

WEDNESDAY, MARCH 29

09:00

CONFERENCE WELCOME - TRIBUTE TO JEAN DÉLERY

Xavier AUBARD - *Director, ENSAM*

Louis LE PORTZ - *President, 3AF* | Michel SCHELLER - *Honorary President, 3AF*

Philippe REIJASSE - *President, Scientific Committee AERO2023*

09:40

KEYNOTE CONFERENCE N°1

Striving for insight: Reflections on Jean Delery and Corner effects in SBLIs

Holger BABINSKY (*University of Cambridge*)

INTERSESSION 10'

SESSION 1A

Air intakes

Chairperson: Holger BABINSKY
(*University of Cambridge*)

SESSION 1B

Mesh generation & CFD

Chairperson: Nicolas GÉTIN (*MBDA*)

SESSION 1C

Supersonic & Hypersonic configurations

Chairperson: Paola CINNELLA
(*Sorbonne Université*)

10:40

Experimental Investigation of Transonic
External Fan Cowl Separation
K. SABNIS (*University of Cambridge*)

Advancing-front block structure generation
for atmospheric re-entry simulations
C. ROCHE (*CEA-CESTA*)

Design and CFD prediction of dynamic
stability wind tunnel test of faceted
heatshield at supersonic speed
P. INNOCENZI
(*Imperial College London*)

11:05

Influence of incident shocks on
compression corner SBLIs at
a range of Mach numbers
R. WILLIAMS
(*University of Cambridge*)

Automatic Mesh Refinement with
NiceFlow for Vortical Flows
G. LOUPY (*MBDA*)

Unsteady DSMC Simulation of
Blunt Nose with spike at
Hypersonic Rarefied Flows
N. RAVURI (*South East Technological
University - SETU Carlow*)

11:30

Experimental and Numerical
Investigation of Supersonic Turbulent
Boundary Layer Bleeding
J. GIEHLER (*ONERA*)

Near-field mesh adaptation for contrail
modeling of a supersonic aircraft
M. MULLER (*ONERA*)

Assessment of Numerical Simulation Tools
for Hypersonic Non-Equilibrium Flow-Fields
S. WEIDNER (*ISL*)

11:55

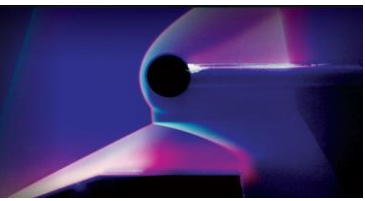
Investigation and improvement
of supersonic intake flow characteristics
using boundary layer control techniques
F. ÇETIN (*Istanbul Technical University*)

Aircraft fuselage effects on transonic wing
pressures via Non-Linear Vortex
Lattice Method
V. LIGUORI (*ONERA*)

Hypersonic free flight capabilities
of the ISL hyperballistic tunnel
and ablation studies
F. DENIS (*ISL*)

12:20

LUNCH



WEDNESDAY, MARCH 29

KEYNOTE CONFERENCE N°2

13:30

Unsteadiness of shock-wave boundary-layer interactions in transonic and supersonic flows
Neil SANDHAM (University of Southampton)

SESSION 2A

Drag decomposition

Chairperson: Renato TOGNACCINI
(University of Naples Federico II)

SESSION 2B

Supersonic & Hypersonic SBLI

Chairperson: Marina OLAZABAL
(CEA-CESTA)

SESSION 2C

Flow control

Chairperson: Guillaume LEHNASCH
(ISAE-ENSMA)

14:15

Towards a "headache-free"
flow region selection

E. SAETTA

(University of Naples Federico II)

Investigating Laminar Shockwave
Boundary Layer Interaction Unsteadiness

Using High-Order CFD

J. LEWIS (Imperial College London)

Numerical Explorations of Passive Control
of Transonic Flow over

a Backward-Facing Step

S. SHEN (Northumbria University)

14:40

A unified partial pressure field and
velocity decomposition approach
toward improved energetic aerodynamic
force decompositions

N. MUTANGARA (Cranfield University)

Fluctuating heat flux measurements
in an incident shock/boundary-layer
interaction

