

होमी भाभा राष्ट्रीय संस्थान

Homi Bhabha National Institute



Bhabha Atomic Reserch Centre



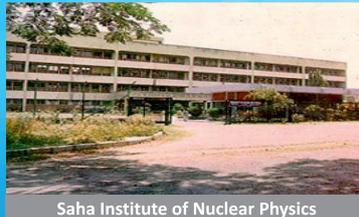
Indira Gandhi Centre for Atomic Research



Raja Ramanna Centre for Advanced Technology



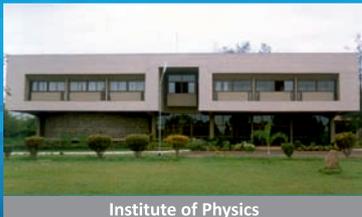
Variable Energy Cyclotron Centre



Saha Institute of Nuclear Physics



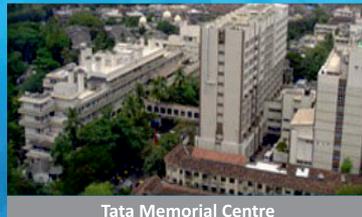
Institute for Plasma Research



Institute of Physics



Harish-Chandra Research Institute



Tata Memorial Centre



Institute of Mathematical Sciences

ANNUAL REPORT

2012- 2013

(Volume-1)



Training School Complex
Bhabha Atomic Research Centre
Anushaktinagar, Mumbai 400 094

MANAGEMENT OF THE INSTITUTE

The Council of Management is the principal organ for the management of the Institute. All academic issues are handled by an Academic Council which functions on the advice of the Board of Studies. There is a Board of Studies for every discipline as follows.

- Chemical Sciences (C)
- Engineering Sciences (E)
- Health Sciences (H)
- Life Sciences (L)
- Mathematical Sciences (M)
- Physical Sciences (P)
- Strategic Studies (S)

BARC	C	E	H	L	M	P	S
IGCAR	C	E	P	S			
RRCAT	E	L	P				
VECC	E	P					
SINP	L	P					
IPR	E	P					
IOP	C	L	M	P			
HRI	M	P					
TMC	H	L					
IMSc	M	P					

To manage the affairs of the Institute at the level of Constituent Institutions(CIs), each CI has one or more Deans-Academic and a university cell. CIs have also established a robust framework for admission, evaluation of performance and monitoring the progress of research by the students.

Composition of Bodies of the Institute is given in Anne 1 in Vol. 2. Composition of Standing Committees is given in Annex 2 in Vol. 2. List of faculty is placed at Annex 3 in Vol. 2.

Homi Bhabha National Institute

ANNUAL REPORT 2012- 2013 (Volume-1)



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From the Director

Our Institute was set up with certain objectives which are listed in the Memorandum of Association. Simply stated the objectives are: pursuit of excellence, integrating basic research with technology development, pursuing interdisciplinary research, attracting high quality manpower to take up a career in nuclear science and engineering, and creating a framework for enabling employees of DAE to sharpen and update their knowledge base while in service. Programmes and procedures of the Institute are in place and one can examine how effective they have been in achieving the stated objectives.



Research output of the Institute is impressive as can be seen from the abstracts of doctoral theses and publications listed in the second volume of the report. A significant number of employees of research centres are pursuing Ph.D. and percentage of employees amongst successful doctorates during the year was almost 50%. Topics of research pursued by students for their Ph.D. work have invariably direct relevance to the programmes of the Department of Atomic Energy and in several cases are interdisciplinary.

M.Tech. is pursued by students who join BARC Training School prior to joining a unit of DAE. While it is not mandatory for students joining Training School to opt to do M.Tech., percentage of engineers opting to do M.Tech. has steadily risen to close to 100% and we expect more than 80% to complete M.Tech. This is partly due to flexibility provided for completion of project work, which is an integral part of M.Tech. A significant number of engineers have returned to enroll for a Ph.D. after completing M.Tech.

Students pursuing science subjects prefer to go in for a Ph.D. It has been noted that employees are enrolling for a Ph.D. at a younger age as compared to the practice prior to the setting up of HBNI.

