



## Online Public Workshop

### *Advanced electrical test methods for battery cell classification*

Free virtual workshop on Tuesday, March 28, 2023 (3 pm CET)  
Login data (Zoom) will be sent to registered participants only

#### Organizers:

Ferry Kienberger (Keysight Technologies, Austria)  
Johannes Angerer (Kreisel Electric, Austria)

Broadband frequency electrochemical characterization techniques from nano- to macroscale and transferring them to in-line testing and pilot-lines are at the heart of the EU project NanoBat. This is a synoptic public workshop focusing on electrochemistry, EIS calibration & uncertainty, round-robin test accuracy, and high-power module tests. Two videos from the pilot-line cell separator test and the high-power module tests are included for hands-on sessions.

In this public workshop we are focusing on:

1. Electrochemistry of aging related processes (Univ Burgos & IMDEA Energy Madrid)
2. Pilot line cell testing methods (TU Braunschweig)
3. Metrology cell characterization using EIS and round-robin (BMW)
4. Cell classification based on calibrated impedance and uncertainty (Keysight)
5. High-power battery module testing + lab-demo (Keysight & Kreisel Electric)

If you are interested to attend, please register for the workshop on the [NanoBat website](#).

Administrative contact: Gerald Kada [gerald.kada@keysight.com](mailto:gerald.kada@keysight.com)



Tuesday, March 28, 2023 15:00 – 17:00 CET (Zoom)		
Time	Topic	Speaker
15:00-15:10	<b>Welcome by the Organizers</b>	<b>Ferry Kienberger</b> (Keysight) <b>Johannes Angerer</b> (Kreisel)
<b>Session I – Electrochemical tests</b>		
15:10-15:30	<b>Talk:</b> Electrochemical battery test methods – an overview	<b>Edgar Ventosa, Jesus Palma</b> (Univ of Burgos, IMDEA Energy)
<b>Session II – Pilot line test methods</b>		
15:30-15:50	<b>Talk:</b> Electrical high-voltage test for separators in a pilot line environment	<b>Chao Zhang</b> (TU Braunschweig)
<b>Session III – Metrological cell tests</b>		
15:50-16:05	<b>Talk:</b> Calibrated EIS test accuracy and round-robin validation	<b>Arnd Leike</b> (BMW)
16:05-16:20	<b>Talk:</b> Advanced cell classification based on calibrated impedance and uncertainty	<b>Amin Moradpour</b> (Keysight)
<b>Session IV – High power battery module</b>		
16:20-16:40	<b>Talk:</b> 7 kWh module test with 396 cells using EIS and time-domain test & <b>Hands-on demo video</b>	<b>Manuel Kasper</b> (Keysight) <b>Johannes Angerer</b> (Kreisel) & <b>Mykolas Ragulskis</b> (Keysight)
16:40-17:00	<b>Q&amp;A</b>	<b>All</b>
17:00-17:10	<b>Meeting closure</b>	<b>Ferry Kienberger</b>
<b>End of workshop</b>		

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**Link to participate (Zoom) will be sent to registered participants only**

**Inscription to the workshop is free of charge.**