C. CORSI & T. RÖDIGER

(TU Berlin & Hochschule Landshut)

A DNS study on the Mach number effect
for a supersonic microramp

G. DELLA POSTA

(Sapienza University of Rome)

15:05

On the adaptation of the exergy definition
in the field of aerodynamics

I. BERHOUNI (ONERA)

Numerical study of shock-wave/turbulent
boundary-layer interaction
over a flexible panel

L. LAGUARDA SANCHEZ (TU Delft)

Further Insight into the Transonic
Performance of Airfoils Using

Leading Edge Tubercles

M. FERCHICHI

(Royal Military College of Canada)

15:30

COFFEE BREAK

16:00

Thrust/Drag Decomposition using
Partial Pressure Fields

P. HART (Pennsylvania State University)

Passive Control of Shock Wave/Boundary
Layer Interaction Using Spanwise
Heterogeneous Roughness

W. WU (TU Delft)

Effects of Reaction Control with Jet on
Aerodynamic Performances and Flow Field

C. C. PALACI (Istanbul Technical University)

16:25

Unsteady exergy analysis of an airfoil
(OAT15A) under transonic buffet condition

J. RUSCIO (ISAE-SUPAERO)

Investigation of shock control bump
geometry variation on oblique shock wave
boundary layer interactions

J. BULUT (TU Delft)

Supersonic flow jet interaction

B. COP (Istanbul Technical University)

16:50

Unsteady Far-Field Drag Analyses of
Transonic Buffet over the NASA
Common Research Model

C. FOURNIS (ONERA)

Numerical Simulation of Hypersonic free-
flying ring model : the ATD3 test case

**Y. HOARAU (Université de Strasbourg,
Icube Laboratory)**

Flutter instability in supersonic flow over a
flexible compression ramp

K. VENKATRAMAN

(Indian Institute of Science)

17:15

Aerodynamic force by Lamb vector
integrals in Unsteady Compressible Flows

M. MINERVINO (CIRA S.C.p.A.)

A Conservative Cut-Cell Immersed
Boundary Method for Accurate Simulation
of Hypersonic Flows

with Gas-Surface Interactions

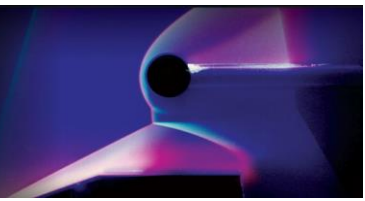
A. O. BAŞKAYA (TU Delft)

17:40

END OF SESSIONS

18:30

WELCOME RECEPTION



THURSDAY, MARCH 30

KEYNOTE CONFERENCE N°3

09:15

Transonic Vortex Flows on Delta Wings and Missiles

Kai RICHTER (DLR - Göttingen)

SESSION 3A

Supersonic & Hypersonic transition (1/2)

Chairperson: Sébastien ESQUIEU (CEA-CESTA)

SESSION 3B

Transonic flows (1/2)

Chairperson: Reynald BUR (Onera)

SESSION 3C

Special session : BLI/SUBLIME project

Chairperson: Friedrich LEOPOLD (ISL)

10:00

Comparison of RANS transition model predictions on hypersonic three-dimensional forebody configurations
J. CARDESA (ONERA)

Transonic pitch-up characterization of swept-wing commercial aircraft, by experimental and numerical means
T. DUCHAMP (Airbus Operations SAS)

Introduction to Work-Energy Relationships of Flight in Highly Integrated Aero-propulsive Configurations
D. SANDERS (Cranfield University)

10:25

Optimal location for steady wall blowing or heating actuators in a hypersonic boundary layer
A. POULAIN (ONERA)

Aerodynamic Performance Study of a Canard-Wing Configuration at Transonic & Supersonic Mach using Ansys Fluent Aero
R. MALK (ANSYS France)

Examining the Benefits of Boundary Layer Ingestion on Powered Bodies
N. MUTANGARA (Cranfield University)

10:50

Methodology for the design of boundary-layer tripping devices for hypersonic flight
J. LEFIEUX (MBDA)

