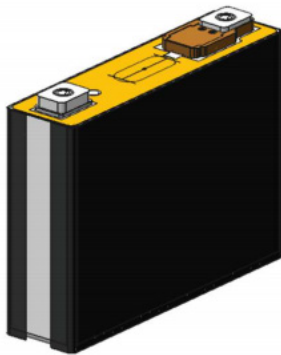
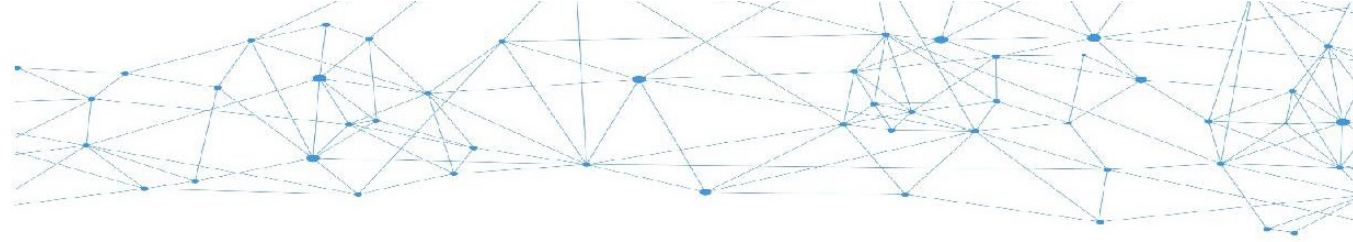


SCCER – Swiss Battery Research Platform

“ From Cells to High Voltage Batteries for Mobility ”

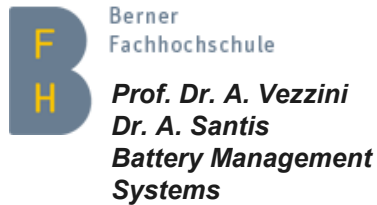
- Design (Safety & Reliability)
- **Thermomanagement**
- Crash – Resistance





SCCER – Swiss Battery Research Platform

Members and Expertise



ETH zürich

Prof. Dr. K. Wegener
Prof. Dr. D. Dyntar
Application



ETH zürich

Prof. Dr. J. Biela
Power Electronics

**HOCHSCHULE
LUZERN**

Prof. V. Härrli
Super Capacitors



PAUL SCHERRER INSTITUT



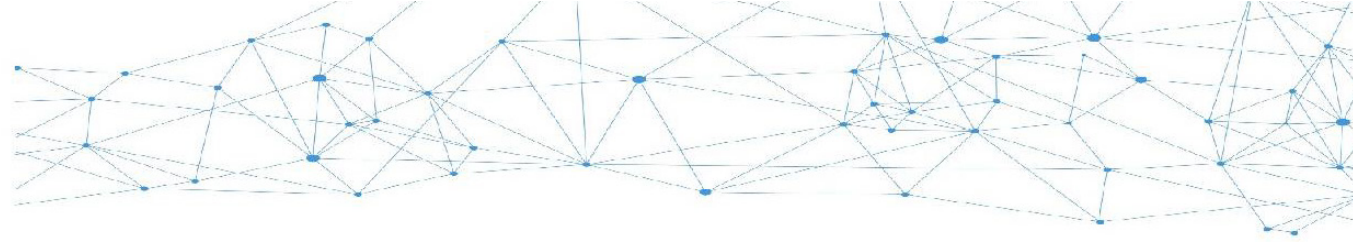
Prof. P. Novak
Dr. C. Villevieille
Cells & Cell Chemistry



