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No. 9, Residency Road, Richmond Circle, Bangalore - 560 025.
Tel : +91-80-5532 0374, +91-80-2210 5770, +91-80-2227 9003
Fax : +91-80-2210 5651
E-mail : tcibangalore@tci.co.in

Symposium on Applied Aerodynamics and Design
of Aerospace Vehicles

SAROD-2005

December 8 - 9, 2005

Venue

Taramati Baradari Cultural Heritage Complex,
HYDERABAD

&
Post SAROD Indo-French Workshop
On

"Recent Development of Tools for
Aerodynamic & Multidisciplinary Optimisation"

December 12 - 13, 2005

Venue

J.N. TATA AUDITORIUM

IISc

BANGALORE

www.sarodonline.org



FINAL ANNOUNCEMENT



Scope of the Symposium:

The first Symposium on Applied Aerodynamics and Design of Aerospace Vehicles (SAROD-2003) was organized as a forum to share the experiences from many aerospace vehicle design programmes that are being pursued in India and to enrich the Indian aerospace community with the experiences from similar programmes elsewhere. The overwhelming response was indicative of the strong desire among the aerospace designers to have a forum to learn from each other. This sentiment was the motivation for a decision to hold SAROD every two years.

SAROD-2005 will be held in Hyderabad during 8th and 9th December 2005. The symposium is aimed at bringing together people working in different aspects of applied aerodynamics and design of aerospace vehicles, from both within and outside the country, to share their insights. The focus is on developments in aerodynamic design and technologies that contribute to these developments as applied to design of aerospace vehicles.

The areas to be covered are

- Conceptual & detailed design
- Wind tunnel testing, including model design and rapid prototyping
- Manned & unmanned aircraft
- Missile and launch vehicle aerodynamics
- Applied CFD
- Applied flight mechanics & controls

About the Organisers

ADA

Aeronautical Development Agency, Bangalore, an autonomous body under Ministry of Defence, is presently functioning as the nodal agency for the design and development of TEJAS, India's Light Combat Aircraft (LCA).



DRDL

Defence Research & Development Laboratory is the premier laboratory in the Country for design and development of guided missiles, from very short range anti-tank missiles to long range multi-stage missiles. Currently under development are air-to-air ASTRA and multi role multi purpose joint venture missile BrahMos. Flying hypersonic scramjet engine demonstrator is the latest technology initiative in this laboratory



CASDE

Centre for Aerospace System Design and Engineering is an AR&DB (Aeronautics Research and Development Board) centre established at Aerospace Engineering Department of Indian Institute of Technology (IIT-Bombay), Mumbai. The centre is evolving Multidisciplinary Design Optimisation (MDO) methodologies and related technologies in aircraft design.



Department of Aerospace Engineering, at IISc

The department of Aerospace Engineering is one of the earliest Aeronautical School established in India and has completed the Diamond Jubilee in 2003. In addition to the high volume of academic research, this department has played an important role in the aerospace activities of the nation.



CFD Division of AeSI

CFD Division of Aeronautical Society of India has been established to promote, foster and organize CFD activities in India.



CFD-Division

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Publication of SAROD-2005 and Post SAROD workshop CFD papers in ISCFD Journal

After the meeting, all the authors of Applied CFD papers are cordially invited to submit their paper, which are revised according to the discussions held in the meeting. These papers will be reviewed by the Guest Editors invited from the Meeting Organisers and published in a special issue of Computational Fluid Dynamics Journal. (ISCFD)

Invited International speakers for SAROD-2005

Keynote Speaker

Prof. R. Narasimha, JNCASR, India

Invited Speakers

- Prof. Hirotohi Kubota, Tokai University, Japan
- Dr. Frank Ogilvie, Airbus, France
- Dr. Rolf Engler, DLR, Germany
- Dr. Robert Meakin, US Army, NASA Ames Research Center, USA
- Prof. Koichi Oshima, International Society of CFD, Japan
- Dr. Sukumar Chakravarty, Metacomp, USA
- Prof. Jochem Hauser, University of Applied Sciences, Germany
- Mr. P.S. Subramanyam, ADA, India
- Mr. A.N. Subbash, VSSC, India
- Dr. R.K. Sharma, DRDL, India
- Dr. S. Pradeep, IISc, India
- Dr. Kamal Poddar, IIT, Kanpur, India
- Dr. J.S. Mathur, NAL, India

Registration Fees for SAROD-2005

Public Sector, Govt. Organisation, Academic Institutions :	Rs 2000.00
Private Organisation :	Rs.4000.00
Aerospace Engg. Students (Limited No.) :	Free
Foreign Participants :	\$200.00

Last Date For Submission of Full Length Paper : 15th October 2005

Address of Venue:

Taramati Baradari Cultural Heritage Complex.
Ibrahimbagh, Gandipet Road,
Hyderabad - 500031, AP, India.
Ph: +91-40-23520172, 23521884
Mobile: 98481 92874
e-mail: taramati_culture@rediffmail.com

