

# IIST Newsletter

Indian Institute of Space Science and Technology (IIST)

Department of Space, Govt. of India, ATF Campus, V S S C, ISRO (PO), Thiruvananthapuram - 695 022

No.1 | VOL.I | SEPT 07-FEB 08



1 ISRO's Chairman inaugurating IIST by lighting the lamp in presence of Director IIST, Dean of IIST and Principals of MIC & CET.....2



2 India's Former President Dr. A P J Abdul Kalam addressing IIST students.....4



3 Talks at Symposium/Seminars/ Workshops/ Refresher Course etc.....5



## From Director's Desk

I am very happy to announce the commencement of IIST Newsletter from this month which highlights the various important activities of the institute. We have completed successfully the first semester courses and subsequent examinations. I am very glad to report that majority of the students have done exceedingly well and the overall performance is very satisfying. It is our desire to perform much better in the coming semesters. The first semester started in record time of just four months after cabinet approval on 14th September 2007 with the formal inauguration of the institute by Dr. G Madhavan Nair, Chairman, ISRO and Chairman Board of Management, IIST. The classes for the first semester started from 15th September 2007. We are all fortunate to have Dr. A P J Kalam, former President of India visiting the institute. Detailed report on Dr. Kalam's speech is reported in page 4 of this newsletter. Since, the commencement of teaching from 15th September, 2007 we have implemented several steps to improve the overall functioning of the institute both in curricular and extra curricular activities, like fine tuning the syllabus, organizing picnic, sports activities during weekends, other cultural activities and many more during the first semester. We have instituted a strong mentoring system which has helped to improve the overall performance of students. We have also included student representatives in some of the committees to ensure smooth running of critical facilities. Many of our faculty members have delivered invited talks and have presented their research papers at international, national symposia, workshops, refresher courses during Sept 07 to Feb 08. During this period a very high level delegation from ISRO and IIST visited France and USA to half a dozen world class institutes to explore the possibility of having an active collaboration with these prominent institutions in terms of joint research programmes and exchange of faculties and students. Detailed report on our visit is provided in the newsletter.

Overall it is very satisfying first semester for us. All students have returned back after one month of vacation, on 4th March, 2008. We are already in the first half of second semester. We will spare no efforts to improve various activities of IIST on a continuous basis and to make IIST truly a world class institute. I am also happy to report that there is certainty about the IIST Campus and now it will be located in Valiamala.



Dr. B N Suresh, Director IIST at Work

### CONTENTS OF THIS VOLUME

1. Inaugural function .....	02
2. Welcome speech by the Director (IIST) .....	03
3. Dr. Kalam's speech.....	04
4. Academic activities .....	05
5. Awards and Distinction.....	06
6. Visit to West .....	07
7. First Semester Exam Toppers .....	08





## ISRO's Chairman inaugurating IIST by lighting the lamp in presence of Director IIST, Dean of IIST and Principals of MIC & CET



## Inaugural Function

World's first undergraduate to Ph.D level institute 'INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY' (IIST) exclusively, to train young students (who are fresh from their school) in the area of SPACE SCIENCE and TECHNOLOGY, was successfully launched by Chairman, ISRO (Indian Space Research Organization) and Chairman Board of Management, IIST Dr. G Madhavan Nair, on 14th September 2007 at VSSC auditorium. First batch of students and their parents (who have come from all parts of India), IIST's freshly appointed teaching faculty members and invited guests were part of the historic function at the VSSC auditorium on that day. The IIST will train young students, sourced through the prestigious IIT-JEE (Joint Entrance Examination) to meet the demands of creative scientists and engineers in Avionics, Aerospace Engineering and Space Sciences for India's Space program. Though, CALTECH (California Institute of Technology), Pasadena (USA) and the International Space University (Europe) have programs in space sciences and technology, IIST is the first academic institute in this globe, to have undergraduate courses in B.Tech and integrated M.Sc dedicated to space science and engineering. The IIST offers from current academic year, four year B.Tech program in Avionics and Aerospace Engineering as well as five year integrated M.Sc program in Applied Sciences.