Prof. Dr. M. Stöck
Dr. G. Rizzo
Thermomanagement & Packaging



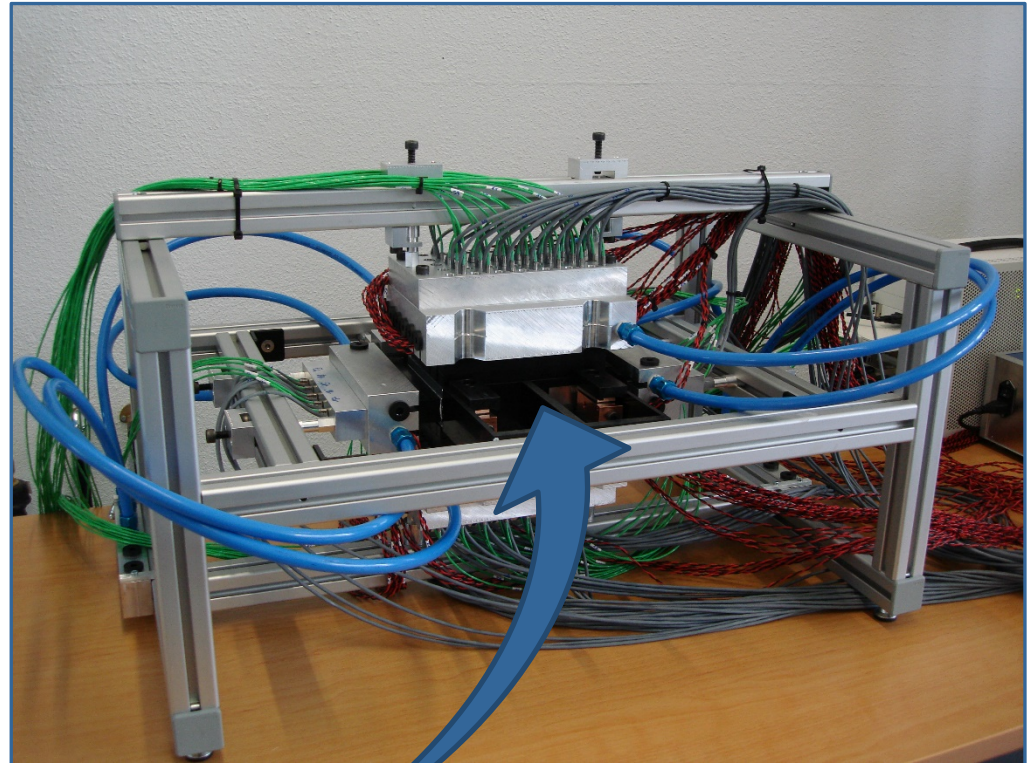
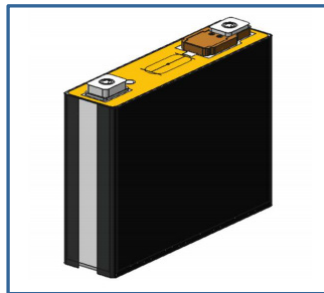
Dr. U. Sennhauser
Dr. D. Adams
Safety & Reliability



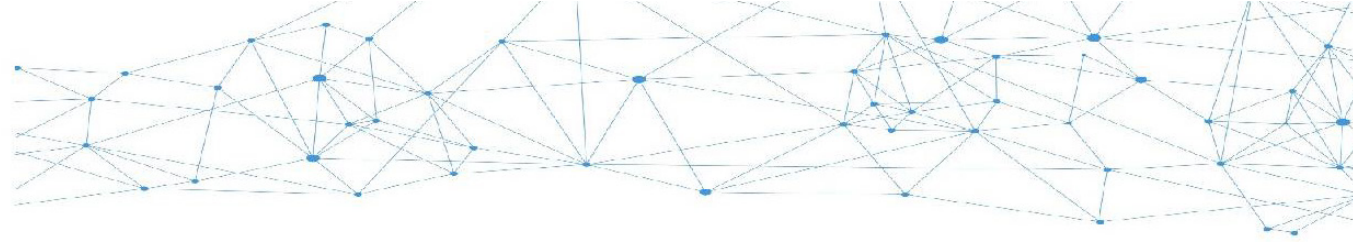
CTR – Cell Test Rig

Electrical Measurement Methods

- max. charge current = 220 A
- max. discharge curr. = 400 A
- max. voltage = 18 V



