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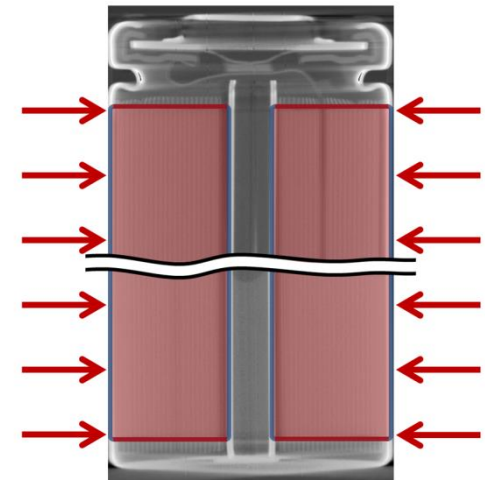
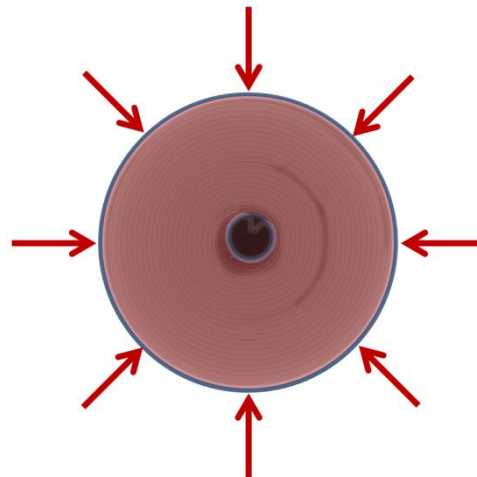
Federal Ministry of
Education
and Research

Thermal Conductivity Test Bench for Li-Ion Cells Using LiveLink™ for MATLAB®

COMSOL
CONFERENCE
ROTTERDAM2013

Arno Arzberger

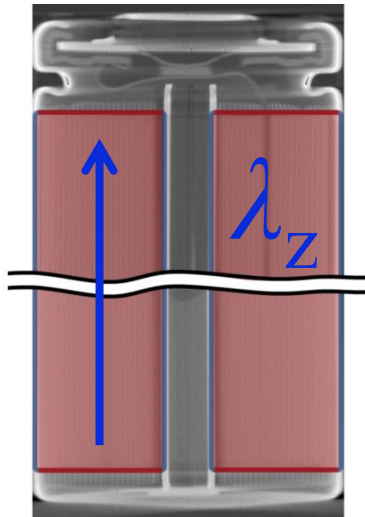
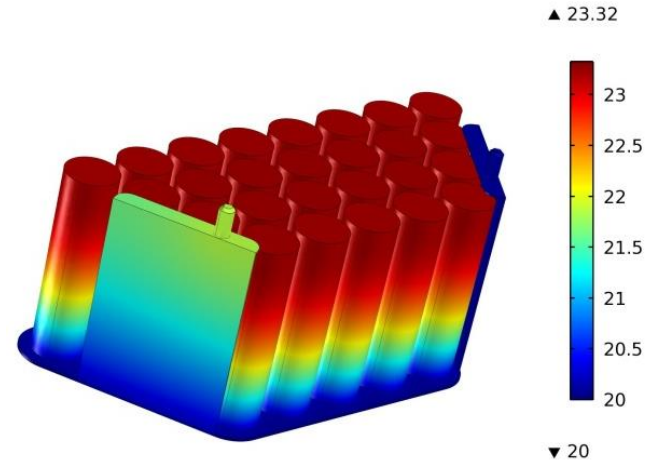
post@isea.rwth-aachen.de



