

Clean Sky2 Workshop

on

Advanced Low NO_x and Hydrogen Combustion Technologies

2nd Edition

Virtual Event

April 29th-30th 2021

Background & scope

After the success of the first edition held in February 2020, we are happy to announce the 2nd edition of this workshop. The event will give a dissemination opportunity to many relevant research projects funded by the Clean Sky 2 programme and by H2020 framework (either closed or ongoing), but it will also permit to bring together the combustion experts around Europe to discuss the relevant items **to set-up a roadmap for future combustion technology** in general for the next decade(s).

The proposed agenda covers the following topics:

- Keynote talk about aviation climate impact
- Low NO_x combustion technologies (including computational and experimental work)
- Advanced combustion technologies
- Particulate matters
- Hydrogen combustion

Most of the Day 2 contributions will be dedicated to future **hydrogen** applications with some fundamental perspectives from most important aero-engine manufacturers.

Attendance is very much welcome, expecting contributions at the level of the discussion at the end of Day 2 with a view to establish a draft **roadmap**, based on the first draft issued last year. To this aim, a round table is organised to collect your vision of priorities in terms of research for the next Framework Programme and for the next decade(s), i.e. for **mid-term EIS (2035)** and for **long term EIS (2050)**.

Due to travel restrictions caused by COVID-19 pandemic the workshop will be given as a virtual event.

J.F. Brouckaert

Chief Scientific Officer, Clean Sky 2 JU

A. Andreini

University of Florence

WORKSHOP AGENDA

DAY 1 – APRIL 29

9.00	9.15	WELCOME AND INTRODUCTION Jean-Francois Brouckaert , <i>Clean Sky2 JU</i> Antonio Andreini , <i>University of Florence (Italy)</i>
KEYNOTE		
9.15	10.00	AVIATION CLIMATE IMPACTS AND A REVISION OF THE AVIATION NOX IMPACTS Volker Grewe / Sigrun Matthes , <i>DLR (Germany)</i>
SESSION 1: LOW NOX TECHNOLOGIES		
10.00	10.30	LEAFINNOX - LEAN AZIMUTHAL FLAME AS AN INNOVATIVE AVIATION GAS TURBINE LOW-NOX COMBUSTION CONCEPT Epaminondas Mastorakos , <i>University of Cambridge (UK)</i>
10.30	11.00	CHAIRLIFT – COMPACT HELICAL ARRANGED COMBUSTORS WITH LEAN LIFTED FLAMES Rainer Koch / Stefan Harth , <i>KIT - Karlsruhe Institute of Technology (Germany)</i>
Coffee break		
11.30	12.00	DENOX: MODELING, STUDYING AND MODIFYING OF NOX GENERATION AND SUPPRESSION PROCESSES IN STIMULATED FLAMES Dmytro Dolmatov / Igor Rybalchenko , <i>National Aerospace University "KhAI" (Ukraine)</i>
12.00	12.30	UREA-BASED NANOEMULSIONS AND THEIR APPLICATION AS FUEL ADDITIVES FOR CLEAN AVIATION Maria Grazia De Giorgi , <i>University of Salento (Italy)</i>
Lunch break		
SESSION 2: ADVANCED COMBUSTION TECHNOLOGIES		
14.15	15.00	ROLLS ROYCE LOW EMISSION ADVANCED COMBUSTION TECHNOLOGIES Marco Zedda , <i>Rolls Royce (UK)</i>
15:00	15:30	LOW EMISSION ADVANCED COMBUSTION TECHNOLOGIES Christophe Viguiet / Matthieu Rullaud , <i>SAFRAN HE / SAFRAN AE (France)</i>
15:30	16:00	GE AVIATION LOW EMISSION ADVANCED COMBUSTION TECHNOLOGIES Antonio Peschiulli / Thomas Ripplinger , <i>AvioAero (Italy) / GE Aviation (Germany)</i>
16:00	16:15	POTENTIALS OF STEAM-INJECTED AND WATER-RECOVERING GAS TURBINE Oliver Schmitz , <i>MTU (Germany)</i>
16:15	16:30	PRESSURE GAIN COMBUSTION AND THE INSPIRE RESEARCH NETWORK Antonio Andreini , <i>University of Florence (Italy)</i> - Myles Bohon , <i>TU Berlin (Germany)</i>
Coffee break		
SESSION 3: PARTICULATE MATTER		
16:45	17:15	ESTIMATE Daniel Mira , <i>BSC - Barcelona Supercomputing Center (Spain)</i>
17:15	17:45	RAPTOR Ayce Celikel , <i>ENV-ISA (France)</i> / Andrew Crawford , <i>University of Cardiff (UK)</i>
17.45	18.00	Closure of Day 1