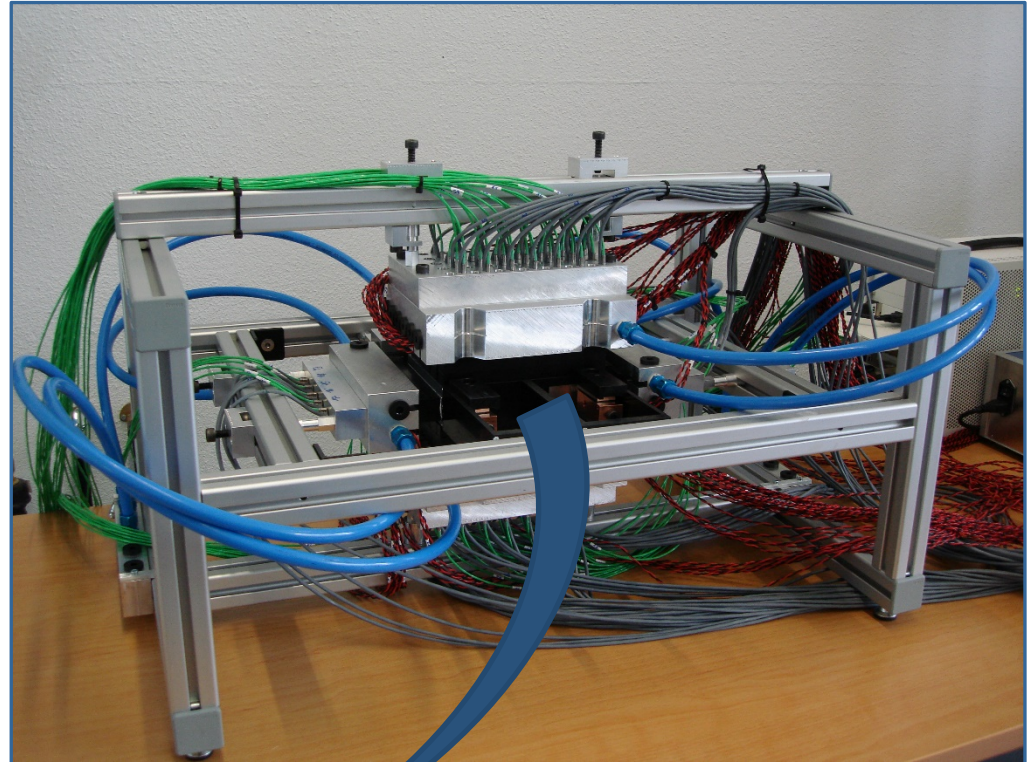
for prismatic cells
(for cylindrical cells in
preparation)



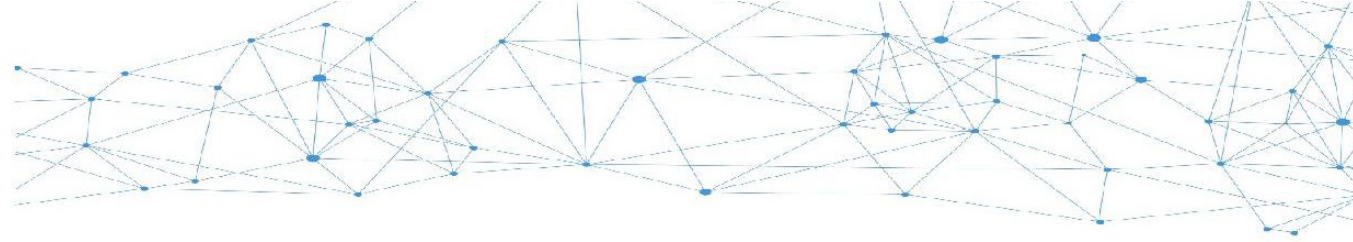
CTR – Cell Test Rig

Thermal Measurement Methods

- const. surface temperature
- const. surface heat flux
- ideal isolated,
(i.e. heat flux = 0 W/m²)