In his inaugural address, Dr. G Madhavan Nair said that, the father of India's space program Dr. Vikram Sarabhai wanted to start

IIST in sixties but due to various reasons it could not materialize in his life time and definitely his dream of starting a space institute has come true today. He hoped that students who graduate from IIST in four to five years of time will definitely achieve break through in space technologies like building a base in moon first and from their not only to mars and other solar system but also beyond solar system. He enumerated the challenges ahead in the Space Programme of India. He also recalled about ISRO's Chandrayaan-I, program later this year and wanted IIST students to take up challenges in space technology. ISRO is working on Human Space Mission and the approval for the same is expected soon. It gives immense opportunities to younger generation to wet their hands in several cutting edge technologies in the coming years. While inaugurating the institute he conveyed his greetings and best wishes to all students, faculties and parents.

As, IIST has MOU with two of the prominent colleges in Kerala State, namely College of Engineering and Marivanious College, Thiruvananthapuram for students practical classes during first two years, the principals of both colleges were present at the inaugural function. In their felicitation speeches, Prof. D Sam Chandran (Principal of CET) and Rev. Fr. Mathew Mankarakavil (Principal, MIC) recalled their long standing association with ISRO and took pride in associating with IIST. Finally, Dr. R Krishnan, Dean, IIST proposed a vote of thanks.



Director of IIST,  
Dr. B N Suresh delivering his  
welcome speech



## Welcome Speech

### Excerpts from The Director(IIST) welcome speech.....

IIST's first Director, Dr. B N Suresh, in his inaugural address, spoke about the vision and goal behind IIST's foundation. He emphasized that unlike conventional learning, IIST is planning to teach science and technology in an interesting and innovative way. He elaborated that IIST aims to develop high quality scientists and engineers to meet the many exciting programs of the space department in coming years. He felt very happy to see 138 young and bright students coming from all parts of India, starting from north of Assam to southern most tip, from far east to west thus covering 18 states. He mentioned that in his opinion the large youth population is India's greatest strength and they would certainly make a significant contribution for the developed India by 2020. What is needed is to impart right knowledge and education to this youth of India.

The Director, further spoke on ISRO's vision and missions. ISRO, during last 4 decades has converted the vision of Dr. Vikram Sarabhai, the founding father of Indian Space programme into reality. Today India is among one of the top six space-faring countries and we have end to end capability of visualizing suitable application programme, building the space craft suiting the countries requirements and launching them into the orbit using our own launch vehicles. While we should, thus fulfill the dream of Dr. Sarabhai, we have many more new challenges and missions to be accomplished with cutting edge technologies in the coming years. To achieve this we certainly need high quality scientists and engineers. It is certainly the mandate of IIST to produce such creative scientists and engineers to meet the demands of ISRO. The Director elaborated on course structures and branches and other academic related matters. He thanked parents of first batch of IIST students who were present during inauguration for reposing faith in IIST and admitting their wards.

The Director, IIST specially thanked all the people who were directly or indirectly involved from ISRO and Department of Space, in starting IIST in record time of just 4 months since its approval from cabinet on 29th April 2007. He particularly thanked the Chairman, ISRO Dr. G Madhavan Nair for his dynamic leadership to create IIST in record time, and for his unstinted support and meticulousness with which he looked into every aspect of IIST.



