

## Workshop Series: Fuel Cell Systems

12<sup>th</sup> Workshop 2019

# Progress in Fuel Cell Systems

Novotel Brugge Centrum

21/22<sup>nd</sup> May 2019, Brugge (Bruges), Belgium

UNIVERSITY OF  
BIRMINGHAM



HEATSTACK

**Brief Overview of the workshop:**

The current workshop will be the twelfth in the series that started off with the Large SOFC project.

As usual we are looking at fuel cell systems – somewhat with an emphasis on solid oxide, other high temperature technology, and stationary applications – but not exclusively so. As time goes by, interests broaden and in the past we have also had MCFC and PEFC technology on board, including SOFC applications for aircraft.

Nevertheless, the common theme is fuel cell systems and their components. One of the main reasons being that involvement of companies manufacturing and delivering system Balance of Plant is low in the fuel cell scene and we want to offer a platform for exchanging information and experiences between the system integrators, operators, and BoP suppliers.

Four presentations in this workshop will this time showcase results from the HEATSTACK project which focused on the development and industrialisation of cathode air pre-heaters for fuel cell systems.

Again, the workshop will be part of our activities in EERA, the European Energy Research Area, that is trying to establish a low TRL research programme to underpin the activities of the FCH JU on a European scale.

Presentations will take about 20 minutes with an added 10 minutes for questions and discussions.

The workshop will be followed by the BALANCE workshop on 22/23 May, looking into reversible SOC (SOFC/SOE) operation.

Participants are welcome to also register for that event.

The evening programme will consist of a walk through town or a museum visit (t.b.c. and depending on the weather), followed by a traditional Flemish dinner in a nearby restaurant. Anyone arriving before 19:00 h on the Monday is welcome to join for a stroll through town and a visit to a 100-Belgian-beers pub.

The HEATSTACK project has received funding through the FCH 2 JU under contract number 700 564.

<b>Tuesday , 21 May 2019</b>	
8:30 – 8:55	<i>Registration and uploading of presentations</i>
<b>FC System Technical Details</b>	
9:00 – 9:30	SOC systems for PtX applications: a process engineering perspective – <i>S.Gupta, DLR</i>
9:30 – 10:00	<i>t.b.c. – N.N., IEn</i>
10:00 – 10:30	
10:30 – 11:00	<i>Coffee Break</i>
11:00– 11:30	
<b>FC System Components / HEATSTACK results</b>	
11:30 – 12:00	Status of the development and manufacturing of Sunfire-Home – <i>t.b.d., Sunfire</i>
12:00 – 12:30	Gas/Gas heat exchanger for process intensification – <i>Carlo Tregambe, ICI Caldaie</i>
12:30 – 14:00	<i>Lunch</i>
14:00 – 14:30	Design and manufacture of Cathode Air Pre-Heaters – <i>Charlie Penny, Senior Flexonics</i>
14:30 – 15:00	Chromium release and corrosion on SOFC heat exchangers – <i>t.b.c., University of Birmingham</i>
15:00 – 15:30	<i>Coffee break</i>
15:30 – 16:00	Thermo-sensing of SOFCs – <i>Jung-Sik Kim, University of Loughborough</i>
16:00 – 16:30	
17:00	<i>Tour of town</i>
18:30	<i>Dinner at restaurant</i>

<b>Wednesday , 22 May 2019</b>	
8:30 – 8:55	<i>Registration and uploading of presentations</i>
<b>Fuels for Fuel Cells: Biogas, syngas, and synthetic fuels</b>	
9:00 – 9:30	Experience with a biogas fuelled SOFC: DEMOSOFC – <i>Massimo Santarelli, Politecnico di Torino</i>
9:30 – 10:00	Operation Experience With a Novel Highly Efficient Micro-Scale SOFC CHP System Based on Biomass Gasification – <i>Nikolaus Soukup, AVL</i>
10:00 – 10:30	Gas processing for Gasifier-SOFC systems - <i>Alessandro Cavalli, TU Delft</i>
10:30 – 11:00	<i>Coffee break</i>

