

Synergies between high-precision battery research and European knowledge transfer in the AutoCove 2.0 project

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1. Motivation & Objectives

Battery technology is key to the mobility transition. However, there is a skills gap in Europe.

- Growth in the battery sector: +13% per annum
- Demand: 1.5 million skilled workers by 2030.

AutoCove 2.0: An EU project to modernise training in the European automotive sector across 8 countries through digital learning concepts for sustainable mobility and new propulsion technologies.

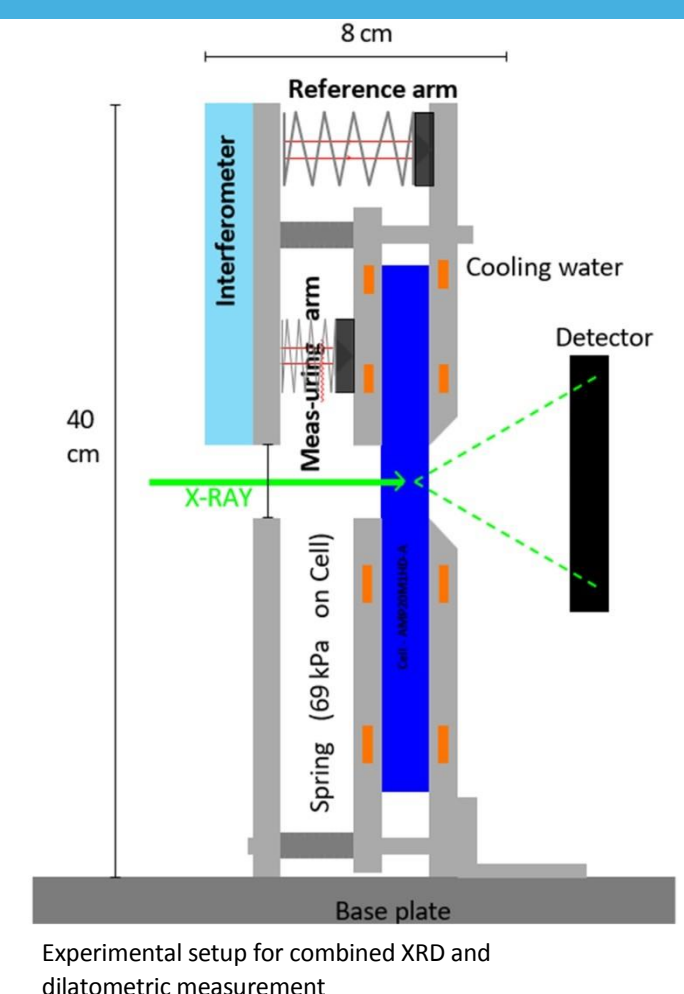
2. High-precision in-operando research

At TTZ-EMO, the correlation between lattice structure and cell expansion is being investigated:

Methods:

- Synchrotron XRD (DESY PETRA III, 100 keV)
- Interferometric dilatometry (5 nm resolution)

Key findings: Demonstration of a direct link between lattice expansion and cell expansion. Lithium charge states in graphite can be precisely determined.



3. Transfer to knowledge dissemination

How does research find its way into the classroom? The TTZ-EMO translates findings into learning modules based on this data:

Thematic modules:

- Fire safety & thermal runaway diagnosis
- in the workshop
- Battery ageing & SOH determination

Target groups: Vocational school teachers (Teach-the-Teacher),

- decision-makers, students and industry partners across Europe.

4. Results & Synergies

The close integration of high-end optics/analytics and vocational training ensures that:

- Teaching content is scientifically sound (e.g. real ageing curves rather than theory).
- Tomorrow's skilled workers understand the diagnostic systems of the future.

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