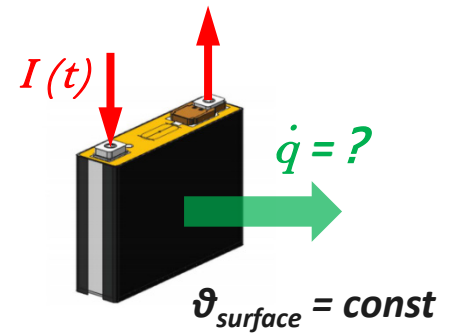
in situ resolution
totally 87 points



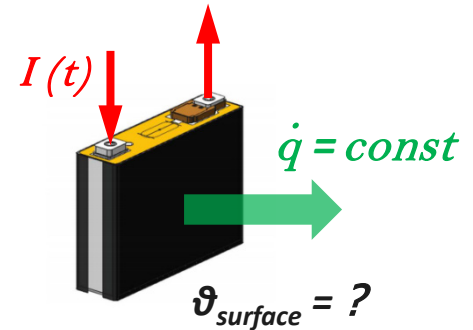
CTR – Cell Test Rig

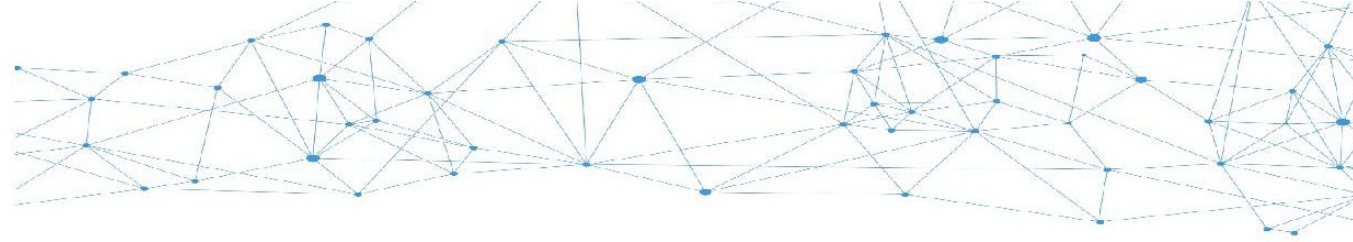
New Unique Analysis Capabilities

a) mode - const. surface temp. \Rightarrow detection of local heat flux distribution
 \hookrightarrow *Measurement of required cooling power ?*
 \hookrightarrow *Where to cool the battery best ?*



b) mode - const. surface heat flux \Rightarrow detection of local surface temperature distribution
 \hookrightarrow *Localization of thermal hot spots ?*