DAE Graduate Fellowship scheme for Ph.D. wherein a student works at the interface of basic and applied research is doing well, but there is a need to attract more students. Setting up of HBNI has led to increase in enrolment of students at IGCAR, RRCAT and VECC. As a step to significantly increase enrolments in BARC, a student's hostel is under construction.

When examined from the viewpoint of achieving objectives, one can say that we are doing quite well in terms of doing interdisciplinary research, attracting young graduates to work on nuclear science and engineering, enabling employees to update their knowledge base and so on.



Practices followed such as insistence on course work, oral general comprehensive examination and periodic review by doctoral committees have created an environment which motivate a student to perform at a high level. Number of publications by doctoral students is also very impressive.

Programmes in Health Sciences have been significantly expanded in recent years. These programmes are pursued mostly at Tata Memorial Centre and Medical Council of India has approved increase in student intake.

Faculty of the Institute has excellent credentials. Prof Ashoke Sen of Harish-Chandra Research Institute was awarded theoretical physics prize and it is a privilege to have him as faculty. This year, the report also lists names of fellows of various prestigious academies and this list is also very impressive. Overall it is heartening to note that the Institute has established a place for itself in a short span of time.

UGC (Minimum standards and procedure for awards of M.Phil./Ph.D. degrees) Regulations, 2009 mandates only one journal publication for the award of a Ph.D. This has led to a considerable debate as there is significant variation amongst disciplines. Culture of publication also varies from discipline to discipline as in disciplines like theoretical computer science researchers tend to publish in prestigious conferences which follow rigorous peer review practices and select conference proceedings are published by reputed publishers. Considering these discipline specific attributes, is it appropriate to straight jacket everything with a single regulation? In our Institute, number of publications arising from a thesis varies from one to more than ten.

This large variation in number of publications arising from a Ph.D. thesis across disciplines led me to examine literature with regard to citation per paper and I could notice similar differences there as well. In mathematics and computer science, average citations per paper are of the order of one, while in fundamental life sciences they could be of the order of six¹. Boards of Studies thus have to formulate and follow discipline specific approaches for accepting a synopsis for a Ph.D. and they have been mandated to do so.

¹ Amin, M.; Mabe, M. 2000. Impact factor: use and abuse. *Perspectives in Publishing*, No. 1, October, pp. 1-6, http://www.elsevier.com/framework_editors/pdfs/Perspectives1.pdf.



The HBNI has the following as its Constituent Institutions (CIs).

1. Bhabha Atomic Research Centre (BARC), Mumbai
2. Indira Gandhi Centre for Atomic Research (IGCAR), Kalpakkam
3. Raja Ramanna Centre for Advanced Technology (RRCAT), Indore
4. Variable Energy Cyclotron Centre (VECC), Kolkata
5. Saha Institute of Nuclear Physics (SINP), Kolkata
6. Institute for Plasma Research (IPR), Gandhinagar
7. Institute of Physics (IOP), Bhubaneswar
8. Harish-Chandra Research Institute (HRI), Allahabad
9. Institute of Mathematical Sciences (IMSc), Chennai, and
10. Tata Memorial Centre (TMC), Mumbai.

The role of HBNI is to nurture in-depth capabilities in nuclear science and engineering and to serve as a catalyst to accelerate the pace of basic research and facilitate its translation into technology development and applications through academic programmes, viz., Master's and Ph.D. degrees in Engineering, Physical, Chemical, Mathematical, Life and Health Sciences while encouraging interdisciplinary research. Additionally, a Strategic Studies programme has also been identified to ensure availability of adequate qualified human resources to address issues pertaining to nuclear law, economics of nuclear power, nuclear security, nuclear proliferation, intellectual property rights etc.

In 2006, the Government of India decided to strengthen science education and set up institutions for science education and research in various parts of the country. One such institution, the National Institute for Science Education and Research (NISER) was setup at Bhubaneswar by the Department of Atomic Energy (DAE) as a project of the Institute of Physics. Academic programmes of this institute were started as a part of IOP and thereby under HBNI. Steps are being taken to make NISER an independent CI of HBNI.