Transonic shock-vortex and shock-boundary layer interactions over a delta wing
K. VENKATRAMAN (Indian Institute of Science)

Exploring the Design Space of a Sustainable and Efficient Aircraft featuring Boundary Layer Ingestion
N. MOIROU (Cranfield University)

11:15

COFFEE BREAK

11:45

Global stability analysis of a hypersonic cone-cylinder-flare geometry
C. CAILLAUD (CEA-CESTA)

The effect of the strake fineness ratio on a double delta wing at transonic flow regime
M.E. KAHRAMAN (Istanbul Technical University)

Optimal Design of BLI Architectures
A. BATTISTON (HIT09)

12:10

Numerical Optimization of Porous Coatings Stabilizing Capabilities on Hypersonic Boundary-Layer Transition
R. HAMMACHI (ONERA)

Interaction of shock-waves with a compliant wall
C. RIVEIRO MORENO (ONERA)

Experimental Aspects of the SUBLIME Project Investigating Boundary Layer Ingestion Propulsion
J. ALDERMAN (Aircraft Research Association Ltd)

12:35

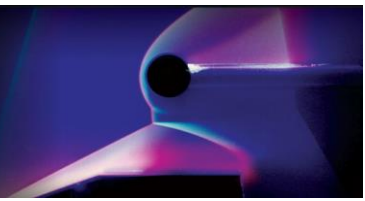
High-speed boundary layer transition control with non-uniform surface temperature distributions
K. OZAWA (Imperial College London)

Dynamic Gust Load Alleviation Study for Transonic Cruise Condition
K. GOVINDAN (German Aerospace Center - DLR)

Experimental study of free-stream noise measurement using dynamic pressure transducer in shock tunnel
S. HE (AVIC Aerodynamics Research Institute)

13:00

LUNCH



THURSDAY, MARCH 30

14:15

KEYNOTE CONFERENCE N°4
ARIANE 6 Base Flow problematics
Jean COLLINET (ArianeGroup)

SESSION 4A

Transition (2/2) & Nozzles
Chairperson: Philippe REIJASSE (Onera)

SESSION 4B

Buffet prediction & Control
Chairperson: Eric LAURENDEAU
(Polytechnique Montréal)

SESSION 4C

Transonic flows (2/2)
Chairperson: Marianna BRAZA
(IMFT-CNRS)

15:00

Design of a Cone-Cylinder-Flare Configuration for Hypersonic Boundary-Layer Stability Analyses and Measurements with Attached and Separated Flows
S. ESQUIEU (CEA-CESTA)

Wind tunnel experiment on a pitch and plunge free airfoil under transonic buffet
V. BRION (ONERA)

Numerical Investigation of the Influence of Acceleration and Deceleration on the Aerodynamic Characteristics of an Oscillating Wing Aerofoil Operating at Transonic and Hypersonic Speeds
S. SHEN (Northumbria University)

15:25

Potential benefits of radial secondary injection of helium in dual-bell nozzles
B. LEGROS (CNRS - University of Orléans)

Investigation of the transonic interaction around a supercritical wing involving strong separation by means of 3D numerical simulation
A. MAROUF (IMFT)

RANS Predictions of Transonic Shock-Induced Flow Separation over Sandia Axisymmetric Hump
D. SOMANI (Indian Institute of Science)

15:50

Surrogate-based optimization of supersonic nozzle shape
G. LEHNASCH (ISAE-ENSMA)

Non-intrusive estimation of the buffet loads on a supercritical airfoil with SCBs
A. D'AGUANO (TU Delft)

The influence of angle of attack on the nature of transonic shock buffet in a finite span wing
M. SINGH (Indian Institute of Science)

16:15

COFFEE BREAK

16:45

Experimental analysis of a retro-propulsion jet of a launcher's first stage at Mach 6
S. MORILHAT (ONERA)

Moving Wall Effect on Normal Shock Wave-Turbulent Boundary Layer Interaction
O. SZULC (Polish Academy of Sciences)

Wind-tunnel testing of HB-2 hypersonic standard models in non-standard transonic conditions
D. DAMLIJANOVIC
(Military Technical Institute - VTI)