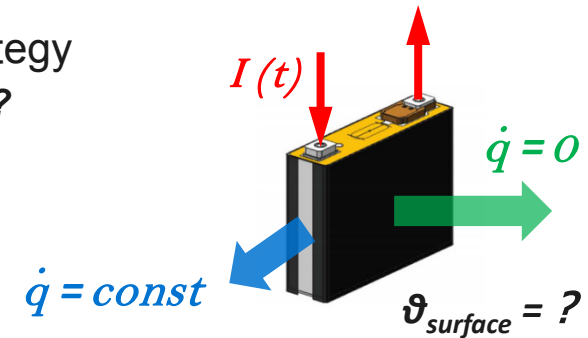


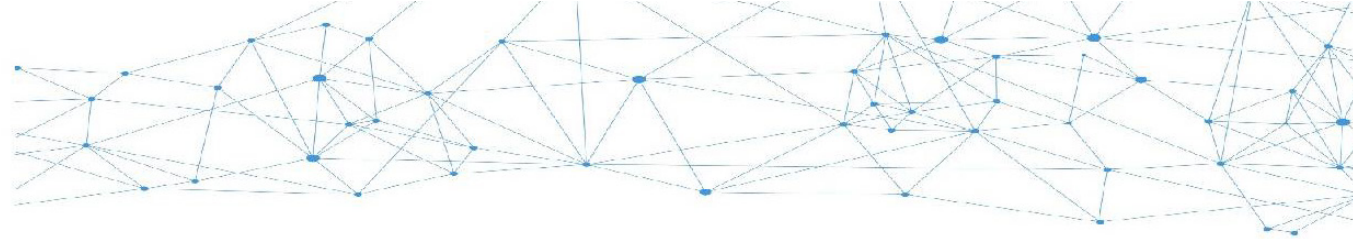


CTR – Cell Test Rig

New Unique Analysis Capabilities

- c) mode - ideal isolated with locally cooled areas \Rightarrow analysis of a discrete cooling strategy
- \hookrightarrow *Verification of cooling methods ?*
 - \hookrightarrow *Determination of actual cooling power ?*
 - \hookrightarrow *Recording of engaged temperature distribution ?*

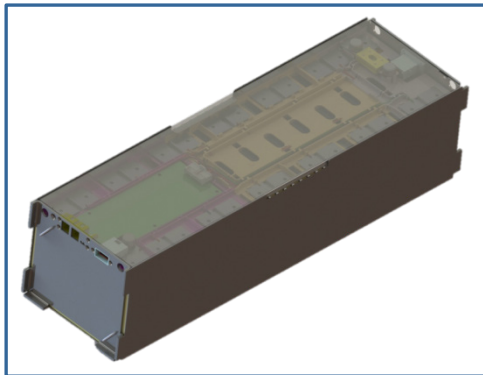




MTR – Module Test Rig

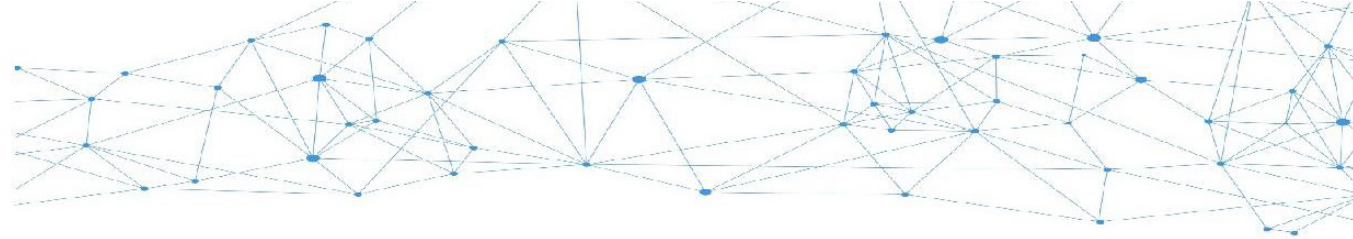
Electrical Measurement Methods

- max. charge current = 365 A
- max. discharge curr. = 365 A
- max. voltage = 65 V