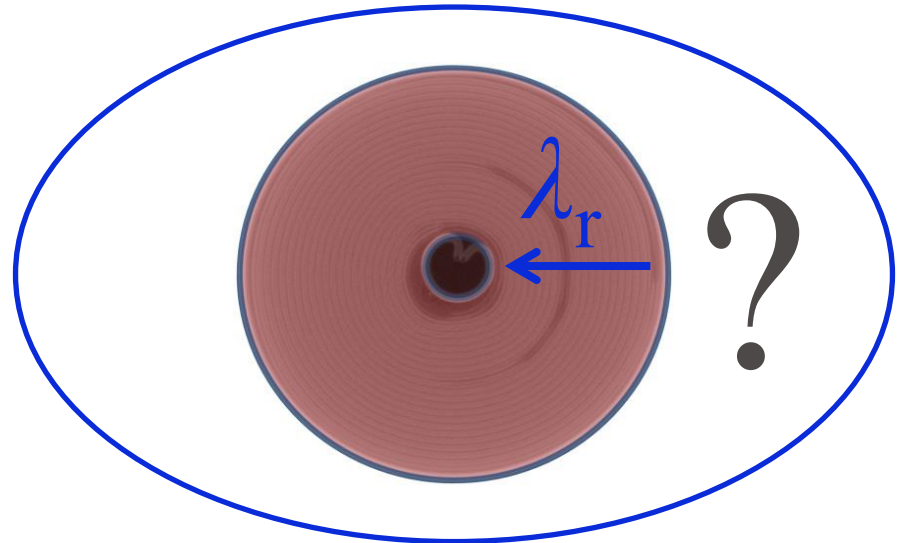
Motivation



Volume: Temperature (degC)

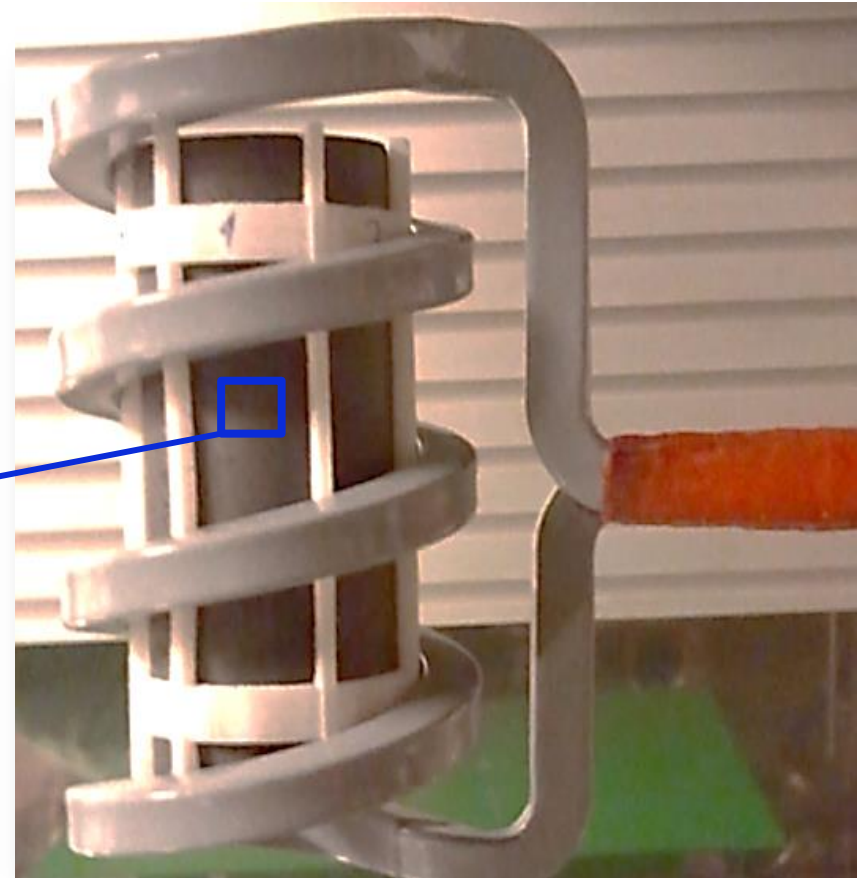
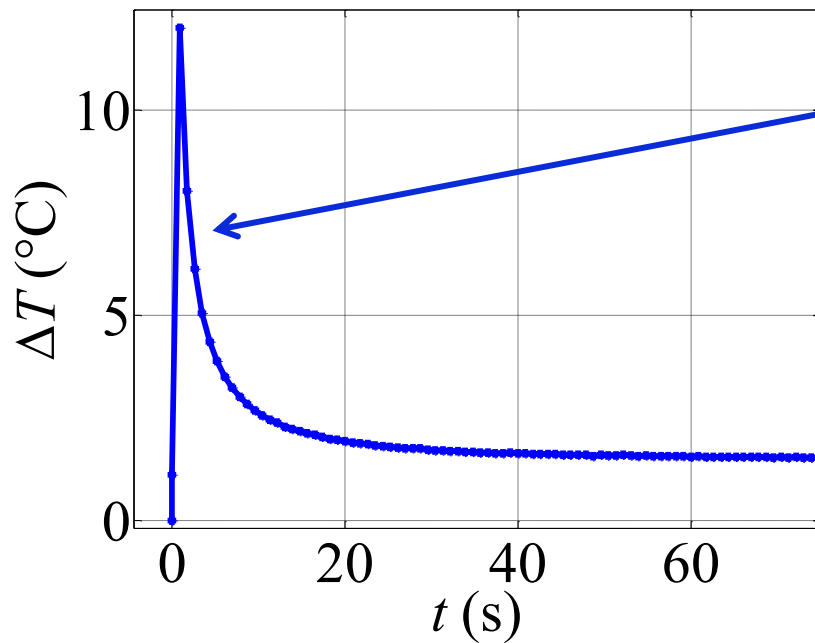


