AGENDA

09:00 Welcome Coffee
General Talks
09:30 Welcome and Introduction to the workshop
Jens Mitzel DLR
09:50 General challenges in PEMFC - Ludwig Jörissen ZSW
10:00 Importance of strategic research challenges
Laurent Antoni Hydrogen Europe Research
10:20 Overview of FURTHER-FC - Joël Pauchet CEA
10:40 Introduction of Project Partners
11:10 Main Progress - Arnaud Morin CEA
11:30 Importance of the Project from Industry Point of View
Stephane Cotte Toyota Motor Europe
12:00 Lunch break
Scientific highlights from FURTHER-FC
13:00 Ionomer Thin Films
Kunal Karan University of Calgary
13:30 Characterization of the CCL structure – spatial distribution of the materials
Laure Guetaz CEA /Tobias Morawietz UES
13:50 Characterisation of CCL materials - local transport properties Anthony Kucernak ICL
14:10 Quantification of local conditions in MEA
Pierre Boillat PSI
14:30 Electrochemical characterization
Jens Mitzel DLR
15:00 Coffee Break
15:15 Electrochemical modelling
Michael Eikerling RWTH Aachen
15:45 Multiscale Modelling
Thomas Jahnke DLR
16:00 Ionomers in Catalyst Layers
Patrick Redon Chemours
16:15 Discussion with the audience
Joël Pauchet
Arnaud Morin CEA
16:45 Closing Remarks
Joël Pauchet CEA
17:00 DLR Lab Tour
Jens Mitzel DLR

CONTACT AND REGISTRATION

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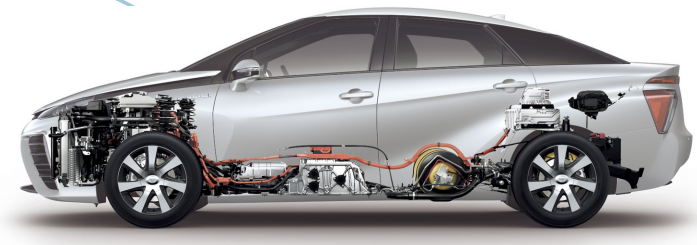
ACKNOWLEDGEMENT

THIS PROJECT HAS RECEIVED FUNDING FROM THE FUEL CELLS AND HYDROGEN 2 JOINT UNDERTAKING (NOW CLEAN HYDROGEN PARTNERSHIP) UNDER GRANT AGREEMENT NO 875025. THIS JOINT UNDERTAKING RECEIVES SUPPORT FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAM, HYDROGEN EUROPE AND HYDROGEN EUROPE RESEARCH.



Co-funded by the European Union

Clean Hydrogen Partnership

FURTHER-FC Workshop 6.07.2022 DLR Stuttgart, Germany

FURTHER UNDERSTANDING RELATED TO TRANSPORT LIMITATIONS AT HIGH CURRENT DENSITY TOWARDS FUTURE ELECTRODES FOR FUEL CELLS.

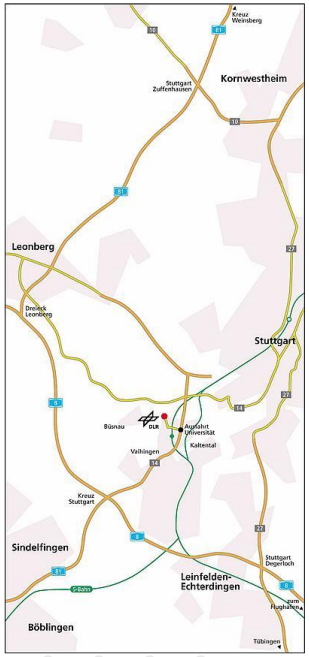
FURTHER-FC
Understand to improve

Face to Face meeting / online
Free of charge

liten · DLR Deutsches Zentrum für Luft- und Raumfahrt German Aerospace Center · Imperial College London · TOYOTA · INP Toulouse · Chemours · PAUL SCHERRER INSTITUT PSI · Hochschule Esslingen University of Applied Sciences · University of Calgary

