

## ADVANCED METHODS TO SPEED UP THE THREE-DIMENSIONAL COMPUTATION AND GLOBAL SHAPE'S OPTIMIZATION, IN SUPERSONIC FLOW

TRACK NUMBER 600 (FLUID DYNAMICS AND TRANSPORT PHENOMENE)

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### ABSTRACT

The aim of this MS is to propose methods to speed up the three-dimensional computation and the design of global optimized shapes of flying configurations (FCs), in supersonic flow, in order to obtain models of space vehicles, supersonic transport aircraft and UAVSs of high performances. Contributions are expected, which use:

- three dimensional inviscid, global optimized shapes of surrogate models as first step of iterative global shape optimization strategies;
- hybrid solutions for the three-dimensional Navier-Stokes PDEs:, which create new reinforced discontinuous hybrid numeric solutions, with analytic properties, which better describe the real world;
- premises before the performing of the global shape optimization, in order to obtain aerospace vehicles of high performances (as FCs with sharp subsonic leading edges, which avoid the bow shock wave, as integrated wing-fuselage FC without corners, etc.):
- applications of new proposed methods for the speed up of three-dimensional flow computation and design of global optimized shapes of space vehicle models of high performances, in supersonic flow.

### REFERENCES

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