**Progress in Fuel Cell Systems**  
Bruges, Belgium

**21/22 May 2019**

11:00 - 11:30	Supplying zero-net carbon fuels for transport – <i>t.b.c.</i> , <i>University of Birmingham</i>
11:30 - 12:00	<i>end-of-meeting discussion</i> Project brokerage: FCH JU 2019 programme, EERA and other research, demonstration, and funding opportunities and interactions
12:00 – 13:30	<i>Lunch</i>
13:30	Coffee and End of Meeting

## Registration Details:

**To register please use the online shop on the website ([www.brugesfcworkshop.eu](http://www.brugesfcworkshop.eu)) or return the attached registration form to John Hooper either by e-mail to [j.c.hooper@bham.ac.uk](mailto:j.c.hooper@bham.ac.uk) or by fax +44 121 414 5324**

The meeting fee is £350 including all meals and coffee breaks on 21/22 May and a special Flemish dinner on 21<sup>st</sup> May 2019.

Presenters will receive a discount of 50%.

In case of questions, please ring +44 121 415 8169 (R. Steinberger-Wilckens) or +44 121 414 5275 (John Hooper).

Hotel rooms have to be booked (and paid) directly with the **NOVOTEL Hotel Brugge Centrum**. Find a form for the hotel attached.

In case of problems with bookings, we can send a list of other recommended hotels or help with finding accommodation.

WiFi access is possible within the meeting room for free.

In case of questions about the hotel please phone Tel. +32 50 33 75 33 (NOVOTEL).

The address of the Novotel is :  
Katelijnestraat 65B, B-8000 Brugge

which is quite near to the famous Begijnhof (Beguinage), the Onze Lieve Vrouw church (Michelangelo Madonna) and not far from the town centre.



## Travelling to Brugge

### By Air:

To Brussels Airport, from there take a train into Brussels (they run every 10 to 20 minutes, travel approx. 30 minutes). You can change at any of the stations Bruxelles Nord, Central or Midi. From there take an IC train to Bruges (directions of Oostende or Knokke) which runs every half hour around the full and half hour (depending on the station you change at). Travel time to Bruges is 1 hour.

From station into town: see below.

### By train:

most connections will run through Brussels, the fast trains only through Brussels-Midi (Zuid). From there take an IC train to Bruges (directions of Oostende or Knokke) which runs every half hour around the full and half hour (depending on the station you change at). Travel time to Bruges 1 hour.

Currently there are considerable diversions of bus services. And no buses currently pass the hotel. So I propose the best thing to do is walk (see below) or take a taxi.

You can also walk (see map below) by directly crossing the street at the station, take the direction of the Minnewater, pass the Begijnhof and walk through to the Katelijnestraat. You will find yourself near the hotel. 15 to 20 Minutes on foot (with luggage, black route). In good weather and with light luggage you can also follow the red arrows through more park-like terrain.

