2020 IEEE INTERNATIONAL WORKSHOP ON

Metrology for AeroSpace

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CALL for PAPERS

for the special session on

METROLOGY IN THE THERMO-FLUID DYNAMICS AEROSPACE APPLICATIONS

ABSTRACT

This special session aims to present the most recent measurement techniques in the field of Thermo-Fluid Dynamics, which plays a fundamental role in aerospace.
In fact, in space and atmosphere flight, several situations of great interest related to this topic arise. In particular the atmospheric re-entry has always represented a crucial phase of a space mission.
For the very high temperatures involved, the study of the re-entry Fluid Dynamic is fundamental to evaluate the behavior of the structures of the Spacecrafts.
The ice formation is one of the main problems for the aircrafts flying through clouds, on all the exposed surfaces. In fact it often affects negatively the airplanes flights.
Moreover, the Fluid Dynamics plays an important role also in the world of space propulsion, especially for combustion chambers and cooling systems.
All these situations regard particular conditions, and the importance to perform significant experimental test in representative environments leads to the necessity of specific on-ground facilities.
In these laboratories, several instrumentations are used as Pirometers, Thermocameras, Gardon Gauges, Strain Gauges, Pressure sensors and more.
In order to respond to the requirements of aerospace standards, all these techniques require careful analysis from a metrological point of view and it is also necessary to have high accuracy calibration systems. This kind of optimization by means of these two aspects allows scientist to increase the quality of the measurements performed.

TOPICS

- New investigation methods and sensors for thermo-fluid dynamics applications;
- Methods and systems for thermo-fluid dynamics measurements in aerospace applications;
- New measurement techniques for extreme aerospace environments;
- Numerical studies for innovative experimental set-up;
- Innovative measurement set-up for sensors used in re-entry environments;
- Investigations on ice problems in airplane flights;
- New methods for design and measurements aimed at propulsion systems;

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