

CALL FOR PAPERS

**HiSST** 2025



Association Aéronautique  
et Astronautique de France

# THE 4<sup>TH</sup> INTERNATIONAL CONFERENCE ON HIGH-SPEED VEHICLE SCIENCE & TECHNOLOGY

SEPTEMBER 22<sup>ND</sup> – 26<sup>TH</sup> 2025, TOURS - FRANCE



[www.3af-hisst2025.com](http://www.3af-hisst2025.com)



**MBDA**

**ONERA**  
THE FRENCH AEROSPACE LAB



**CEAS**  
Council of European  
Aerospace Societies

## INVITATION MESSAGE

*You are cordially invited to attend the 4th HiSST Conference, hosted by 3AF (French Aeronautics and Aerospace Society) under the aegis of CEAS (Council of European Aerospace Societies), in Tours, France from September 22 to 26, 2025.*

*As previous HiSST editions, HiSST2025 will provide the perfect event to share your work with your peers and develop open and fruitful interactions with specialists from research institutions, academia, and industry worldwide, covering all aspects of high-speed aerial and space vehicles development from fundamental research to final products.*

*Leading specialists from academia, research centers and industrial companies will provide a global view of worldwide R&D effort in the field of high-speed flight. Internationally recognized experts will give several key notes lectures addressing specific challenges and major topics in the field.*

*Numerous parallel technical sessions will allow you to discover the latest results obtained worldwide. Focused technical workshops on high-speed vehicle science and technology will allow you to share ideas with your peers and develop some common activities in a collaborative forum.*

*All activities will take place on a single floor of the Tours conference center (technical sessions, posters sessions, technical exhibition, coffee breaks and lunches) providing a vibrant networking environment.*

*Finally, technical visits (some of them subject to clearance) will showcase French capabilities in the field.*

*Tours is a historical and beautiful city located on the Loire River, and its numerous famous castles, and provides a very pleasant, enjoyable and refreshing opportunity for friendly and fruitful exchanges, and to experience the gentle way of life "à la française".*

*We look forward to welcoming you to the 4th HiSST Conference in Tours, France.*

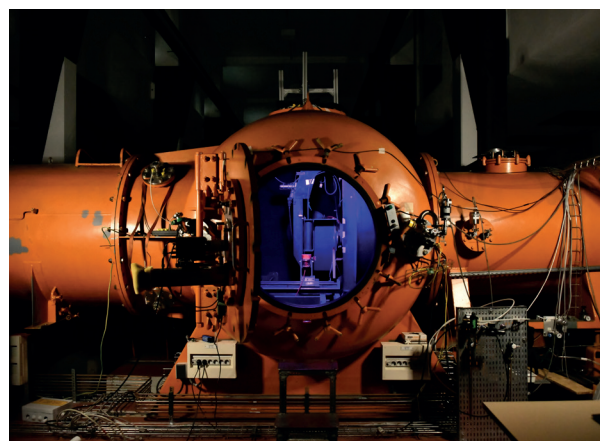
**Dr Adam Siebenhaar**  
**Chair of International  
Technical Committee**  
(Mach 7H Consulting)

**François Falempin**  
**Local Host of HiSST2025**  
(3AF – former MBDA)

## TECHNICAL VISITS

**Last conference day will be dedicated to technical tours.**

- Technical tours to MBDA facilities (ramjet test facility and composite fuel-cooled structures manufacturing plant) as well as to CNRS-ICARE facilities will be also proposed (clearance required). **Please take good note that, due to clearance process, registration is mandatory: registration deadline is fixed on 30 June 2025**
- Movies will be presented to all attendees (ONERA wind tunnels, CEA MegaJoule Laser facility)