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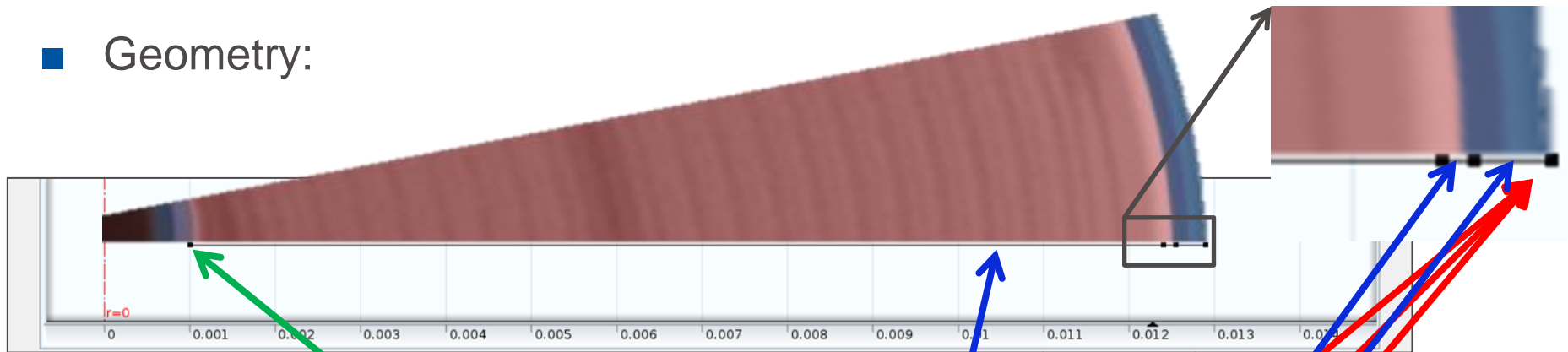
Experimental Setup: Inductive Heating, Thermal Imaging

- Graphite coating
- Water-cooled induction coil
- Pulse length: 400 ms
- $\Delta T = \sim 12^\circ\text{C}$













