
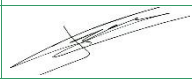


Deliverable D6.8: Technical Workshop Summary

FCH JU Grant Agreement no. 826204			
Project acronym:	DOLPHIN		
Project title:	Disruptive pemfc stack with nOvel materiaLS, Processes, arcHitecture and optimized INterfaces		
Funding scheme:	Collaborative Project, Small or medium-scale focused research project		
Topic:	FCH-01-6-2018: <i>Game changer fuel cell stack for automotive applications</i>		
Start date of project:	01/01/2019	Duration	48 months
Project Coordinator:	CEA, Joël PAUCHET Tél: +33 4 38 78 52 96 ; Fax : +33 4 38 78 94 63 ; email : joel.pauchet@cea.fr		

Document properties			
WP 6 : Communication, Dissemination and Exploitation		WP leader: F. Wilhelm (ZSW)	
Author (Partner)	J. Pauchet (CEA)	Approval by author	
Other Authors (Partner):	F. Wilhelm (ZSW)	Approval by partners	
		Approval by WP leader	
		Approval by coordinator	
Dissemination level		Public	
Distribution			
FCH-JU	Claudiu PAVEL	e-mail	
CEA/LITEN	Fabrice MICOUD, Joël PAUCHET, Jean-Philippe POIROT	e-mail	
SYMBIO	Luis CASTANHEIRA, Christophe VACQUIER	e-mail	
ZSW	Benjamin WIEDEMANN, Florian WILHELM	e-mail	
HEXCEL	Laure BOUQUEREL, Sylvain DELALANDE, Mayeul DUCROT, Katharina GRUBER	e-mail	
University of MANCHESTER	Donnchadh BARRY, Marcelo LOZADA-HIDALGO	e-mail	
CHEMOURS	Jan LENDERS, Andrew PARK, Patrick REDON	e-mail	
DMG MORI ADDITIVE	Mohcine BENCHERIFI, Jan RIEWENHERM	e-mail	
Revisions			
Version	Date of changes	Author	Changes
1.0	26/07/2021	J. Pauchet	Initial version
2.0	02/08/2021	J. Pauchet	Inputs from ZSW; final version
3.0	28/12/2021	J. Pauchet	Update of the EU emblem



Deliverable D6.8: Technical Workshop Summary

TABLE OF CONTENTS

TABLE OF CONTENTS	2
PUBLISHABLE SUMMARY.....	3
1. INTRODUCTION.....	4
2. SUMMARY OF THE WORKSHOP	4
3. ACKNOWLEDGEMENT	6
ANNEX 1: FLYER	7

Deliverable D6.8: Technical Workshop Summary

PUBLISHABLE SUMMARY

This public deliverable summarizes the DOLPHIN Technical Workshop held on-line on the 18/06/2021.

Deliverable D6.8: Technical Workshop Summary

1. INTRODUCTION

The global objective of Work Package 6 “Communication, Dissemination & Exploitation” is to encourage and facilitate the use and wide acceptance of the project results. This includes communicating and disseminating the results to the scientific and industrial community, but also to a wider audience.

As one instrument of communicating the project concept and results, four public workshops were initially planned during the project:

- During EHEC 2020: to start raising awareness on DOLPHIN
- Year 2: a technical one on production technology development where first results of technical development tasks are presented and discussed
- Year 3 : an intermediary one at the National Graphene Institute of Manchester
- Year 4: a project-end workshop where the results of the project are presented and discussed

Due to the Covid-19, the European Hydrogen Energy Conference 2020 (EHEC), planned to take place in Madrid, has been postponed to 2021 but is now scheduled in 2022. During this pandemic period, no alternative conference had been identified to allow organizing the first workshop in 2020.

It was thus decided, in agreement with FCH-JU (Fuel-Cell Hydrogen Joint Undertaking), to organize an on-line workshop in 2021, combining the first two ones planned (‘raise awareness of DOLPHIN’ and present ‘first results on technical developments’).

This deliverable summarizes the organization of this workshop.

2. SUMMARY OF THE WORKSHOP

The workshop has been organized online on the 18th of June 2021 (8h30-12h30 CEST, to allow european partners to attend quite easily), with the ACT&MATCH platform (<https://actandmatch.com/>).

A flyer (Annex 1) has been sent to ~ 200 people from industries, technological organisations and academia ; the platform registered 72 connections that did attend the full workshop. The list of participating companies and institutions includes (not exhaustive, DOLPHIN consortium also not included):

- AirLiquide
- AUDI
- BMW
- Borit
- Bosch
- Bramle Energy
- Cellcentric
- Datron
- DLR
- EKPO
- e-mobil bw
- Faurecia

Deliverable D6.8: Technical Workshop Summary

- FCH JU
- Fraunhofer IPT
- Fraunhofer ISE
- Freudenberg
- GreenGT
- Grob Werke
- Heraeus
- Hycco
- KIT
- Makino Europe GmbH
- Plastic Omnium New Energies
- Polimi
- Powercell Sweden AB
- Printum
- Proton Motor Fuel Cell
- Renault Group
- Schaeffler
- Stellantis
- Toyota Europe
- Trumpf
- Université de Lorraine
- Voss
- VW

All partners contributed to and attended the workshop.