## INTERNATIONAL TECHNICAL COMMITTEE

<b>Australia</b>	<b>Prof. Vincent Wheatley</b> (University of Queensland) Deputy – <b>Prof. Adrian Pudsey</b> (RMIT University)
<b>Brazil</b>	<b>Dr Marco A.S. Minucci</b> (Institute for Advanced Studies) Deputy – <b>Lucas Galembek</b> (Institute for Advanced Studies)
<b>China</b>	<b>Prof. Xisheng Luo</b> (Institute of Mechanics, Chinese Academy of Sciences) Deputy – <b>Dr Huan Lian</b> (Institute of Mechanics)
<b>Europe</b>	<b>Prof. Johan Steelant</b> , Host of HiSST2022 (European Space Agency) Deputy – <b>Dr Jeroen van den Eynde</b> (ESA)
<b>France</b>	<b>François Falempin</b> (3AF – former MBDA) Deputy – <b>Cedric Monjaret</b> (ONERA)
<b>Germany</b>	<b>Dr Jan Martinez Schramm</b> (DLR, German Aerospace Center) Deputy – <b>Dr Moritz Ertl</b> (DLR)
<b>India</b>	<b>Dr Mohammed Ibrahim Sugarno</b> (IIT Kanpur) Deputy – <b>Dr Desikan. S. L. N</b> (ISRO)
<b>Italy</b>	<b>Dr Gennaro Russo</b> (DAC, Campania Aerospace District) Deputy – <b>Dr Marco Marini</b> (CIRA)
<b>Japan</b>	<b>Prof. Masataka Maita</b> (International Aerospace Consulting) Deputy – <b>Dr Tanno Hideyuki</b> (JAXA)
<b>Korea</b>	<b>Prof. Dr Jeong-Yeol Choi</b> , Host of HiSST2024 (Pusan National University) Deputy – <b>To be defined</b>
<b>UK</b>	<b>Prof. Matthew McGilvray</b> (University of Oxford) Deputy – <b>Dr Luke Doherty</b> (University of Oxford)
<b>USA</b>	<b>Dr Adam Siebenhaar</b> , Chair of International Technical Committee (Mach 7H Consulting) Deputy – <b>Dr David Glass</b> (NASA)



## LOCAL ORGANISATION COMMITTEE

<b>Dr Céline Baranger</b>	CEA
<b>Antoine Durant</b>	MBDA
<b>François Falempin</b>	3AF (former MBDA)
<b>Dr Viviana Lago</b>	CNRS-ICARE
<b>Dr Pierre-Henri Maire</b>	CEA
<b>Cédric Monjaret</b>	ONERA

# CONFERENCE TOPICS

## **High-Speed Missions and Vehicles including:**

- Planned and ongoing national and international high-speed vehicle programs and missions
- Advanced space launcher concepts and high-speed atmospheric flight vehicle concepts
- Design, development and manufacturing of related technologies and components, both for reusable and expendable applications
- Design methodologies and engineering models
- Overall system design and/or performance optimization

## **Propulsion Systems and Components including rocket, ramjet, dual mode ramjet, scramjet, rocket and turbine combined cycles, detonation engines, electric propulsion and other advanced propulsion systems addressing:**

- Advanced cycles & concepts
- System & component performance, development & manufacturing: air inlets, isolators, combustors, injectors, ignition, flameholding, nozzles...
- Combustion and mixing processes including ignition, flame-out, instabilities, plasma assistance...
- Airframe interaction and integration
- Conventional, cryogenic & alternative fuels, additives, catalysis
- Fuel systems: feed-lines, pumps, tanks...
- Advanced computational techniques, CFD & engineering models

## **Thermal, Energy and Management Systems for vehicle, subsystems, and payload, including sources, conversion and distribution systems addressing:**

- Thermal protection, heat exchangers, cooling, coating & ablative systems
- Active and Passive systems
- System & component performance, development & manufacturing
- On-board power generation and environmental control
- Design methodologies, CFD & engineering models and advanced computational techniques (multiphysics)

## **Guidance & Control Systems including flight mechanics, guidance, navigation, routing, trajectory optimization, operations research, sensors, actuators, controllers and algorithms, and health monitoring addressing:**

- Flight control design and in-flight adaptation
- On-ground and in-flight trajectory optimization techniques
- Health monitoring and management, fault detection isolation and recovery, health and usage monitoring systems
- System & component performance, development & manufacturing
- Advanced computational techniques, CFD & engineering models

**SUBMIT YOUR ABSTRACT AT:**

**[www.3af-hisst2025.com](http://www.3af-hisst2025.com) before March 10th, 2025**

## Materials and Structures for vehicle and all subsystems covering:

- Metallic & non-metallic materials for hot and cooled structures and thermal protection systems
- Active/functional materials
- Hot, cold and integrated structural architectures including conformal layouts
- Quality control, damage tolerance, structural health monitoring and survivability
- Materials manufacturing and processing
- Advanced modelling & computational techniques