### By car:

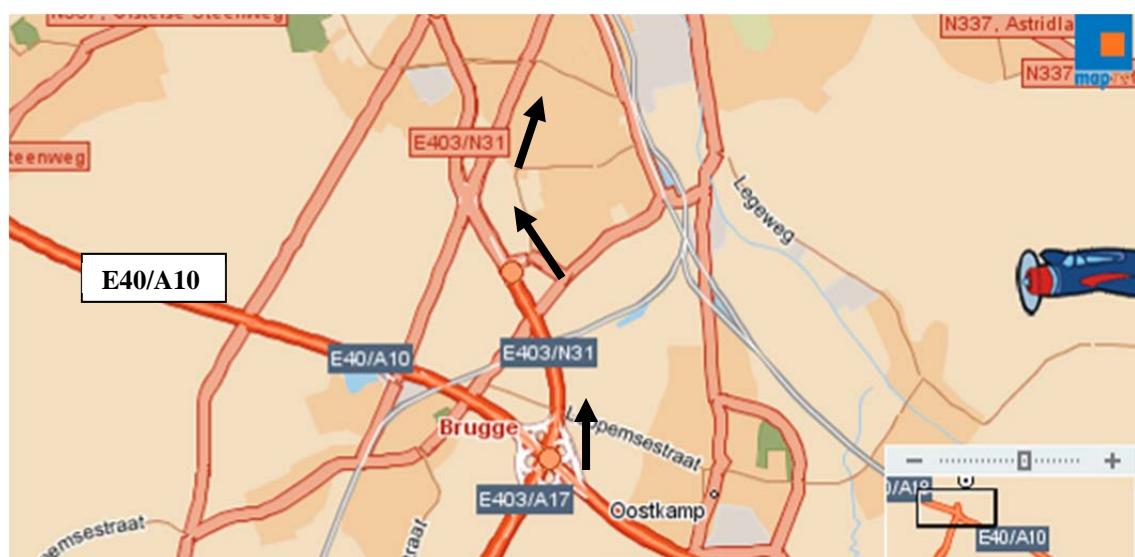
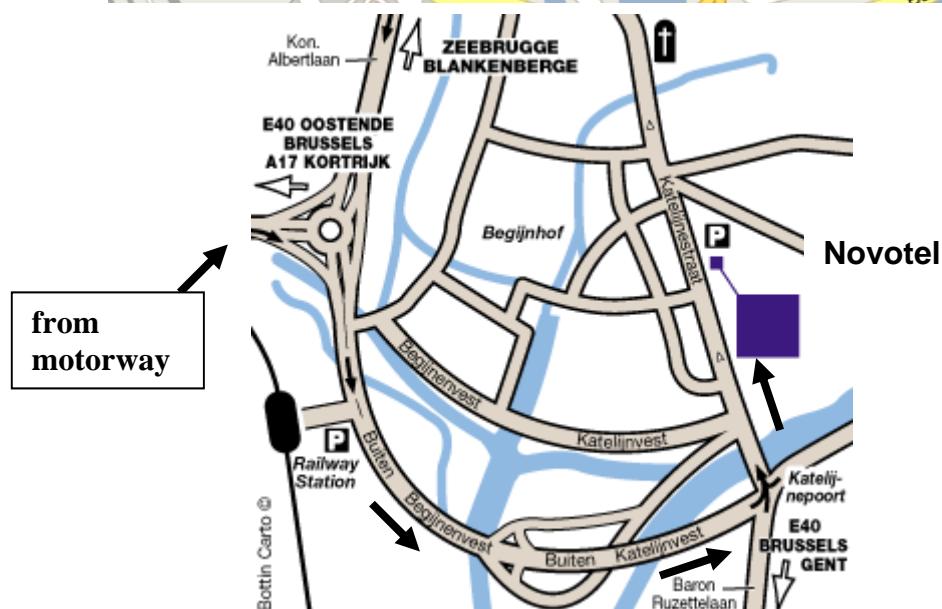
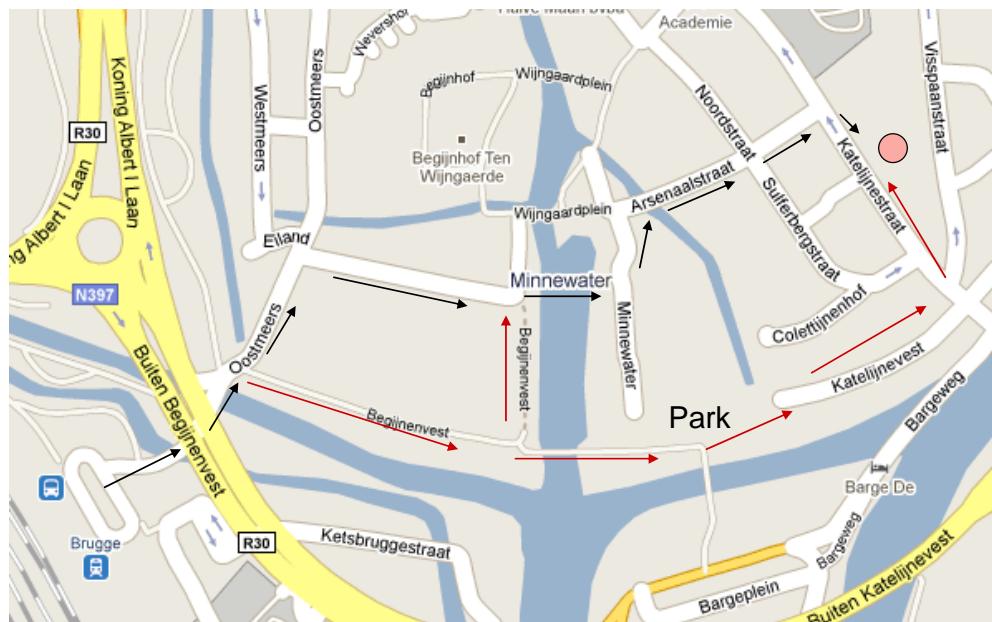
take the motorway via Brussels to Oostende (E40/A10) and leave at **Exit No. 8** (should be labelled 'Torhout/Brugge/St. Michiels) (see map below). Follow the main road to a large crossing and then do not drive straight on, as signs may indicate, but turn right and follow the old main road directly into town (direction St. Michiels). Carry straight on until you reach the rear of the station, follow the road under the railway bridge and at the next traffic roundabout leave next possibility right. You then pass the front of the station. Drive over a flyover and after that immediately turn left into the Kathelijnestraat (across a canal bridge). A parking facility is located next to the hotel.

