CALL FOR PAPERS

54th 3AF International Conference on Applied Aerodynamics

Aerodynamics at off-design conditions

Paris, March 25-26-27, 2019

http://3af-aerodynamics2019.com
CALL FOR PAPERS

Communication abstracts (300 to 500 words, preferably with figures) have to be mailed to the 3AF Executive Secretary before **November 19, 2018**.

The Scientific Committee will inform the authors of acceptance by **December 17, 2018** at the latest.

OFFICIAL LANGUAGE & PUBLICATIONS

Papers must be submitted and presented in English. The written version of the communications will be in English and must be sent to the 3AF Executive Secretary (secr.exec@aaaf.asso.fr) before **February 18, 2019** to allow their insertion in the conference proceedings. A 3AF template file will be provided for the preparation of the manuscript.

Authors will be invited to propose an extension of their works for publication in a special issue of the *International Journal of Numerical Methods for Heat & Fluid Flow* dedicated to the conference. Each paper is reviewed by the guest-editor and, if it is judged suitable for publication, it will be sent to at least two independent referees for peer review. It is also possible to submit papers for publication in the *CEAS Aeronautical Journal*. Authors are however free to publish their paper in any other journal, a reference to the conference being then appreciated.

CONFERENCE DEADLINES

Abstract submission  
November 19, 2018

Paper acceptance  
December 17, 2018

Full length paper  
February 18, 2019

Conference in Paris  
March 25-26-27, 2019

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AERODYNAMICS AT OFF-DESIGN CONDITIONS

The 3AF International Conference on Applied Aerodynamics is organized each year by the French Aeronautics and Aerospace Society (3AF) in a different venue in France known for its activities in the field of aeronautics and/or space technology. The conference is an excellent opportunity for scientific exchanges within the aerospace community where aerodynamicists from industry, research institutions and academics meet. Scientists and engineers from other fields involving fluid mechanics are also welcome.

Every year the conference addresses a different topic trending in the field of aerodynamics. It is organized on the basis of five half-days of technical presentations, each introduced by a keynote conference given by a highly recognized expert in the field covered during the session. The conference is concluded by a technical visit in connection with the conference subject.

In 2019, the conference will be hosted by the Conservatoire National des Arts et Métiers (CNAM) in Paris. This 54th 3AF International Conference on Applied Aerodynamics focuses on complex flow behaviour at off-design conditions, which may or may not be planned. This includes conditions on the edge of the flight envelope: high speed/altitude/AoA as well as take-off and landing conditions. The design of aircraft and rotorcraft is bound to take into account those cases, where the system endures high constraints. Similarly, terrestrial vehicles are designed to withstand tunnel and overtaking effects, and spacecraft to withstand atmospheric entry. Unexpected conditions may also appear when the flight envelope is overreached for instance. Weather and environmental conditions may be unpredictable and particularly harsh: gusts and crosswinds may make take-off and landing harder or even prevent them; icing conditions are a source of incidents or accidents, as well as sand and bird ingestion, foreign objects, sand, volcanic ash. All these conditions are source of risks and imply complex phenomena which are challenging for CFD as well as experimental and theoretical studies. A deeper knowledge of such extreme conditions is thus crucial to avoid undesirable or catastrophic events, despite the complexity of the flow phenomena which presents serious challenges to the traditional experimental, theoretical and numerical analysis.

MAIN TOPICS

Among the many aspects of the problem, the following items will be considered (the list not being exhaustive):

- Low and high speed buffet
- Surge
- Operation at high angle of incidence and stall
- Ground effect
- Intake separation and buzz
- Turbine blade tip clearance
- Unsteady and transient conditions
- Flight at high altitude / high speed
- Take off and landing
- Atmospheric reentry
- Space launcher at lift-off conditions
- Gust and crosswind / wind effects on building
- Ice accretion and droplet impact
- Ingestion (sand, birds, ice crystals, volcanic ash, foreign objects, etc.)
- Terrestrial vehicles in critical conditions (trailers instabilities, high speed trains)
- Tunnel effects and overtaking (terrestrial vehicles)
- System failure conditions

KEYNOTE CONFERENCES

James ALDERMAN  
Airbus Group Innovation

Jean-Paul BOUCHET  
CSTB

Nicolas DE CACQUERAY  
Safran Aircraft Engines

Tomasz KRYSINSKI  
Airbus Helicopters

Jeffrey P. SLOTNICK/Gerd HELLER  
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Wind effect on urban site © CSTB
Slat extremity vortex © ONERA

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