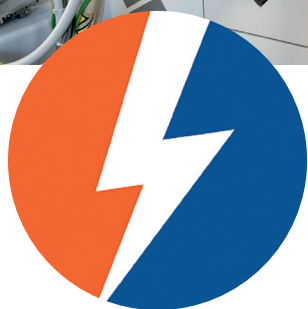




# BATTERY INNOVATION CENTRE

PIONEERING THE BATTERY RESEARCH

## CHEMICAL LAB

### WE PROVIDE

- Advanced Li-ion Battery Technologies
- Solid-State Battery Technologies
- Upscaling: From Coin cell to pouch cell
- Advanced Battery Manufacturing
  - Digitalisation and Optimisation
  - Self-Healing Functionalities
  - Sensor Implementation in the Cell
- Degradation Detection and Post-mortem
- Battery Parameterisation and Characterisation

### EQUIPMENT

- Glovebox (Argon)
- Dryroom (-60°C DP)
- In-situ XRD (Cu K<sub>α</sub> and Mo K<sub>α</sub> radiation)
- Fumehoods
- Electrode Manufacturing & Cell Assembly
  - Mixers (Vacuum, Vortex)
  - Doctor Blade Coater
  - Hot Rolling Press
  - Hydraulic Die Cutter
  - CR2032 Cell Crimper
  - Tab Welding Machine
- Splittable Cells (Li-ion and Solid-State Battery Research)
- 150 Battery Cycler Channels (Bio-logic, Neware)
- 45+ Impedance Spectroscopy Channels (Bio-logic)
- Access to AFM,  $\mu$ -CT, SEM etc.

## OUR FOCUS



NEXT GENERATION



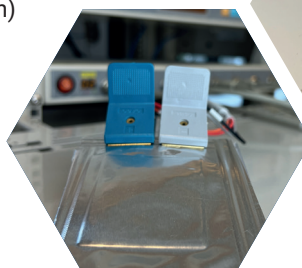
MODELLING



MANUFACTURING & UPSCALING



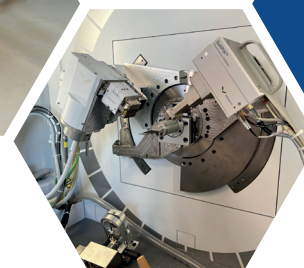
CHARACTERISATION



Pouch cell



CR2032 Coin cell



In-Situ XRD



ELECTROMOBILITY  
RESEARCH CENTRE

# BATTERY LAB

## RESEARCH & DEVELOPMENT

- Modelling: Electrochemical - Thermal - Electrical - Lifetime
- Multi-scale digital twin models
- Smart Thermal Management, Cooling systems
- Smart State Estimations: State-of-X (SoC, SoH, etc.)
- Second life performance and modelling
- Standardisation of batteries and functionalities
- Digital Product Passport
- Battery digital twin development

## EQUIPMENT

- 300+ cell-level channels
- 12 module-level channels
- 12 climate chambers including walk-in rooms
- 42 impedance spectroscopy channels
- Thermal imaging equipment
- Thermal test benches
- Hardware in the Loop and Cloud computing

## OUR FOCUS



THERMAL MANAGEMENT  
& COOLING SYSTEMS



ADVANCED BATTERY  
MODELLING



VEHICLE TO GRID &  
GRID INTEGRATION



SECOND LIFE



BATTERY SIZING &  
AGEING



MANAGEMENT  
SYSTEMS

## DIGITALISING BATTERY DEVELOPMENT



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