ACADEMIC PROGRAMMES OF THE INSTITUTE

The HBNI offers a range of academic programmes in chemical sciences, engineering sciences, health sciences, life sciences, mathematical sciences and physical sciences. It also has a programme in strategic studies. Except for NISER, all other institutions conduct programmes at post-graduate level. Various programmes offered are the following.

Ph.D. in varied disciplines is offered at all CIs. HRI and IMSc also offer an integrated Ph.D. programme where students study for **M.Sc.** as well as Ph.D.



M.Tech. in engineering sciences and **M.Phil.** in physical sciences, chemical sciences and life sciences. These programmes consist of one year of course work and one year of project work. The course work is offered at all campuses of BARC Training School and project work is offered at BARC, IGCAR, RRCAT VECC and some other units of DAE. Those who are not interested in project work get a diploma in lieu of a M.Tech. or a M.Phil.

M.Sc. (Engg) in which research content is more than that in a M.Tech. programme. The duration of the project work under this programme is one and half year, while the duration of the course work is up to one year. This programme is offered at BARC, IGCAR, VECC and RRCAT and has been tailored for the employees of the Department.

Integrated M.Sc. of five-year duration at NISER.

Super Specialty Courses at TMC

- **D.M.** (Medical Oncology)
- **M. Ch.** (Surgical Oncology)
- **M. Ch.** (Gynaecological Oncology)

Post Graduate Courses at TMC

- **M.D.** (Pathology)
- **M.D.** (Anaesthesiology)
- **M.D.** (Radio-diagnosis),
- **M.D.** (Radiotherapy),
- **M.D.** (Microbiology), and
- **M.D.** (Immuno Haematology & Blood Transfusion)

DRM: Diploma in Radiation Medicine at BARC.

M.Sc. (Nursing) at TMC

Dip.R.P.: Diploma in Radiological Physics at BARC.

DMRIT: Diploma in Medical Radio Isotope Techniques at BARC.

The Institute offers a unique Ph.D. programme where students are encouraged to work at the interface of basic research and technology development. Under this programme, they work under the guidance of two supervisors, one having strength in basic research and the other in technology development.



Around 1500 students are pursuing Ph.D. in various disciplines.

All the Constituent Institutions have excellent library facilities having a large collection of books and subscribe to a large number of research journals. All journals are available to researchers on their desktops.

FACULTY

Faculty strength in all CIs put together is 834. CIs, particularly research & development centres have a large number of scientific officers and they provide valuable inputs to research scholars as Technology Advisers. Amongst faculty and scientific officers, there are many who are fellows of prestigious academies, and winners of national and international awards. List of Fellows who are faculty of HBNI are given in the following Tables.

1. Fellows of Indian National Academy of Engineering, New Delhi

S. No.	Name	Year of birth	Year of election	CI
1.	Anil Kakodkar*	1943	1991	BARC
2.	Srikumar Banerjee*	1946	1993	BARC
3.	R.B. Grover*	1949	1999	Director HBNI
4.	R.K. Sinha	1951	1999	Chairman, CoM
5.	H.S. Kushwaha**	1946	2000	BARC
6.	P. Chellapandi	1956	2001	IGCAR
7.	S.C. Chetal**	1949	2001	IGCAR
8.	T.K. Bera	1954	2002	BARC
9.	B K Dutta	1953	2004	BARC
10.	V.K. Mehra**	1948	2004	BARC
11.	Sekhar Basu	1952	2005	BARC
12.	L.M. Gantayet	1950	2005	BARC
13.	T. Jayakumar	1955	2005	IGCAR
14.	B.B. Biswas**	1948	2006	BARC
15.	Manjit Singh	1950	2006	BARC
16.	S. Venugopal	1955	2006	IGCAR
17.	A.K. Bhaduri	1959	2007	IGCAR
18.	G K Dey	1957	2008	BARC
19.	K. Velusamy	1959	2008	IGCAR
20.	R.R.S. Yadav	1952	2008	BARC
21.	U. Kamachi Mudali	1960	2009	IGCAR
22.	P.K. Wattal	1951	2010	BARC
23.	K.K. Jayarajan	1962	2011	BARC
24.	R. Natarajan	1953	2011	IGCAR
25.	K.K. Vaze	1950	2011	BARC
26.	R.K. Singh	1956	2012	BARC