Bangalore Contact

Mr. Biju Uthup
Organising Secretary, SAROD - 2005
Aeronautical Development Agency
PB No. 1718, Vimanapura Post
Bangalore - 560 017
Tel : 91-80-2508 7083
Fax: 91-80- 2523 8638
e-mail: buthup@yahoo.com
sarod2005@yahoo.co.in

Hyderabad Contact

Dr. R.K. Sharma
Convenor, SAROD - 2005
Head, Aerodynamics Division, DOAD
DRDL P.O-Kanchanbagh,
Hyderabad 500 058, India.
Tel :91-40-24583591
Fax: 91-40- 24342371
e-mail: rks_sarod2005@yahoo.co.in

Post-SAROD Indo-French Workshop on "Recent Developments in Tools for Aerodynamics & Multidisciplinary Optimisation" (Participation by Invitation Only)

In addition to SAROD - 2005 which will be held in Hyderabad this time there will be a post SAROD Indo-French workshop on "Recent Developments of Tools for Aerodynamic & Multidisciplinary Optimisation." This workshop will be held in Bangalore from 12th - 13th December, 2005. The participation in this workshop will be purely by invitation and there will be about 15 invited speakers in the above topic and the maximum participation will be limited to a total of about 50 invited scientists working in the area of Applied CFD and MDO.

Dates & Venue

Date : 12th & 13th December, 2005,

Venue: J.N. Tata Auditorium, IISc, Bangalore

Jointly Organised by:

ADA, Bangalore, Dept. of Aerospace Engg., IISc, Bangalore and JNCASR, Bangalore

Program Committee for Post SAROD Indo-French Workshop:

Dr. J. Periaux	Dassault Aviation	France
Prof. S.M. Deshpande	JNCASR	India
Dr. Alain Dervieux	INRIA	France
Dr. K.P.Singh	ADA	India
Mr. Biju Uthup	ADA	India
Prof. J.Dey	IISc	Bangalore
Dr. Indira Narayanaswamy	ADA	India
Prof. S. Pradeep	IISc	India
Prof. M. Masmoudi	University of Toulouse	France

- Mesh Generation Tools
- Mesh Adaptation Tools
- Multi-Block Solvers
- Cartesian Grid Based Solvers
- Unstructured Mesh Solvers
- Grid Free Solvers
- Convergence Acceleration Tools
- Robust design tools
- Inverse Design Tools
- Optimisation Tools
- Low and high fidelity models
- Constrained design optimisation tools
- Tools for direct and adjoint methods
- Tools for automated differentiation methods
- CAD parameterisation tools
- Multi objective evolutionary algorithms tools
- Multi-Disciplinary Optimisation Tools
- Tools for multi-physics analysers
- Pareto fronts
- Nash equilibrium tools

Objectives

Innovative techniques for designing modern aircraft and engine systems with maximum performance (aerodynamic efficiency of manned or unmanned vehicles, safety, drag, turbo machinery losses, heat flux, emission, noise) have moved recently from the research lab to industrial platforms. This knowledge transfer has become possible because of a better integration of CAD geometry software, multi-physics codes, mesh generators, automated differentiation techniques and hybridised (evolutionary and deterministic methods) multi-criteria optimisers.

The expected outcomes of these innovative techniques lead on to more efficient and robust tools for complex design. However the daily use of seamless methods to match strongly coupled models at discipline interfaces remains a challenge in Aeronautics for reducing design cycle time of many multi-disciplinary design optimisation problems.

The goal of this workshop is to gather young and experienced scientists and engineers involved in the fields of optimisation and share information on the development and use of innovative design techniques.

The workshop will discuss the impact of new computational tools on fundamental and industrial case studies for solving single and multi-physics optimisation problems in Aerospace Engineering and Turbo machinery.

Participation by invitation only

Local Contact

Dr. Indira Narayanswamy

Aeronautical Development Agency

P.O. Box 1718

Vimanapura post

Bangalore 560017

India

Tel : 91 80 25087183

Fax : 91 80 25234493

Prof. J. Dey

Department of Aerospace
Engineering

Indian Institute of Science

Bangalore 560012

India

Tel : 91 80 22932423

Fax : 91 80 23600134

Registration Fees for Post SAROD Indo-French workshop

Public Sector, Govt. Organisation, Academic Institutions : Rs 2000.00

Private Organisation : Rs.4000.00

Aerospace Engg. Students (Limited No.) : Free

Foreign Participants : \$200.00

Invited speakers for Post SAROD Indo French Workshop

- Alain Dervieux, INRIA, France
- M. Masmoudi, University of Toulouse , France
- C. Mari, SNECMA , France
- P. Sagaut, Univ Paris VI and ONERA , France
- J. Periaux Pole Scientifique , France
- O. Pironneau, University Paris VI and Pole Scientifique , France
- G. Roge', Dassault Aviation , France
- Mike Giles, Oxford University, U.K.
- Kalayanmoy Deb, IIT Kanpur, India
- Pankaj Priyadarshi, VSSC, India
- K. Sudhakar,P.M. Majumdar, IIT Bombay, & J. Umakant , DRDL, India
- Ranjan Ganguly, IISc, India
- Sashikumar, A. Mahendra, BARC & S.M. Deshpande, JNCASR, India
- Indira Narayanswamy & R.K. Ramanathan, ADA, India
- Philip Homs, Airbus, France

City Tour of Bangalore (Full day)

Vidhan Soudha : A magnificent building of the neo Dravidian style, Houses the state legislature, executed by Kengal Hanumanthaiah .