**for all kinds of battery
modules** (up to 1000 mm x 800 mm)

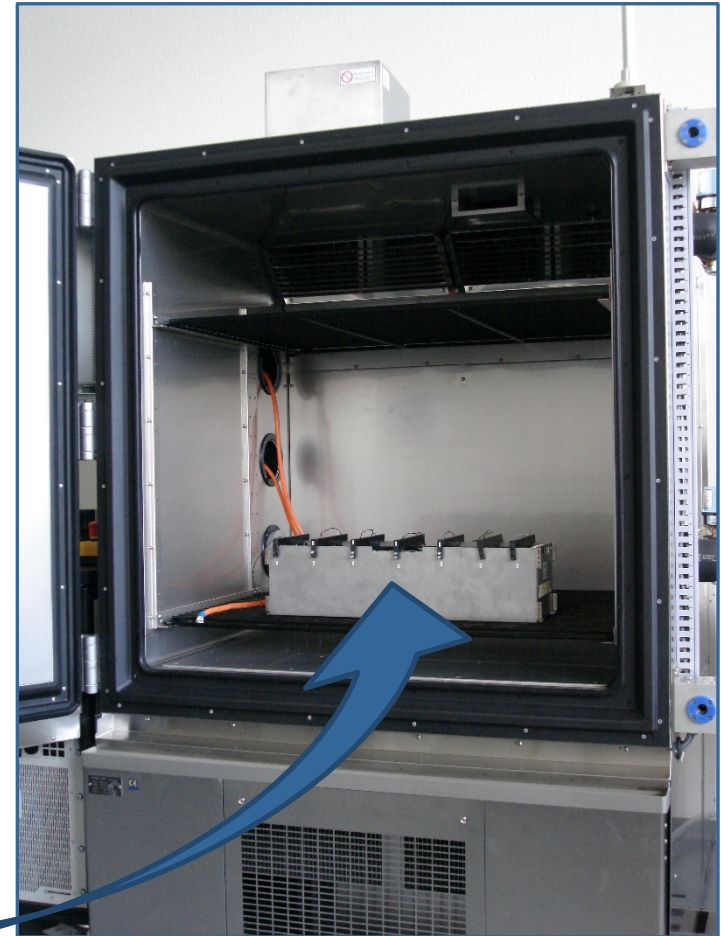
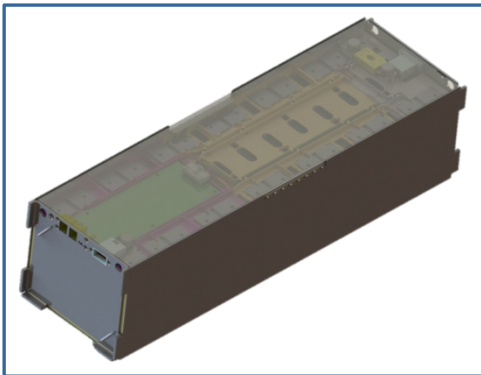




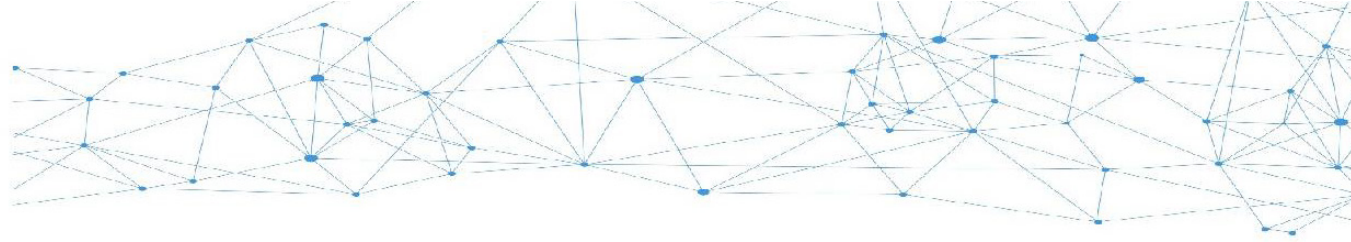
MTR – Module Test Rig

Thermal Measurement Methods

- max. chamber temp. = 100 ° C
- min. chamber temp. = -40 ° C
- max. chamber heat load = 2.85 kW



**for all kinds of battery
modules** (up to 1000 mm x 800 mm)



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In Zusammenarbeit mit der KTI



Energie

Swiss Competence Centers for Energy Research



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Kommission für Technologie und Innovation KTI



Swiss Competence Center for Energy Research
Efficient Technologies and Systems for Mobility