From the North (Antwerp, Netherlands etc.) follow the motorway (E17/A14) to Gent. There take the motorway to Oostende and proceed as above. From the South pass Lille (Flandre) and take the E403/A17 to Brugge/Bruges.



## Progress in Fuel Cell Systems Bruges, Belgium

21/22 May 2019



## REGISTRATION FORM

### Bruges Fuel Cell Systems Workshop

Novotel Brugge Centrum  
21 / 22 May 2019, Bruges, Belgium

Title*	Mrs <input type="checkbox"/>	Mr <input type="checkbox"/>	Dr <input type="checkbox"/>	Prof <input type="checkbox"/>
Family name*				
First name*				
University / Institution / Company*				
P.O. Box or Street Address*				
Postal Code*				
City*				
Country*				
Phone*				
Fax				
E-mail*				
Presenter*	Yes (reduced fee 175 £) <input type="checkbox"/>		No (full fee 350 £) <input type="checkbox"/>	

*Fields marked with an asterisk \* must be filled in*

#### PLEASE RETURN BY E-MAIL OR FAX TO

John Hooper at [j.c.hooper@bham.ac.uk](mailto:j.c.hooper@bham.ac.uk) or +44 121 414 5324

You will then receive a confirmation, an invoice for the meeting fee or instructions  
how to book and pay via the University of Birmingham e-shop

## Novotel Brugge Centrum

### Reservation Request

#### **12<sup>th</sup> progress in Fuel Cell Systems Workshop 2019**

In order to benefit this special rate, please complete the requested information and send it by email to:

[H1033-SB@accor.com](mailto:H1033-SB@accor.com)

Reservation possible as long as rooms are available (first reserved-first served). A blockbooking has been made for 21-22/05/2019.

Latest Reservation date: [21/04/2019](#)

Name:

Company address (if needed):

Telephone number:

E-mail:

Check-in date:

Check-out date:

Requested room:

Single room, breakfast included (per night) at 122 Euros + City tax 2.12 Euros p.p.p.n.

Double room, breakfast included (per night) at 142 Euros + City tax 2.12 Euros p.p.p.n.

Extra nights can be booked at the same congress rate - except for an overnight stay on a Saturday, where a supplement of €20.00 / night is requested upon proposed room rates for

Free cancellation is possible until 7 days prior to arrival. After this deadline, the deposit of the first night will be charged. In case of no show or cancellation within 24 hours prior to the whole stay will be charged.

### Credit Card Details

No reservation will be confirmed without credit card. In that case room is guaranteed for late arrival and will be kept available the whole night.

Name of Cardholder as it appears on the card [Click here to enter text.](#)

Full address of cardholder: [Click here to enter text.](#)

Contact telephone number: [Click here to enter text.](#)

Credit Card Number:  (16 digits)

**For security reasons, the blacked out digits can be communicated by telephone only !**

Card Type & Expiry Date: [Choose an item.](#) [Click here to enter text.](#)

The name of the Bank/ Financial Institution that issued the card [Click here to enter text.](#)

I authorise **Novotel Brugge Centrum** to use my credit card as per the above details.

#### **Your contact person:**

Philine Cloet  
Sales & Banqueting  
[H1033-SB@accor.com](mailto:H1033-SB@accor.com)  
+32 (0)50 47 21 81

Date : \_\_\_\_\_

Signature :