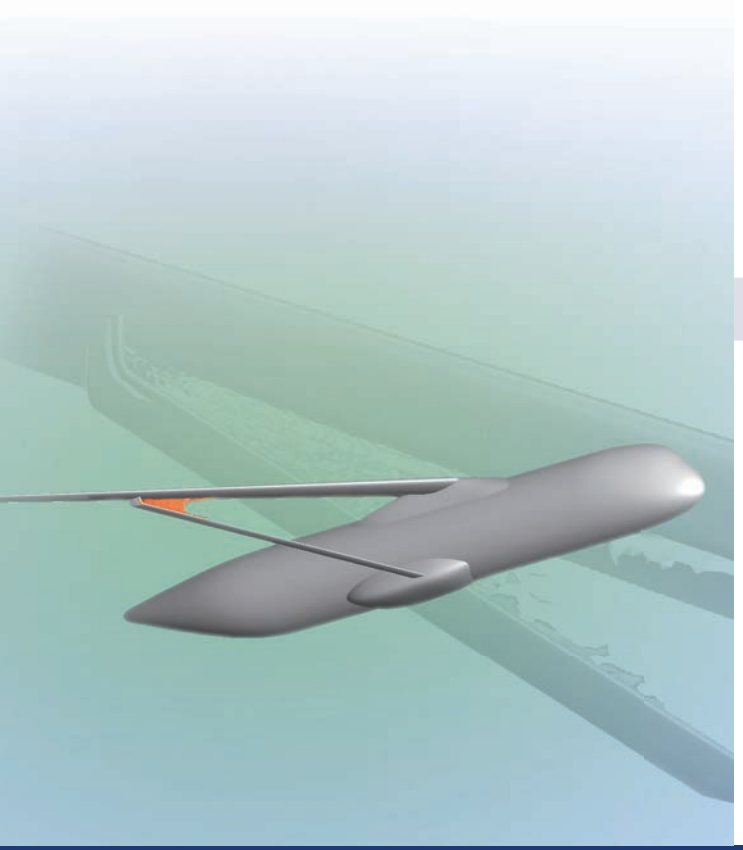
Description of the Platform

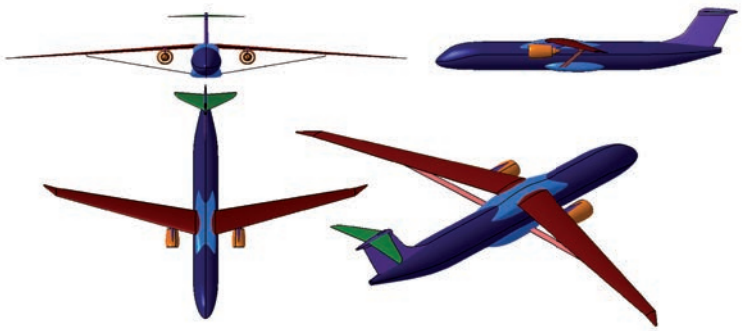
Aerospace Europe web platform (*www.aerospace-europe.eu*) will be used to enable a flexible and easy communication and handling of the workshop related information and data. The initial information released by AIRBUS, and to be used by the contributors, is already available for downloading. Please follow the link to “Case Studies”, and “A common platform for validation of aircraft drag reduction technologies”.

Definition of the Database

A database will be set up within the Aerospace Europe web platform. It will store the results from each contributor, classified according the criteria defined by the evaluation purposes. Each contributor will have its own space, but will be able to consult and compare with results by other contributors.

The information, data and results uploaded in this database will be the main source of comparison during the workshop sessions. It will complement the presentations by each contributor.





1987-2017 CIMNE 30 years

International Center for Numerical Methods in Engineering - CIMNE Congress Bureau

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PADRI 2017

Barcelona (Spain), November 29 - December 1

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Industry Interest Group event

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ECCOMAS Advanced Workshops

PADRI 2017

PLATFORM FOR AIRCRAFT DRAG REDUCTION INNOVATION

Barcelona (Spain), November 29 - December 1

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Objectives

The main objective of the Open Workshop is to find candidate flow control technologies and optimization strategies that can minimize shock wave and interference drag in the strut-wing junction region in cruise condition.

A test case is proposed for computation that reproduces, even at low velocity, a typical shock wave pattern in the region of the junction strut-wing of an aircraft.

In order to simplify the problem, some constraints have been setup, so that the geometrical modifications should be confined to a defined small region around the strut-wing junction, and the objective function is clearly explained in order to ensure computational data results comparisons across all the technology solutions and participants.

A computational platform will allow all participants to compare on outputs and formats selected by organizers their respective data results installed on a Database with respect to the reference (baseline) and to show the benefit of the chosen flow control technology.

The workshop intends to contribute to fill the gap between the different technology models and their application.

Organizing Committee

H. Bieler, Airbus, Germany
N. Bier, DLR Koln, Germany
G. Bugeda, CIMNE, Spain
J. Periaux, ECCOMAS IIG, CIMNE
D. Redondo, Airbus, Spain

Platform and Database Administrators

S. Guttila, Euromech, Italy
J. Pons, CIMNE

Technical Description of the workshop

Strut wing test case is based on an unformatted geometry of an aircraft with upper wing, which is supported by a strut. The geometry includes the entire aircraft with tail and empennage, but simplifications can be applied if necessary, discarding the empennage and tail, or considering symmetry.

The flow conditions are summarized as: Mach 0.72, angle of attack 1º, Reynolds number over length 7.1x106 m-1, cruise altitude 30000ft on an atmosphere ISA+0 with pressure 30089.59 Pa, and temperature 228.71K.

The main focus should be put on the region of the strut-wing junction in the mentioned cruise conditions, analyzing the shock wave and the interference drag in this particular region.

The definition of the best flow control device, which helps to diminish the shock and the drag, is the main objective and should be demonstrated through the analysis of the simulation results.

ECCOMAS Industry Interest Group (IIG)

The ECCOMAS Industry Interest Group (IIG) is actively promoting the ECCOMAS Advanced Workshop PADRI. The high level objective of this workshop is to strengthen the ECCOMAS industrial group and to develop contact between ECCOMAS and the DGs of the European Commission.

Format of the Workshop

The format of PADRI Advanced Workshop will combine plenary lectures on flow control design and optimization challenges for drag interference together with individual presentations by worldwide contributors. Each contributor will share their results, which will be compared thanks to the setup of a common database of the computational data and results. In addition, a Round Table assessment of the contributions, with international Senior Technical Experts, will be organized at the end of the Workshop.

Location

The Barcelona of the 21st century is a city shaped by the '92 Olympics, a city transformed for and by the need to do justice to that great international event. The Barcelona we see around us now, the Barcelona we enjoy today, is a new Barcelona, Mediterranean in keeping with its traditions, with its face to the sea and its arms open to other cultures and peoples, giving and receiving, happy to make and to share its riches.

Registration Fees

Workshop Participants	Contributors to the Workshop Special fees
300€	150€

Important Dates-Logistics aspects

- E- inscription of Interest Open: January 1, 2017
- Registration Payment Open: June 1, 2017
- Deadline for participation: October 1, 2017
- Set up of the Program: November 1, 2017

Technical aspects

- Database Opened: April 1, 2017
- Data Checks: October 1- November 28, 2017
- Finalization of Contributing Period: November 1, 2017
- ECCOMAS Open Workshop development: November 29 - December 1, 2017

How to submit contributions

Authors are invited to submit individual contributions related to the test case and upload their simulation results on the database.

Registration

Workshop registration have to be performed electronically, via the conference website:

http://congress.cimne.com/PADRI-2017/