

Panel Discussion:

Way Forward for Hypersonic Research and Technology Development in Indian Context

Chaired by:

Dr. A. Sivathanu Pillai

Participants:

Dr. G. Jagadeesh, IISc

Dr. Debasis Chakraborty, DRDL

Dr. Vikas Kumar, DMRL

Dr. Laxminarayan Raja

The University of Texas, Austin

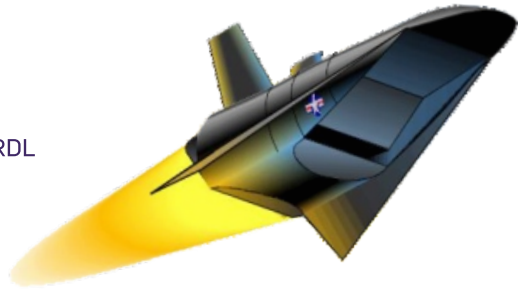
04:00 PM to 05:15 PM

Valedictory Remarks by:

Dr. S. S. Sritharan

Vice Chancellor, RUAS

05:15 PM to 05:30 PM



Topics to be Covered in Symposium:

- Status and Applications of Hypersonics
- Computational and Experimental Techniques
- Supersonic Combustion and Scramjet Engine
- Plasma Effects and EM Wave Interactions
- Hypersonic Aerodynamics and High Temperature Effects
- Material Technologies for Hypersonics

Who can Attend:

- Scientist and engineers with aerospace background
- Faculties from academic institutions interested in Hypersonics
- Students interested in Hypersonics

Registration Fee Including GST:

Industry	Rs. 7,500/-
Govt. Sector	Rs. 5,000/-
Faculty Members	Rs. 3,000/-
Students	Rs. 1,500/-

10% discount for registration of 3 or more Delegates

Payment details through NEFT/RTGS

Account Name	M. S. Ramaiah University of Applied Sciences - Peenya Campus
Account Type	Savings Account
Account Number	914010033410657
IFSC	UTIB0000559
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Bank	Axis Bank Ltd.
Branch	Rajajinagar, Bengaluru 560010
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Participants contact details, payment transaction number with bank details to be mailed to: indira.sr.seg@msruas.ac.in

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**RAMAIAH
UNIVERSITY**
OF APPLIED SCIENCES

Research Division
and
Faculty of
Engineering and Technology

Department of Automotive and Aeronautical Engineering
&
Centre for Aeronautical and Micro Air Vehicles Research

Jointly organize Two Day Symposium on

Hypersonic Technologies



20 and 21 September 2019
(Friday – Saturday)

Venue: Ramaiah University of Applied Sciences
No.470-P, Peenya Industrial Area, 4th Phase
Peenya, Bengaluru - 560 058.

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About Hypersonic Technologies:

Hypersonics is one of the challenging areas of R&D in aerospace engineering for the present and next generation. There are several development efforts in realizing hypersonic cruise vehicles, aircraft and rockets. Emerging and yet unresolved issues in hypersonic technologies are of deep interest to both scientists and engineers.

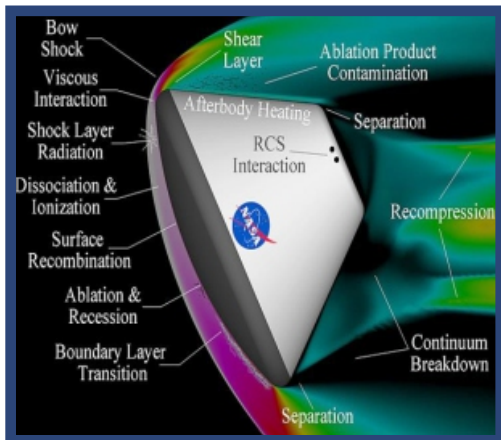
Re-entry vehicles (RV), Reusable Launch Vehicles (RLV) and cruise missiles are generally accepted to be in hypersonic flow domain. This is one of the thrust areas of research of great importance to India. A host of technological challenges like aerodynamics, propulsion, communication and navigation, thermal protection, to name a few, need to be addressed.

About the Symposium:

The aim of the symposium is to bring together scientists, researchers and industry experts from India and abroad to identify various challenges and opportunities that exist in developing and employing hypersonic systems of national interest. The delegates will be exposed to the current activities in India and abroad to facilitate them to more effectively and efficiently pursue opportunities to harness the power of hypersonic technology and contribute to the national programs.

Objectives:

The objectives of the symposium are to identify various issues and propose a road map for academicians and industry experts, to work on challenging problems in hypersonics.



Two Day Symposium on Hypersonic Technologies

20 - 21 September 2019

DAY - 1

Registration:

09:00 AM to 09:30 AM

Inaugural Address:

Hypersonic Technologies

Dr. S. S. Sritharan, Vice Chancellor, RUAS

09:30 AM to 09:45 AM

Presidential Address:

Overview of Hypersonic Technologies

Dr. A. Sivathanu Pillai

D.S. Kothari Chair, Reaserach & Innovation Centre

IIT- Madras and Former Founder CEO

& MD - BrahMos Aerospace

09:45 AM to 10:15 AM

Keynote Address:

Computer Simulations for Hypersonics

Dr. Laxminarayan Raja

Professor, The University of

Texas at Austin

10:15 AM to 11:00 AM

Hypersonic Propulsion	Dr. P. Venugopalan Former Director, DRDL	11:30 AM to 12:30 PM
Experimental Methods on Hypersonic Flows	Prof. K. P. J. Reddy Former Professor, IISc	12:30 PM to 01:30 PM
Lunch Break : 01:30 PM to 02:30 PM		
Supersonic Combustion	Prof. H. S. Mukunda Former Professor, IISc	02:30 PM to 03:30 PM
Tea Break : 03:30 PM to 04:00 PM		
Hypersonic Applications in ISRO Vehicle Programmes	Dr. Dipankar Das , VSSC	04:00 PM to 05:00 PM

DAY - 2

ISRO's Scramjet Flight Testing	Dr. Lazar Chitilappilly , VSSC	09:30 AM to 10:30 AM
Theory of Viscous Hypersonic Flows	Dr. Manoj T. Nair , IIST	10:30 AM to 11:30 AM
Tea Break : 11:30 AM to 11:45 AM		
High Temperature Effects	Dr. Manoj T. Nair , IIST	11:45 AM to 12:45 PM
Plasma Effects in Hypersonic Flows and EM Wave Interactions	Dr. Laxminarayan Raja Dr. Chandrashekar Shukla Samspra Aerospace	12:45 PM to 01:45 PM
Lunch Break : 01:45 PM to 02:30 PM		
Material Technologies for Hypersonics	Dr. Vikas Kumar Director, DMRL	02:30 PM to 03:30 PM
High Tea : 03:30 PM to 04:00 PM		
Panel Discussion & Valedictory Remarks		04:00 PM to 05:30 PM