PARTNERS

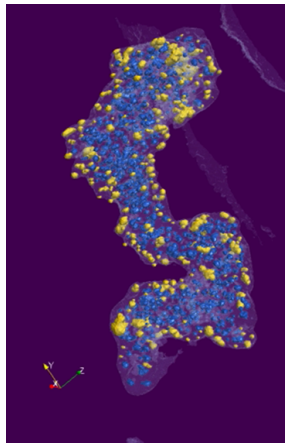
FURTHER-FC will benefit from the active role of renowned partners gathering significant experience on membrane electrode assembly manufacturing and testing (Toyota Europe (TME), French Alternative Energies and Atomic Energy Commission (CEA), German Aersospace Center (DLR)), state-of-the Art experimental techniques (CEA, DLR, Paul Scherrer Institut (PSI), University of Montpellier (IEM), Univ. of Applied Sciences Esslingen (UES), Imperial College London (ICL)) and modelling tools (CEA, DLR, National Polytechnic Institute of Toulouse (INPT)) supported by international entities (The Chemours Company (CC), University of Calgary(UCA)).



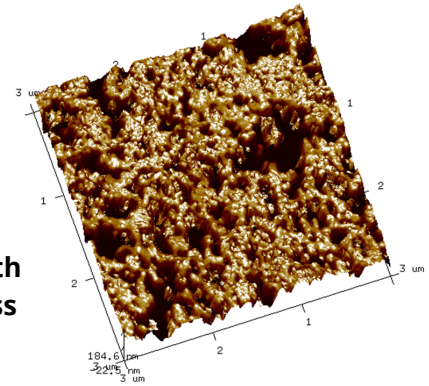
DLR site Stuttgart
German Aerospace Center (DLR)
Hörsaal
Pfaffenwaldring 38-40
70569 Stuttgart

DLR Stuttgart is located on the University of Stuttgart Campus at Stuttgart-Vaihingen.

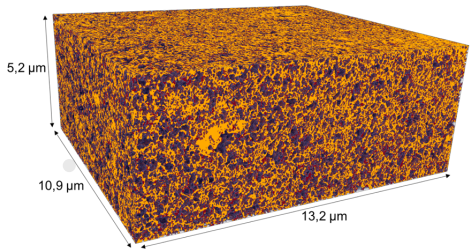
RESULTS



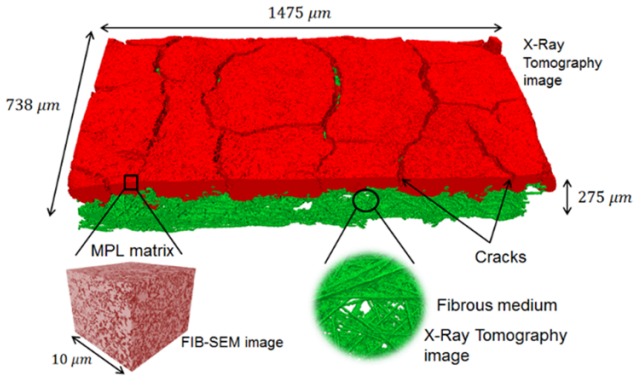
3D rendered image showing the interior (blue) and exterior (yellow) Pt NPs



AFM:
3D height-image with superposed stiffness values



FIB-SEM:
3D rendered image of the segmented CCL volume

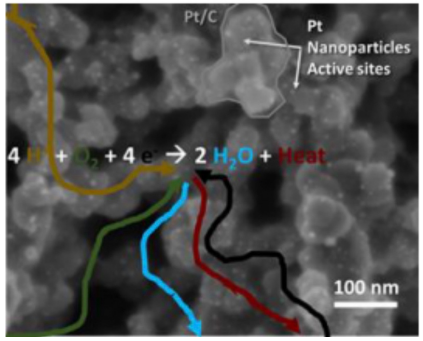


3D digital image of GDL combining X-ray Tomography (fibrous medium, cracks) and FIB-SEM (MPL matrix)

AMBITION

FURTHER-FC will bring new knowledge on the catalyst coated layer (CCL, membrane or other substrate):

- Microstructure
- Correlation between transport properties, performance and components (Platinum, Carbon, Ionomer) and their structure
- local conditions during operation
- limitations induced by transport phenomena
- modelling of transport phenomena
- Propose and validate structure and composition of CCL with improved catalyst efficiency and durability



METHODOLOGY