# Dr. A P J Kalam's

## Visit to IIST



India's Former President Dr. A P J Abdul Kalam addressing IIST students

## Dr. Kalam's Speech

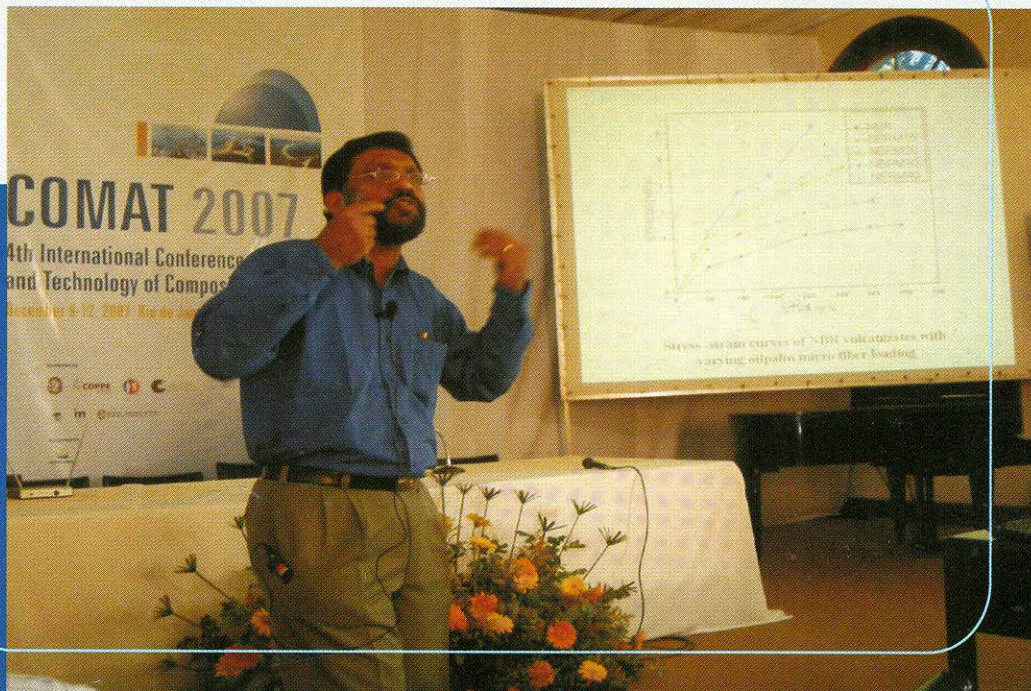
It was indeed a dream come true for faculty and students of IIST to meet Dr. APJ Abdul Kalam former President of India; during his visit, to the Campus on Oct 4th-5th, 2007. He addressed IIST students at 17.00 hrs and the subject of talk was **"I will Conquer"**. He started with a quote *"When you wish upon a star, makes no difference who you are; anything your heart desires will come to you"*. In his address he eloquently quotes his experiences with eminent personalities like Dr. John Mather winner of Nobel Prize in Physics along with George Smoot during his recent visit to USA. He mentions that when educational institutions collaborate with research laboratories world class discoveries and inventions are made. He gives a message to young students that when inspired minds receive quality education through teachers they can accomplish highest levels of discoveries for the benefit of the entire humanity. He further addresses issues on creativity, innovation, capacity to use high technology, entrepreneurship and moral leadership. In the end he poses 10 questions on the vision for the space youth. Immediately after the talk there was an interesting and very inspiring interaction session with students. The important question he posed to the students is that *"In your life for what you should be remembered"*. He asked the students to brood over this question and make sure that each one of them achieves their desired goals. All students had a mad rush to get his autographs. Next day there was interaction with faculty members and he emphasized the role of teachers in building the nation. The interaction was very inspiring. Subsequent to this he visited all facilities of the institute and there was a photo session with students and faculty. On the whole his visit to the institute was very inspiring to all students and faculty members. He promised that he would come back again and try to teach IIST students in future.

Group photo showing IIST students with Dr. Kalam, Chairman ISRO, IIST Director, Dean of IIST and Registrar of IIST





# Academic Activities



Prof. Kuruvilla Joseph, delivering his talk at COMAT 2007, Rio De Janeiro, Brazil

## Talks at Symposium / Seminars / Workshops / Refresher Course etc.

### Department of Chemistry

Prof. Kuruvilla Joseph,

- ① Delivered plenary talk on **"Role of fibre microstructure, interfaces, chemical modifications and transcrystallinity on the physical and chemical properties of polymer composites"** at the 4th international conference on Science and Technology of Composites Materials, COMAT 2007, at the Federal University of Rio De Janeiro, Rio De Janeiro, Brazil, during December 9-12, 2007.
- ② Delivered plenary talk on **"Lignocellulosic fibre reinforced polymer composites: Status and Future"** at the International conference on Natural polymers, bio polymers, Blends and Gels: Macro to Nano Scales, ICNP 2007, November 19-21, 2007, Kottayam, Kerala.
- ③ Delivered an invited lecture on **"Advances in polymer composite processing"** at the national seminar on Emerging Trends and Vistas in Polymer Science organized by Government College, Attingal, Thiruvananthapuram, February 14-15, 2008.