## High-Speed Aerodynamics and Aerothermodynamics with application to hypersonic regimes covering full Mach range from take-off, cruise and (re)-entry including:

- Numerical and experimental studies including aero-thermodynamics, stability-transition-turbulence, SWBLI, MHD, gas physics and chemistry, radiation physics, fluid structure interaction and destructive re-entry
- Numerical and experimental thermal studies incl. passive and active heat transfer, regenerative, transpiration, ablation, pyrolysis, endothermic decomposition...
- Advanced modelling & computational techniques: development and validation
- Multi-disciplinary techniques and models: fluid-structure interaction, conjugate heat transfer, CFD/flexible and rigid body dynamics

## Testing & Evaluation covering:

- Ground and in-flight test facilities, flight test operations and simulations
- Diagnostics and data systems
- Scale limitations and facility effects
- Validation and verification
- Facility modelling & simulation

## CONFERENCE KEY DATES

<b>Deadline for abstracts submission</b>	<b>10 March 2025</b>
<b>Notification of Acceptance to Authors</b>	<b>22 April 2025</b>
<b>Online registration opening</b>	<b>22 April 2025</b>
<b>Preliminary Programme</b>	<b>10 June 2025</b>
<b>Deadline for Technical visit registration</b>	<b>30 June 2025</b>

## Operation and Environment including:

- Economic and market analysis including cost modelling
- Regulatory, certification, operation, maintenance, health & safety issues: on-ground and in-flight
- Environmental effects including sonic boom, noise and emissions
- Atmospheric composition – models and effects on performance
- Infrastructure and traffic management

## Hypersonic Fundamentals and History including:

- Aero-thermodynamics, stability-transition-turbulence, SWBLI, MHD, gas physics and chemistry, radiation physics, fluid-structure interaction and destructive re-entry
- Theoretical and analytical thermal studies incl. passive and active heat transfer, regenerative, transpiration, ablation, endothermic decomposition...
- Basic materials science for high temperature and aggressive environment, life-time predictions...
- Historical aspects, analyses and assessments and lessons learned
- Educational initiatives and workforce development activities

# ADVICES TO AUTHORS

- The selected papers will be presented in a 30 minutes speech at the Conference (included 5 minutes for Q&A).
- An abstract will be selected based on the importance and originality of the subject addressed, on its relevance to the conference theme, on the clarity of its expression.
- The abstract should be a "stand alone" summary that can be used in the compilation of abstracts.
- The abstract should summarize the main objectives of the paper to be presented and outline its conclusions. It should give the International Technical Committee sufficient insight on the paper to be presented at the Conference and enable the selection for oral presentation.
- Work that has been presented elsewhere, and has not been updated, will be considered inappropriate.
- Please note that the Conference official language is English. All documents must be in English.
- Notification by the International Technical Committee will be accompanied by detailed instructions allowing authors to prepare and make the online submission of their full paper.
- Failure to comply with the deadlines and instructions required will entail not having the paper selected and included in the conference proceedings.
- All accepted and presented communications will be published in the online proceedings only available for Conference delegates. The submitted papers must be unclassified.



**The Palais des Congrès is located close to the railway station (90' from Paris) and in the immediate vicinity of four car parks**

## REGISTRATION FEE

REGISTRATION	DELEGATES	STUDENT / RETIREE
Early-Bird*	€ 1 050	€ 600
Regular	€ 1 200	€ 600
On-site	€ 1 260	€ 650
*until June 22, 2025		(10% refundable VAT included)

Registration fee includes registration, conference kit, lunches, coffee breaks, social events, virtual visits.

An extra €50 will be charged for the on-site technical tour attendees with respect to travelling costs. Extra ticket to the gala dinner (for spouses, companions, ...) : €100.



## CONFERENCE VENUE

**Palais des Congrès de Tours - 26 Boulevard Heurteloup  
37000 TOURS - France**

Tours provides visitors with an exceptional historic, architectural and natural heritage. The Loire and its tributaries have shaped the landscape and given the region its rich soil. From the monumental Loire Valley to the light-filled countryside, between vineyard landscapes and charming villages, each area has its own special identity. Visitors can explore Tours and such major landmarks as Amboise, Chenonceau, Villandry, Azay-le-Rideau and Langeais, or the medieval towns of Chinon and Loches...