

# AGENDA

# CONTACT AND REGISTRATION

Co-funded by the European Union



## FURTHER-FC Workshop Agenda

09:00	Welcome Coffee		
<b>General Talks</b>			
09:15	Welcome and Introduction to the workshop	Jens Mitzel	DLR
09:30	General challenges in PEMFC	Ludwig Jörissen	ZSW
10:00	Importance of strategic research challenges	to be defined	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		
<b>Scientific highlights from FURTHER-FC</b>			
13:00	Ionomer Thin Films	Kunal Karan	University of Calgary
13:20	Characterization of the CCL structure – spatial distribution of the materials	Laure Guetaz Tobias Morawietz	CEA UES
13:40	Characterisation of CCL materials - local transport properties	Anthony Kucernak	ICL
14:00	Quantification of local conditions in MEA	Pierre Boillat	PSI
14:20	Electrochemical characterization	Jens Mitzel	DLR
14:40	Coffee Break		
15:00	Electrochemical modelling	Michael Eikerling	RWTH Aachen
15:30	Multiscale Modelling	Thomas Jahnke	DLR
16:00	High Oxygen Permeable Ionomers for Durable, High Power Density Cathodes	Andrew Park	Chemours US
16:20	Discussion with the audience	Joël Pauchet Arnaud Morin	CEA
16:45	Closing Remarks	Joël Pauchet	CEA
17:00	DLR Lab Tour	Jens Mitzel	DLR

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**Registration**

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**More information**

further-fc.eu

## ACKNOWLEDGEMENT

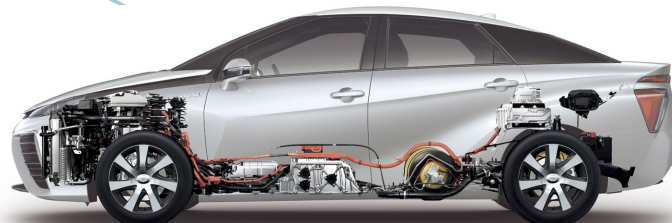
THIS PROJECT HAS RECEIVED FUNDING FROM THE FUEL CELLS AND HYDROGEN 2 JOINT UNDERTAKING (NOW CLEAN HYDROGEN PARTNERSHIP) UNDER GRANT AGREEMENT NO 875025. THIS JOINT UNDERTAKING RECEIVES SUPPORT FROM THE EUROPEAN UNION'S HORIZON 2020 RESEARCH AND INNOVATION PROGRAM, HYDROGEN EUROPE AND HYDROGEN EUROPE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

# FURTHER-FC Workshop 06.07.2022 DLR Stuttgart, Germany

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



Face to Face meeting / online  
Free of charge



# PARTNERS

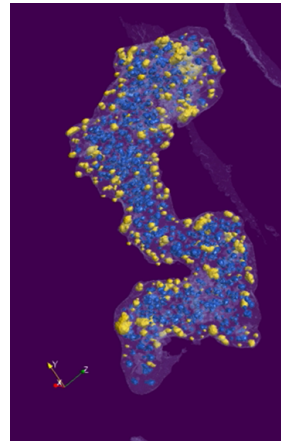
FURTHER-FC will benefit from the active role of renowned partners gathering significant experience on membrane electrode assembly manufacturing and testing [Toyota Europe (TME), French Alternative Energies and Atomic Energy Commission (CEA), German Aerospace Center (DLR)], state-of-the Art experimental 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)  
Lecture Haal "Gräfin  
von Linden"  
Pfaffenwaldring 38-40  
70569 Stuttgart**

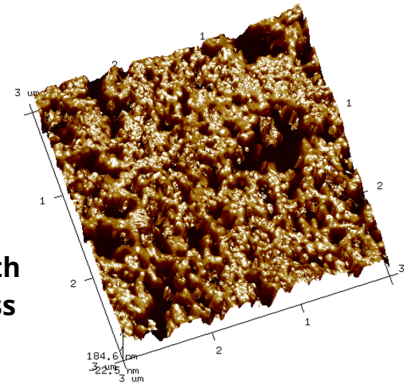
DLR Stuttgart is located on the University of Stuttgart Campus at Stuttgart-Vaihingen.

# RESULTS

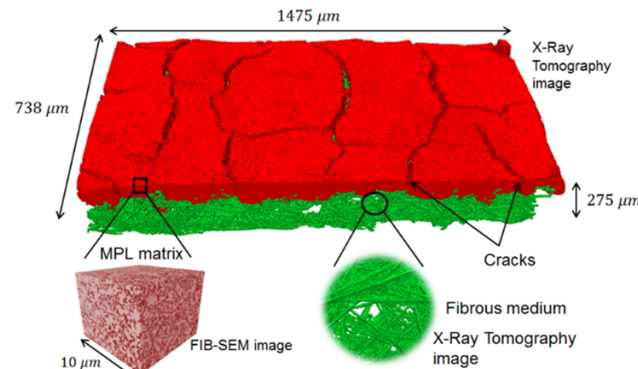
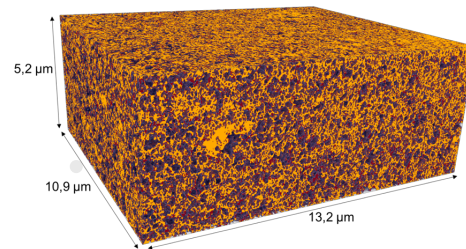


**3D rendered image showing the interior (blue) and exterior (yellow) Pt NPs**

**AFM:  
3D height-image with superposed stiffness values**



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

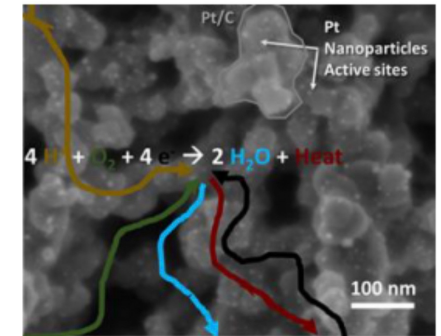


**3D digital image of gas diffusion layer combining X-ray Tomography (fibrous medium, cracks) and FIB-SEM (MPL matrix)**

# AMBITION

FURTHER-FC will bring new knowledge on the catalyst coated layer (CCL):

- 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