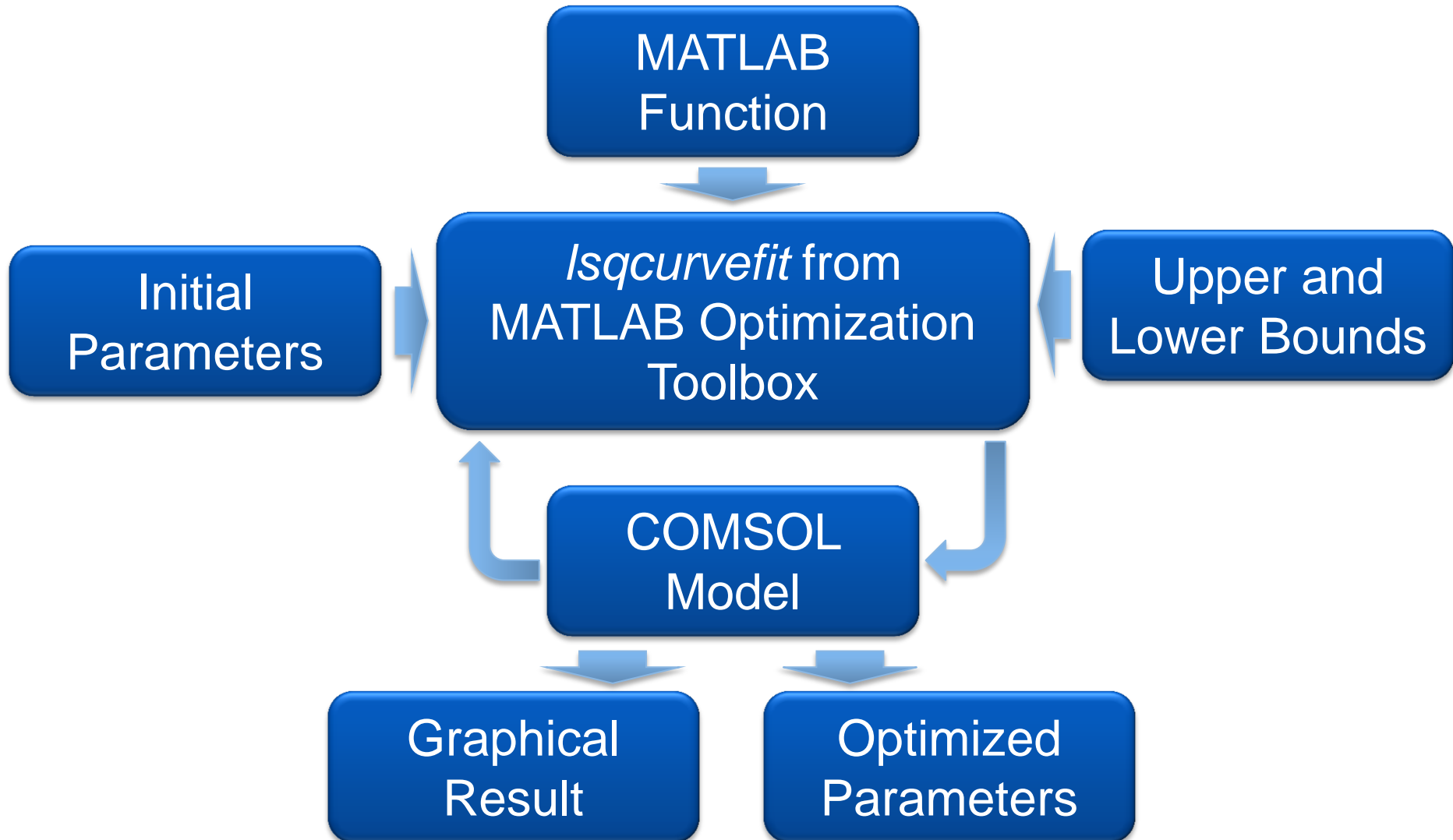
Comsol Model

■ Geometry:

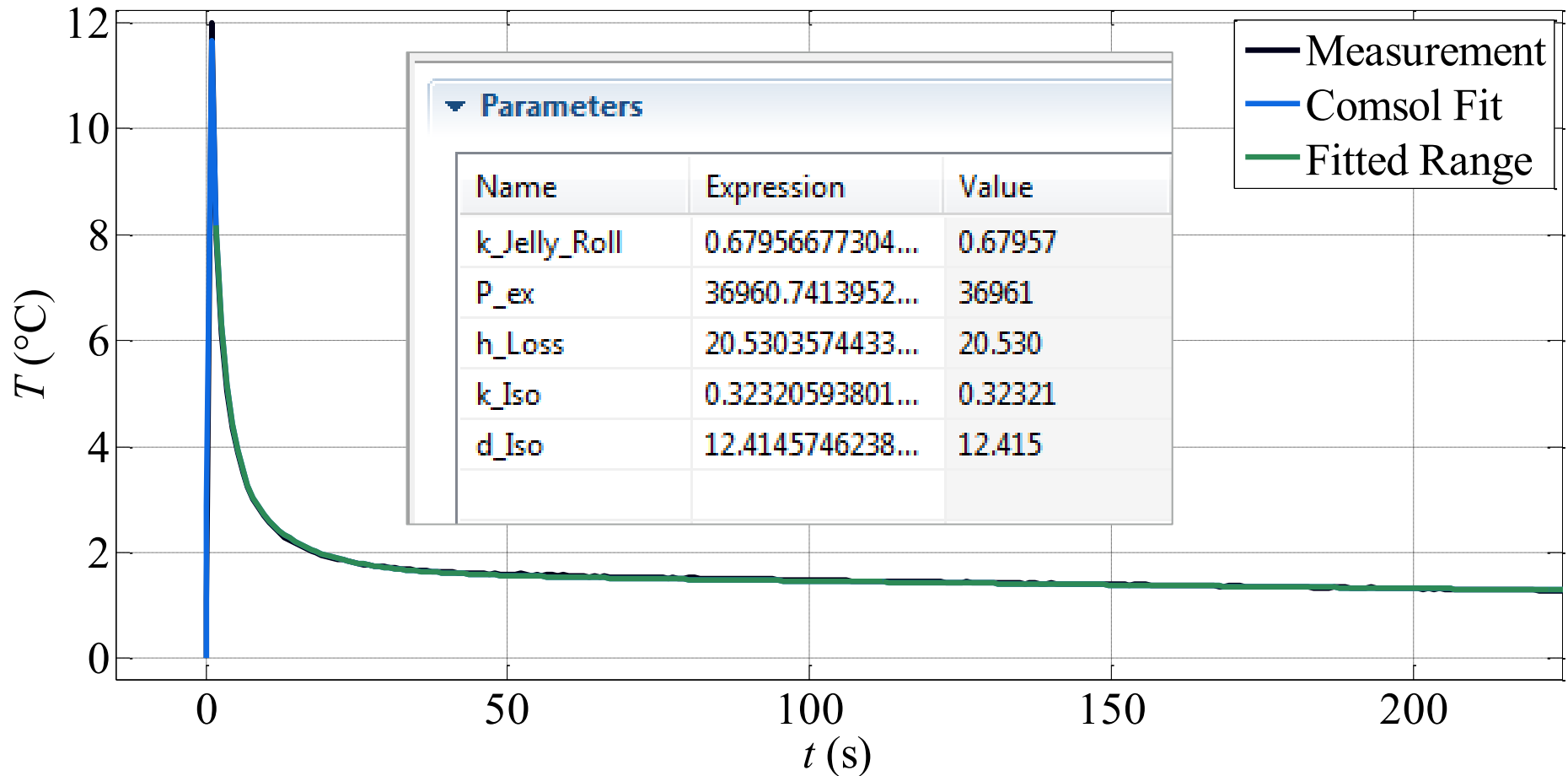


■ Physics:

- 
Heat Transfer in Solids {ht}
 - 
Heat Transfer in Solids 1 {solid1}
 - 
Axial Symmetry 1 {axi1}
 - 
Thermal Insulation 1 {ins1}
 - 
Initial Values 1 {init1}
 - 
Boundary Heat Source 1 {bhs1}
 - 
Surface-to-Ambient Radiation 1 {sar1}
 - 
Convective Heat Flux 1 {chf1}
 - 
Heat Transfer in Solids 2 {solid2}
 - 
Heat Transfer in Solids 3 {solid3}



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