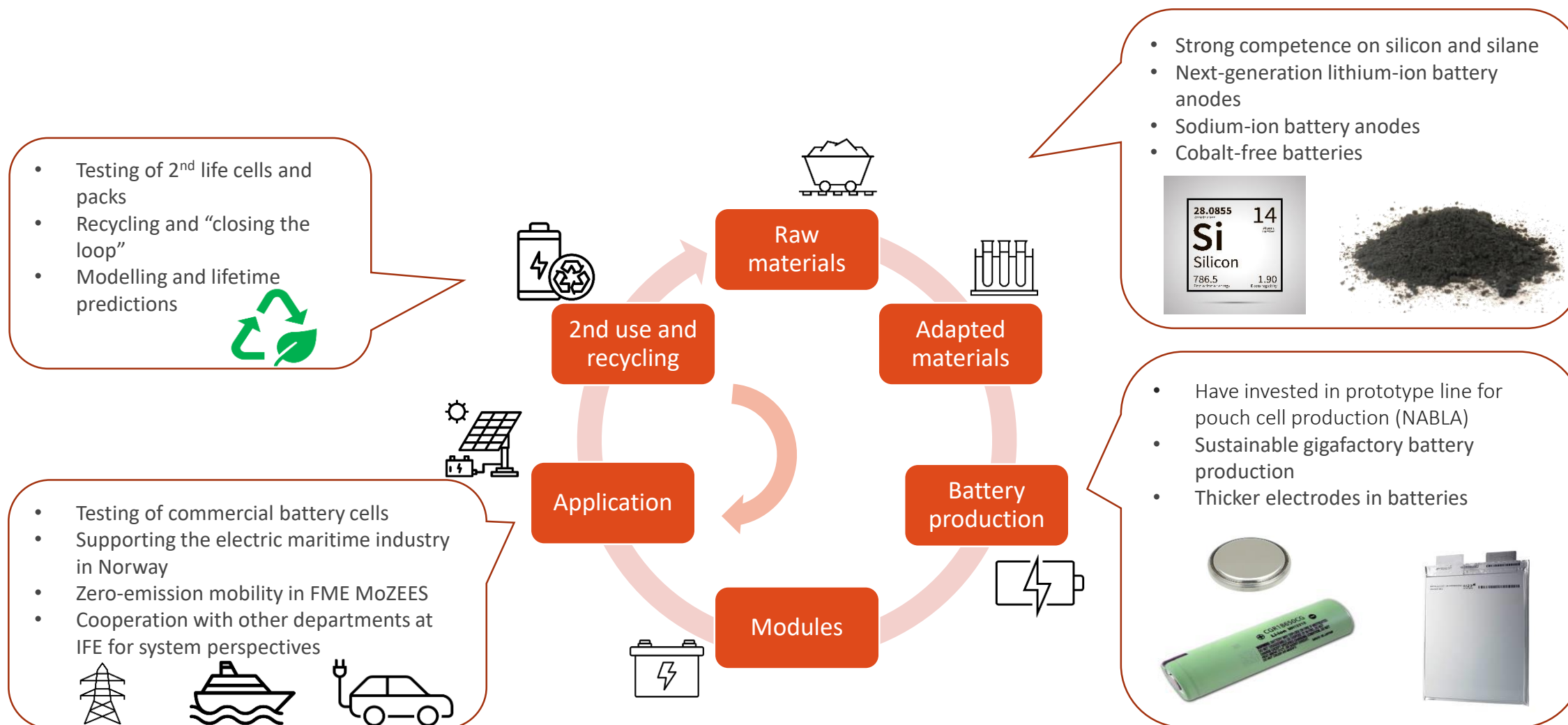


Close cooperation with industry and academia for 10+ years

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- Working with battery research for over 10 years
- Close cooperation with Norwegian industry
- Competence in the entire value chain - from material development to recycling and 2nd life
- Funding from Norwegian Research Council, Horizon Europe and Industry partners
 - Project-based work

IFE is covering large parts of the battery value chain

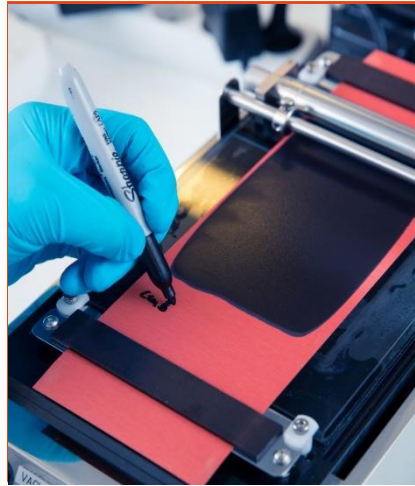


Battery labs at IFE

Invested heavily in new infrastructure and equipment and building 500 m2 labs



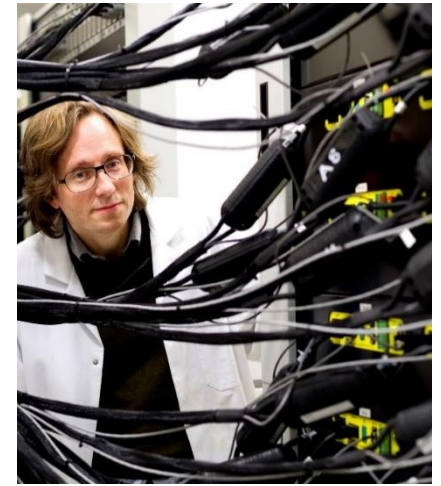
Battery
materials



Battery
development



Battery cell
production



Commercial battery
testing

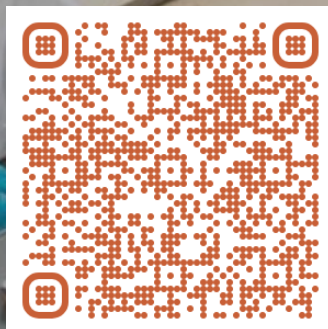


Potential topics for master students

- What can we learn from our battery cell testing data?
 - Machine learning
 - Equivalent circuit modelling
 - dQ/dV tracking
 - Resistance: compare DC resistance with EIS
- BMS cybersecurity testing – hacking into BMSs
- Pressure foil analysis – linking to ageing and IR data
- Use data from pilot site – battery + PV:
 - OCV reconstruction on pack-data
- Model parametrization and diagnostics:
 - Optimised minimum experimental design matrix
- Post-mortem of aged Li-ion cells

Please contact us if any of these topics
sound interesting!

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