



WITH  
THE  
SUPPORT  
OF

UNDER  
THE  
PATRONAGE  
OF

**SHUTTLE BUS**  
**Anagnina metro station - ASI.**  
**From 08.00 to 08.45 and at the end of the symposium.**  
**Free parking in front of ASI gate.**

# hypersonic from 100.000 to 400.000 ft

**ROME**  
**JUNE 30th**  
**JULY 1st**  
**2014**

**AGENZIA SPAZIALE ITALIANA**  
**Via del Politecnico snc**  
**Roma Tor Vergata**



Centro Studi Militari Aeronautici  
Giulio Douhet

**First Symposium on Hypersonic Flight**

# HYPERSONIC FLIGHT: FROM 100.000 TO 400.000 FT"

**1ST  
INTERNATIONAL  
SYMPOSIUM**

**ROME  
JUNE 30th  
JULY 1st  
2014**

## Monday, 30 June 2014

### 08.30 - 09.00 Registration / Coffee

### 9.00 - 9.30 Opening Remarks

Welcome by *Gen. G. Sciandra*, President of the Italian Air Force Association

Welcome by *Gen. N. Cardinali*, Director of CESMA

Introductory notes by *Gen. G. Cornacchia*, coordinator

### 09.30 - 09.50 Keynote Address

*Jean-Pierre Darnis*, Istituto Affari Internazionali  
**Concepts for civil and defence applications.**

## TECHNICAL FRAMEWORK, ENABLING TECHNOLOGIES

Chairman: *Francesco Langella*, ARMAEREO

### 09.50 - 11.00

**Guidance, Navigation and Control Technologies  
for Hypersonic Flight.** *P. Schiano*, CIRA

**Hypersonic Technologies and Atmospheric Entry Missions at ESA.**  
*L. Marraffa*, ESA/ESTEC,

**Propulsion Systems for Hypersonic Vehicles.** *S. Borrelli*, CIRA

**Zr-, Hf- and Ta-based Ultra High Temperature Ceramics  
for Thermal Protection Systems.** *G. Cao*, Università di Cagliari

### 11.00 - 11.20 Coffee break

**Aerothermodynamic Design of JAXA's Hypersonic Passenger Aircraft  
(Hikari project).** *A. Ueno*, JAXA, Japan

**Aerothermodynamic Analysis of Innovative Hypersonic Deployable  
Re-entry Capsules.** *R. Savino*, Università "Federico II" di Napoli

**IXV Development: An Integrated Approach for Performance  
Characterization.** *C. Chiarelli*, Thales Alenia Space

**Ultra-high temperature ceramics for thermal protection systems  
and propulsion.** *D. Sciti*, CNR-ISTEC, National Research Council of Italy  
Institute of Science and Technology for Ceramics

**Hypersonics Research at the University of Queensland.** *R. Morgan*,  
The University of Queensland, Australia

**Recent activities in Italy on MHD interaction for hypersonic flow control.**  
*Andrea Cristofolini* (Università di Bologna), *Riccardi Claudia e  
Ruggero Barni*. (PlasmaPrometeo, Università degli studi di  
Milano-Bicocca"), *Claudio Pertile* (Alenia Aermacchi)

## REGULATORY FRAMEWORK

Chairman: *Vittorio Argento*, RAI

### 12.30 - 13.00

**Memorandum of Cooperation in the Development of Commercial Space  
Transportation between FAA (USA) and ENAC (Italy).** *B. Marasà*, ENAC

### 13.00 - 14.30 Buffet

### 14.30 - 16.00

**Aviation Law or Space Law for Suborbital Flights?**

**The Jurist Point of View.** *G. Catalano-Sgrosso*, Università di Roma

**Environment Protection.** *F. Persiani*, Università di Bologna

**Safety of Commercial Suborbital Human Spaceflight.** *T. Sgobba*,  
International Association for the Advancement of Space Safety,  
The Netherlands

**The European Market Potential for Commercial Suborbital Spaceflight.**  
*L. Scatteia*, STRATEGY&, The Netherlands

### 16.00 - 16.20 Coffee Break

## HYPERSONIC FLIGHT PROGRAMS

Chairman: *Marcello Onofri*, Università di Roma

### 16.20 - 18.00

**The European Experience: Past and Present Programs on Atmospheric  
Re-entry Vehicles.** *M. Onofri*, Università di Roma

**Thales Alenia Space Experiences and Perspectives in Hypersonic Flights.**  
*R. Provera*, Thales Alenia Space

**The opportunities disclosed by Avio capabilities and Vega LV availability  
in the field of hypersonic vehicles technologies.** *P. Bellomi*, Avio S.p.A.

**The Spacegate Study for point-to-point flights and ESA Intermediate  
Experimental Vehicle (IXV) Ground Segment.** *F. Santoro*, ALTEC

**The IXV Program.** *M. Cosmo*, Agenzia Spaziale Italiana (ASI)

**Hypersonic concept for Long Range High Speed Vector - MURALM.**  
*T. Genito*, MBDA

### 18.00 Closing Remarks

## Tuesday, 1 July 2014

### 08.30 - 09.00 Registration / Coffee

### 09.00 - 09.10 Welcome Address

*Roberto Battiston*, President, ASI

## HYPERSONIC FLIGHT PROGRAMS

Chairman: *Ludovico Vecchione*, CIRA

### 09.10 - 11.00

**Ten Years of Experimental Activities. From Suborbital to Hypersonic.**

**A US Perspective,** *R. Vittori*, Space attaché, Embassy of Italy in Washington DC

**Hypersonic studies and related technology programs/perspectives.**  
*F. A. Fossati*, Aviospace/AIRBUS Defence & Space

**Dream Chaser Space Vehicle (U.S. National Hypersonic Strategy).**  
*J. Olson*, Sierra Nevada Space Systems, USA

**Hypothesis for Hypersonic Flight Development.**  
*S. Chiesa, M. Fioriti, R. Fusaro*, Politecnico di Torino

**Hypersonic Test Facility at NASA Plum Brook Station.**  
*D. Stringer*, Director, NASA Plum Brook Station

**Certification, Airspace Control and Management.**  
*C. Cifaldi*, ENAC, *G. Torre*, ENAV (tbc)

### 11.00 - 11.20 Coffee break

### 11.20 - 13.00 Round table:

## PROMOTING SYNERGIES AND COOPERATION

Chairman: *Giovanni Bertolone*, CTNA

Participants:

*P. Magro* (Sottocapo di Stato Maggiore Aeronautica)

*L. Guerriero* (Politecnico di Bari)

*C. Romanelli* (President, ALTEC)

*G. Caprara* (Corriere della Sera - TBC)

*R. Provera* (Director, Thales Alenia Space)

*L. Vecchione* (CIRA)

*S. Rossignoli* (President, AERO SEKUR)

*M. Comparini* (President, SPIN-IT)

*B. Mazzetti* (President, ACARE Italia)

### 13.00 - 13.15 Closing Remarks