27.	A.K. Sinha	1956	2012	BARC
28.	Prof. V. Ravindran	1965	2012	HRI
29.	S. Chaturvedi	1962	2013	BARC
30.	C.K. Pithawa	1951	2013	BARC
31.	S.B. Roy	1956	2013	BARC

* Homi Bhabha Chair

** Raja Ramanna Fellow

2. Fellows of the Indian National Science Academy, New Delhi

1.	P.K. Kaw***	1948	1984	IPR
2.	R. Balasubramanian	1951	1988	IMSc
3.	Bikash Sinha*	1945	1989	VECC
4.	Srikumar Banerjee*	1946	1992	BARC
5.	G. Baskaran**	1948	1992	IMSc
6.	Probir Roy**	1942	1992	SINP
7.	J.B. Joshi*	1949	1995	HBNI
8.	J. Maharana**	1945	1995	IoP
9.	Ashoke Sen	1956	1996	HRI
10.	Romesh Kaul	1952	1998	IMSc
11.	S.K. Apte	1952	1999	BARC
12.	Swapan K. Ghosh	1949	1999	BARC
13.	R. Simon	1948	1999	IMSc
14.	M.K. Sanyal	1954	2001	SINP
15.	A.M. Jayannavar	1956	2002	IoP
16.	B.K. Chakrabarty	1952	2003	SINP
17.	T.K. Chandrashekar	1956	2003	IoP-NISER
18.	V.S. Sunder	1952	2004	IMSc
19.	Sunanda Banerjee	1952	2005	SINP
20.	Abhijit Sen****	1946	2006	IPR
21.	S.M. Bhattacharjee	1957	2008	IoP
22.	V.P. Viyogi**	1948	2009	VECC
23.	R. Gopakumar	1967	2010	HRI
24.	M.V. Hosur	1950	2010	BARC
25.	K.H. Paranjape	1960	2010	IMSc
26.	G. Bhattacharyya	1966	2013	SINP
27.	S.L. Chaplot	1955	2013	BARC
28.	S. Kailas	1949	2013	BARC
29.	C.S. Sundar	1952	2013	IGCAR

*Homi Bhabha Chair, **RRF, ***DST Chair,****S. Chandrasekhar Chair



3. Fellows of the Indian Academy of Sciences, Bangalore

1.	P.K. Kaw***	1948	1974	IPR
2.	R. Balasubramanian,	1951	1987	IMSc
3.	G. Baskaran**	1948	1989	IMSc
4.	Probir Roy**	1942	1989	SINP
5.	Srikumar Banerjee*	1946	1990	BARC
6.	Swapan K. Ghosh	1949	1991	BARC
7.	J.B. Joshi*	1949	1991	HBNI
8.	Ashoke Sen	1956	1991	HRI
9.	R. Simon	1948	1991	IMSc
10.	V.S. Sunder	1952	1992	IMSc
11.	J.K. Bhattacharjee	1952	1993	HRI
12.	Romesh K Kaul	1952	1993	IMSc
13.	J. Maharana**	1945	1994	IoP
14.	S. Kailas	1949	1995	BARC
15.	Abhijit Sen****	1946	1995	IPR
16.	A.M. Jayannavar	1956	1996	IoP
17.	B.K. Chakraborty	1952	1997	SINP
18.	K.H. Paranjape	1960	1997	IMSc
19.	Anil Kakodkar*	1943	1998	BARC
20.	C.S. Sundar	1952	1999	IGCAR
21.	S.M. Bhattacharjee	1957	2000	IoP
22.	T.K. Chandrashekar	1956	2000	IoP-NISER
23.	M.K. Sanyal	1954	2001	SINP
24.	Sunanda Banerjee	1952	2002	SINP
25.	M.V.N. Murthy	1953	2004	IMSc
26.	R. Gopakumar	1967	2007	HRI
27.	P.K.Gupta	1954	2007	RRCAT
28.	D.K. Palit	1957	2007	BARC
29.	P. Sankaran	1959	2007	IMSc
30.	S.K. Apte	1952	2008	BARC
31.	G.K. Dey	1957	2008	BARC
32.	S. Kesavan	1952	2008	IMSc
33.	S.M. Sharma	1952	2008	BARC
34.	D.S. Nagaraj	1958	2010	IMSc
35.	Sudeshna Sinha	1962	2010	IMSc
36.	Amita Das	1965	2011	IPR
37.	H.N. Ghosh	1966	2013	BARC
38.	T.K. Nayak	1958	2013	VECC
39.	Arun K. Pati	1966	2013	HRI
40.	A.K. Tyagi	1964	2013	BARC