17:10

Surrounding effects and hysteretical behavior of impinging jets resonances
P. BELTRA (ISAE-ENSMA)

Physical analysis of the transonic interaction on an A320 morphing wing by numerical simulation at high Reynolds number
C. JIMÉNEZ NAVARRO (IMFT)

Highly Efficient eN-database Method Based on Neural Network Model for 3-D Supersonic Swept Wing
S. YU (AVIC Aerodynamics Research Institute)

17:35

A review of industrial numerical methods for the simulation of hypersonic flight
C. VIREY (ArianeGroup)

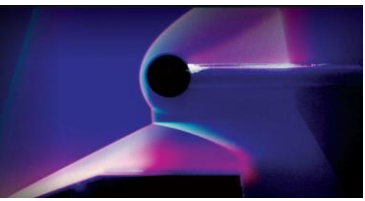
Investigation of the aerodynamic performance increase in transonic flow over an A320 morphing wing by numerical simulation at high Reynolds number
J. ABOU KHALIL (IMFT)

18:00

END OF SESSIONS

19:30

BANQUET & AWARD CEREMONY



FRIDAY, MARCH 31

KEYNOTE CONFERENCE N°5

Numerical simulation of high-enthalpy hypersonic flows
Giuseppe PASCAZIO (*Politecnico di Bari*)

09:15

SESSION 5A

Turbulence & Chemistry
Chairperson: Jean COLLINET
(*ArianeGroup*)

SESSION 5B

Propulsion configurations
Chairperson: Emilie JÉRÔME
(*DGA-Essais propulseurs*)

SESSION 5C

NLF & Preliminary design
Chairperson: Viviana LAGO
(*CNRS Orléans*)

10:00

A priori tests of turbulence models for compressible flows
A. CANNICI
(*Arts et Métiers - DynFluid Laboratory*)

Aerodynamic performance analysis of an isolated UHBR engine using a far-field exergy balance method
I. PETROPOULOS (*ONERA*)

Belly-fairing design space exploration for a forward swept natural laminar flow aircraft
J. RUBERTE BAILO
(*German Aerospace Center - DLR*)

10:25

About the influences of compressibility, heat transfer and pressure gradients in compressible turbulent boundary layers
C. WENZEL & T. GIBIS
(*University of Stuttgart*)

Robust and efficient CFD simulations of the ARL-SL19 supersonic cascade through adaptive mesh refinement
H. DORNIER (*ONERA*)

High-Speed Wind-Tunnel Testing of a Slotted, Natural-Laminar-Flow Airfoil for Ultra-Efficient Commercial Transport Aircraft
J. G. CODER
(*Pennsylvania State University*)

10:50

Shock-wave/boundary layer interaction at high enthalpies
L. SCIACOVELLI
(*Arts et Métiers - DynFluid Laboratory*)

The effect of tip clearance on the performance of KJ-66 RC microjet engine compressor at transonic regime
A. CAN (*Istanbul Technical University*)

Design of civil supersonic transport aircraft: use of an automation chain to reduce environmental impacts
C. LÉRON (*ONERA*)

11:15

COFFEE BREAK

11:45

Compressible turbulent boundary layers with the combined influence of pressure gradients and heat transfer
T. GIBIS (*University of Stuttgart*)

Towards Understanding and Resolving Natural Shock Oscillation in a Transonic Fan
P. NEL (*Rolls-Royce Deutschland Ltd. & Co.KG*)

Aerodynamics of a CRM Joined-Wing Configuration at Transonic Speeds
P. HANMAN
(*University of the West of England*)

12:10

Aerothermodynamic Simulators for Rocket Design using Neural Fields
H. SÁEZ DE OCÁRIZ BORDE
(*University of Oxford*)

Prediction and characterization of transonic buffet in an axial-flow fan
J. R. MAJHI (*Indian Institute of Science*)

12:35

Numerical Study of Oblique Detonation Wave Control with Fuel Blends
R. KORE (*South East Technological University - SETU Carlow*)

13:00

LUNCH

14:00

TECHNICAL VISIT

16:00

END OF AERO2023 CONFERENCE