### Department of Mathematics

Prof. Raju K George

- ① Delivered a talk on **"Controllability of nonlinear diffusion system using zonal controls"** in the Indo-French Video-Conference during Oct 25-26, 2007, at the Indian Institute of Science, Bangalore.
- ② Delivered an invited talk on **"Differential equations and its applications to control problems"** at the Department of Mathematics, University of Calicut, Calicut on 8th January, 2008.
- ③ Delivered two invited talks on **"Neural networks and its applications"** at the National Level Workshop on Soft Computing (NWSC 2008) during 21st- 22nd, January, 2008 held at the Department of Mathematics, Gandhigram Rural University, Gandhigram.
- ④ Visited Maharaja Sayajirao University of Baroda, Vadodara for conducting the **PhD viva voce examinations** of (a) Jaita P Sharma (b) Purnima Pandit during 21-23rd February, 2008.
- ⑤ Visited the Indian Institute of Science, Bangalore during 25th- 29th, February, 2008 to participate in the discussion on a collaborative research project on **Controls on partial differential equation**.



## Department of Physics

Prof. C S Narayanamurthy,

- 1 Delivered an invited talk on '**Beam propagation analysis using digital holography**' at XXXIII OSI (Optical Society of India), symposium at Tezpur Central University, Tezpur (Assam) during 21-23rd December, 2007.
- 2 Delivered two lectures on **Optical coherence and holography** on 28.01.2008 and one lecture on Non-Linear Optics on 04.02.2008 at the XXIII UGC refresher Course in Physics, organized by the UGC-ACADEMIC Staff College at University of Kerala, Thiruvananthapuram from 17.01.2008 to 07.02.2008

## Department of Humanities

C S Shaijumon

- 1 Participated in **Fulbright International Conference from January 20-23 held in Kathmandu, Nepal on "Public service and building civil society"** organized by United States Education Foundation in Nepal. Presented a research paper on **"Indian agriculture and civil society: A symbiotic relationship"** in the same conference.
- 2 Participated in the **International Conference on "Emerging India: Strategic options in the new century" from 26-28 February**, organized by School of International Relations and politics, Mahatma Gandhi University, Kottayam, Kerala. Presented a research paper on **"Sustainable and inclusive agriculture: An economic strategy for emerging India"**.

- 3 Participated in the discussion on '**National Budget 2008-09**' on 5th March, 2008, organized by Naipunya International, Kaloor, Cochin.

Ph.D Awarded

- 1 Ms. Babitha Justin, Lecturer, IIST, defended her Ph D thesis on "**Making of an anecdotal India : A study in the writings of British Women Travelers in Independent India**" on 8th December, 2007 in Hyderabad Central University(HCU), Hyderabad and her PhD was awarded on 2nd January, 2008.

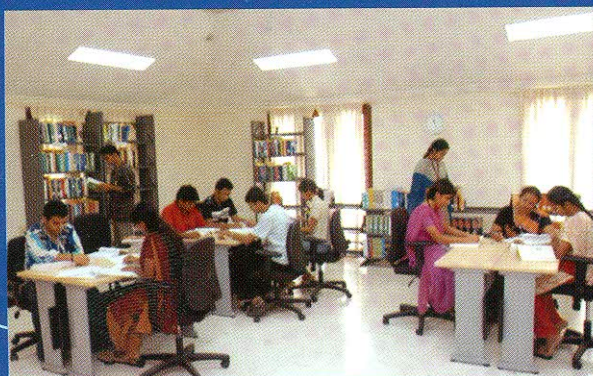
**IIST Congratulates Ms. Babitha Justin for obtaining Ph.D !**

### Awards and Distinction

The IIST congratulates our respected Director Dr. B N Suresh for getting the awards as per the details given below:

- 1 "Lifetime Achievement Award" by Indian National Academy of Engineering, New Delhi, at their annual meet on 5th December, 2007 at Hyderabad for his lifetime contributions to engineering and sciences.
- 2 "National Systems Gold Medal" for lifetime contributions for development of large Systems by System Society of India on 14th December, 2007 at National Systems Conference held at Manipal Institute of Technology, Manipal.

Students at IIST library



Computer Laboratory....



# Visit to West



Photograph showing IIST Team in the U.S. Some thoughts on our recent visit.....R.Krishnan, Dean(Academic), IIST

## *R.Krishnan, Dean(Academic), IIST*

I thought to share with you, the experiences of the recent visit by a joint IIST-ISRO team to some of the leading Universities in France and USA. First the facts: A team headed by Dr.B.N.Suresh, Director,IIST and with the Additional Secretary, DOS, Dean(Academic),IIST and Sri.M.S.Chandrasekhar from ISRO Head Quarters, visited the Ecole Polytechnic and the International Space University in France and MIT, Univ. of Maryland, Caltech, JPL, University of California, Berkeley in USA. We were also privileged to have the Chairman ISRO's presence in some of the places as also in the Kennedy Space Centre.