The detailed agenda was:

- 08:00 (CET): Connection, welcome, recommendations (*Joël Pauchet, CEA*)
- 08:30: Overview of DOLPHIN:
 - objectives, structure (*Joël Pauchet, CEA*)
 - short introduction of partners (*Katharina Gruber, Hexcel; Luis Castanheira, Symbio; Patrick Redon, Chemours; Mohcine Bencherifi DMG-MORI; Florian Wilhelm, ZSW; Donnchadh Barry, Univ. Manchester; Joël Pauchet, CEA*)
- 09:30: Progress on design and modelling (*Luis Castanheira, Symbio*)
- 10:00: Global technological progress for the different development paths (*Joël Pauchet, CEA*)
- 10h15: Break
- 10h30: Technological highlights: components, production technology, performance results
 - *Innovative design features to improve performance (Fabrice Micoud, CEA)*
 - *Flow-Field manufacturing by 3D printing (Jean-Philippe Poirot, CEA)*
 - *Diffusion and protective coating (Dena Kartouzian, ZSW)*
 - *Graphene coated membrane to improve performance and durability (Donnchadh Barry, Univ. Manchester)*
 - *Composite Terminal Plates (Katharina Gruber, Hexcel)*
- 11h30: Discussion with the audience, perspectives, conclusion
- 12h30: end of the workshop

Deliverable D6.8: Technical Workshop Summary

The participants had the opportunity to ask questions to the partners using the chat function of the online platform, and the partners answered by oral to the full audience.

As planned, as also as requested by numerous participants, the presentations have been uploaded to the public website (<http://www.dolphin-fc.eu/>) and participants have been informed of this.

In addition, some people from TOYOTA did attend the workshop and were interested by the developments presented. TOYOTA thus asked Joël Pauchet (as the coordinator) to participate to the international workshop organized by TOYOTA (Japan, USA, Europe) on the 19th of July 2021 (16h-21h CEST) and present the DOLPHIN project.

This presentation (entitled 'DOLPHIN project : some developments to improve stack components and efficiency') was one of the four invited presentations (two from Los Alamos National Laboratory in the USA (Rod Borup and Yu Seung Kim); one from H₂ Europe Research (Laurent Antoni); one from DOLPHIN (Joël Pauchet)).

3. ACKNOWLEDGEMENT

The DOLPHIN project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No. 826204. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation programme, Hydrogen Europe and Hydrogen Europe Research.

Deliverable D6.8: Technical Workshop Summary

ANNEX 1: FLYER

DOLPHIN

FUEL CELLS AND HYDROGEN
JOINT UNDERTAKING

DOLPHIN

Disruptive pemfc stack with nOvel materialS, Processes, archHitecture and optimized iNterfaces

Invitation to the
DOLPHIN 1st Public Workshop
 Focused on cell and production technologies
 June 18th, 2021
 08:30-12:30 (CEST)
 Online, free of charge

DOLPHIN 1st Public Workshop

ABOUT

The overall aim of the project is to validate **disruptive technologies** for next-generation **automotive fuel cell stack** designs, reaching outstanding power density while being compatible with large scale/mass production. For this purpose, **innovative approaches** in the areas of **cell and stack design, manufacturing technology**, process integration, interface quality, material efficiency and components are combined.

Duration of the project: 01/01/2019-31/12/2022
<http://www.dolphin-fc.eu/>

Increase of performance by reducing rib/channel pitch

Light Composite Terminal Plate

Flow-fields by printing or additive manufacturing

Deliverable D6.8: Technical Workshop Summary

AGENDA

08:00: Connection, welcome, recommendations

08:30: Overview of DOLPHIN:
objectives, structure, short introduction of partners

09:30: Progress on design and modelling

10:00: Global technological progress for the different development paths

10h15: Break

10h30: Technological highlights: components, production technology, performance results

11h30: Discussion with the audience, perspectives, conclusion

12h30: end of the workshop

ACKNOWLEDGEMENT

This project has received funding from the Fuel Cells and Hydrogen 2 Joint Undertaking under grant agreement No. 826204. This Joint Undertaking receives support from the European Union's Horizon 2020 Research and Innovation programme, Hydrogen Europe and Hydrogen Europe Research.

% ORGANIZERS AND CONTACTS

Donnchadh Barry
donnchadh.barry@postgrad.manchester.ac.uk

Florian Wilhelm
florian.wilhelm@zsw-bw.de

Joël Pauchet (coordinator)
joel.pauchet@cea.fr

REGISTRATION

Katharina Winkler
katharina.winkler@zsw-bw.de

Consortium

DOLPHIN 1st Public Workshop