WORKSHOP AGENDA

DAY 2 – APRIL 30

9.00	9.30	THE SOPRANO H2020 PROJECT Klaus-Peter Geigle, DLR
SESSION 4: HYDROGEN		
9.30	10.00	ENABLE-H2 Devaiah Nalianda / Andrew Rolt / Xiaoxiao Sun, Cranfield University (UK)
10.00	10.30	SIMULATION AND CONTROL OF HYDROGEN COMBUSTION: THE ERC SCIROCCO PROGRAM Thierry Poinso, CERFACS (France)
10.30	10.50	GE AVIATION PERSPECTIVES ON HYDROGEN BASED PROPULSION A. Peschiulli / T. Ripplinger, AvioAero (Italy) / GE Aviation (Germany)
Coffee break		
11.15	12.00	ROLLS-ROYCE PERSPECTIVES FOR HYDROGEN BASED PROPULSION Marco Zedda, Rolls Royce (UK)
12.00	12.30	CARBON-FREE AIR TRANSPORT CHALLENGES Pierre-Alain Lambert / Nicolas Jeuland, SAFRAN Tech / SAFRAN Innovation (France)
Lunch break		
14.00	14.30	ULTRA-LOW NOX HYDROGEN AND SYNGAS COMBUSTOR DEVELOPMENT AND TESTING CAPABILITIES C. Oliver Paschereit, TU Berlin (Germany)
14:30	15:00	ONERA COMBUSTION TEST FACILITIES FOR AERO GASTURBINE ENGINES TO SUPPORT LOW NOX AND HYDROGEN INITIATIVES A. Mohamed, F. Guichard, N. Bertier & O. Dessornes, ONERA (France)
15:00	15:30	PROMISING DESIGNS OF ADDITIVELY MANUFACTURED BURNERS FOR HYDROGEN-FUELLED COMBUSTION CHAMBERS IN AIRCRAFT ENGINES Fabrice Giuliani, Combustion Bay-One, Graz (Austria)
SESSION 5: ROUND TABLE		
15:30	17:30	ROUND TABLE DISCUSSION TO ESTABLISH A FUTURE TECHNOLOGY ROADMAP FOR COMBUSTION TECHNOLOGIES FOR MID-TERM (EIS 2035) AND LONG-TERM (EIS 2050) TECHNOLOGY GOALS. Jean-Francois Brouckaert, Clean Sky 2 JU
17:30	18:00	WRAP-UP AND CONCLUSIONS Jean-Francois Brouckaert, Clean Sky2 JU Antonio Andreini, University of Florence (Italy)

Registration

Please register by filing the online registration form available at:

[REGISTRATION FORM](#)

In case of technical issues with the registration form please register by email to:

Antonio Andreini – antonio.andreini@unifi.it

Cc: Jean-Francois.BROUCKAERT@cleansky.eu

REGISTRATION DEADLINE: April 27th, 2021

Virtual event

The workshop will be organized and managed as virtual event using the Cisco Webex meeting platform available at the University of Florence

- ➔ The Webex event links for the two days of the workshop will be sent to registered participants by email

** **Disclaimer:** Please be aware that the registration list (name, email, affiliation) will be shared with other participants of the Clean Sky 2 Workshop on Low NOx and Advanced Combustion Technologies. Should you wish for your name and contact details not to be disclosed please contact by email: antonio.andreini@unifi.it*

PDF version of the presentations will be collected and distributed to participants as Workshop proceedings