The purpose of the visit was to study at close quarters their laboratories, teaching methods, exam patterns and their infrastructure and also to develop contacts so that IIST Faculty and students can benefit by interacting with them.

You may wonder why we chose these institutions. Let me explain:

The first choice was Caltech (California Institute of Technology) and JPL(Jet Propulsion Laboratory). These two are like binary stars and revolve around each other. Caltech is a university which controls JPL which is a NASA lab. The similarity with IIST & ISRO though in reverse order is striking. We wanted to see how this relationship works.

The Ecole Polytechnic is a unique institution founded by Carnot (remember the Carnot cycle?) and later converted into a Military University by Napoleon. From 1970 it is a civilian institution under the Ministry of Defence of France. It has close links with the CNES and it is every French child's dream to get into it.

The International Space University in Strasbourg (France) is a remarkable institution devoted to Space studies and offers a masters program and also conducts a prestigious conference every year.

MIT, is of course the Mecca of Engineering. The University of Maryland has close links with the Goddard Space Flight Center and is one of the top universities in the US. The University of California, Berkeley is linked with the Lawrence Berkeley Laboratory and the Planetary Laboratory.

Wherever we went were pleasantly surprised by the respect and regard which ISRO's name evoked and also by the fact that many were quite eager to hear about ISRO's new launch called IIST. During this visit a historic MOU(Memorandum of Understanding) was signed between ISRO and NASA. We were also privileged to view the space shuttle Atlantis in its launch pad in Cape Kennedy, a few days before its launch. We also had the good fortune to meet Prof.George Smoot who is a Nobel Prize winner and also Prof. Roald Sagdeev who was the Head of the Russian Space programme and who is now in Maryland.

I don't want to describe the facts and figures about these places which anyway are accessible to you on the internet. But let me share certain impressions:

- 1 The most striking feature about these places is the strong link between the university or institute and a national lab in its vicinity. This enables the faculty and students to work on real projects and in turn the scientists are able to interact with top academicians and also carry out blue sky experiments.



- ② Real instruments and payloads are built in the university labs by the students and faculty. In Caltech we saw a hypersonic facility and path breaking Carbon Nanotube development made by the students. In MIT a new lightweight space suit is taking shape. In Berkeley miniature but fully functional UAVs (Unmanned Aerial Vehicles) are made in the Labs
- ③ The Chandrayan programme of ISRO has evoked tremendous response and many scientists with their own payloads want a ride on ISRO's launch vehicles!

### Some sidelights:

The lake in Ecole is shaped like the French soldier's cap!

Every building in Maryland University has the same signature *Roman Arch* like entrance.

There is tremendous diversity in the physical infrastructure: Maryland and Ecole are huge, virtual cities. Caltech is only 15 acres. Berkeley has its own Ponmudi+Valiamala combination ( Lab on the hill and Univ on the sea shore).

The Indian diaspora is truly visible. Top researchers in all the places in the US are NRI's or PIOs.

What next? We are going to invite some of these Faculties to IIST for short courses and interactions. Return visits (more interesting!!) By faculty and students of IIST are also on the cards. How do you become one of the lucky ones? Have an innovative idea and a TGPA of 10.!!!

# First Semester Exam Toppers

## Congratulations !

- ① **Shahank Adimulum** B.Tech (Avionics)
- ② **Abhinav Goel** B.Tech (Aerospace Engineering)
- ③ **Dhinesh Dhankar** B.Tech (Avionics)

For topping first semester with highest grade point averages.

## IIST Congratulates,

**Ms. Amritha Prasad**, B.Tech (Avionics)

for getting the highest grade point average among girl students.



IIST Students in Kanyakumari during a picnic



### INDIAN INSTITUTE OF SPACE SCIENCE AND TECHNOLOGY

Department of Space (DOS), ISRO P.O. Thiruvananthapuram 695 022, India

Tel: +91 471 2564161, 2564157 Fax: + 91 471 2704162

Email: bn\_suresh@iist.ac.in