Bull Temple : The gigantic image of the celestial bull, which stands at 4.57.mts in height is an example of Dravidian architecture to celebrate the harvesting of peanuts.

Tippu summer palace : A very small portion of the Mud fort built by Hyder Ali

Lalbagh : India`s most beautiful botanical gardens with lakes, laid out by Hyder Ali & Tippu Sulthan with water lakes in 18th century .



Visweswaraiah Industrial Museum : Tribute to Sir M. Vishveswaraiah the architect of modern Karnataka , a must see for students and science buffs.

ISCKON Temple : Established in 1966 by His Divine Grace A.C. Bhaktivedanta Swami Prabhupada (Sri Prabhupada). Better known as the Hare Krishna movement to promote the well being of society by teaching the science of Krishna consciousness.

Cost of Sight seeing :

A/C Indica

A/c Qualis

Distance : 8hrs - 80kms

8hrs - 80 Kms

Rate : Rs. 750/-

Rs 1300/-

Belur - Halebidu - Shravana Belagola :

The best example of hoysala architecture built in the 12th century, it is sheer profusion of stone sculptures. Awe-inspiring craftsmanship has left no stone blank. Inside are hand-lathe-turned pillars.

Shravana Belagola said to be the world tallest monolithic statue, it is in dedication to prince Bahubali, a Jain saint. The anointment ceremony is performed once in 12 years.

Cost of the Tour :

A/C Indica/Ambassador

A/c Qualis

Non A/C Indica/Ambassador

500 Kms

500 Kms

500 Kms

Rate : 4100/-

Rate : Rs.4650 /-

Rate : 3300/-

Cauvery Fishing & Nature camp :(Bheemeshwari & Galibore)

Situated at Bheemeshwari on the banks river Cauvery, the tented cottages and log huts draw passionate anglers and nature lovers alike. Surrender to the beckoning of Cauvery, enjoy fishing, spot Indian mud turtles, crocodiles, or the river otters, watch birds, float on a coracle and trek the wilderness trails.

Activities : coracle rides/ guided nature walks and treks/ joy fishing/ Angling the mighty mahseer on the river Cauvery /bird watching/ river rafting during the monsoons months (June to September)

Loghuts (at Bheemeshwari only) : USD – 73 \$ (sgl occ) INR : 2300

USD - 48 \$ (per person on Twin sharing basis)

Tented cottages

: USD - 28 \$ INR : 1375

(Includes stay, breakfast , lunch , dinner, coracle ride , joy fishing, guided trekking, forest entry fees, camera fees & taxes)

City Tour of Hyderabad



Hyderabad, the capital of Andhra Pradesh, is a 400 year old metropolis, that represents a perfect blend of old world charm and modern day charisma. This Hi-Tech city is also known as "City of Pearls". The world famous Salarjung Museum , Charminar, Golconda Fort, Birla Mandir and Hussain Sagar lake are located in Hyderabad. The weather during December is very pleasant and requires light warm clothing.



Excursion Tours

- * Nagarajuna sagar
- * Warangal Fort
- * Thousand Pillar Temple
- * Bhadrakali Temple



Other Places of tourist interest are

- * Ramoji Film City
- * Snow park
- * NTR garden



Cost of the Tour :

Distance : 8hrs - 80 Kms,

Rate : A/c indica : Rs 1050/-
A/c Qualis : Rs 1850/-

Further information, please visit
www.tourisminap.com
www.aptourism.in/hyderabad.html

Map of Bangalore



Map of Hyderabad



Symposium on Applied Aerodynamics and Design of Aerospace Vehicles

8-9th December, 2005 Hyderabad

FINAL REGISTRATION FORM

Prof Dr. Mr. Mrs. Ms..

Name

First Name

Affiliation

Mailing Address.....

.....

.....

.....

TelFax.....

Email.....

Mobile.....

I intend to register for the symposium

I want further information

I want accomodation

Expected tariff

Payment enclosed favouring "Symposium on Applied
Aerodynamics", payable at Bangalore .

Cheque / DD No.....

My company/Organisation would like to sponsor the
symposium

Date

Signature

To
Bijju Uthup
Organising Secretary, SAROD- 2005
Aeronautical Development Agency PB No.
1718, Vimanapura Post, Bangalore - 560017.