*Homi Bhabha Chair, **RRF, ***DST Chair,****S. Chandrasekhar Chair

**4. Fellows of the National Academy of Sciences, India, Allahabad**

1.	P.K. Kaw***	1948	1989	IPR
2.	R. Balasubramanian	1951	1992	IMSc
3.	S.F. D'Souza	1949	1993	BARC
4.	S.K. Apte	1952	1995	BARC
5.	V.K. Jain	1956	1995	BARC
6.	Abhijit Sen****	1946	1995	IPR
7.	J.K. Bhattacharjee	1952	1997	HRI
8.	S. Kesavan	1952	1997	IMSc
9.	Ashoke Sen	1956	1997	HRI
10.	V.S. Sunder	1952	1997	IMSc
11.	K.H. Paranjape	1960	1999	IMSc
12.	S. K. Ghosh	1949	2001	BARC
13.	P. Mitra	1951	2001	SINP
14.	Sumathi Rao	1956	2001	HRI
15.	Probir Roy**	1942	2001	SINP
16.	M.K. Sanyal	1954	2001	SINP
17.	Srikumar Banerjee*	1946	2002	BARC
18.	Anil Kakodkar	1943	2002	BARC
19.	V.C. Sahni*	1945	2002	BARC
20.	K. B. Sainis	1949	2002	BARC
21.	C.S. Sundar	1952	2002	IGCAR
22.	S. Chattopadhyay	1957	2003	BARC
23.	A.M. Jayannavar	1956	2003	IoP
24.	M. Krishna	1956	2003	IMSc
25.	K. I. Priyadarsini	1959	2003	BARC
26.	P.D.Gupta	1952	2004	RRCAT
27.	H. Pal	1959	2004	BARC
28.	A.K. Tyagi	1964	2004	BARC
29.	S.M. Sharma	1952	2005	BARC
30.	B. Mukhopadhyaya	1966	2006	HRI
31.	D.K. Palit	1957	2006	BARC
32.	P. Sankaran	1959	2006	IMSc
33.	S.D. Adhikari	1957	2007	HRI
34.	S.L. Chaplot	1955	2007	BARC
35.	V.P. Viyogi**	1948	2007	VECC
36.	H.N. Ghosh	1966	2008	BARC
37.	R.K. Vatsa	1963	2009	BARC
38.	V. Kodiyalam	1966	2010	IMSc
39.	S. Panda	1959	2010	HRI
40.	A.C. Bhasikuttan	1967	2011	BARC



41.	P.S. Chakraborty	1973	2012	IMSc
42.	D. K. Maity	1964	2012	BARC
43.	R. K. Mohanty	1961	2012	IMSc
44.	D. K. Srivasatava	1952	2012	VECC
45.	Dr.Arun K. Pati	1966	2013	HRI
46.	Dr.B. Ramakrishnan	1961	2013	HRI

*Homi Bhabha Chair, **RRF, ***DST Chair,****S. Chandrasekhar Chair

5. Fellows of the Royal Society of London, London

1.	Ashoke Sen	1956	1998	HRI
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6. Fellows of the Third World Academy of Sciences, Trieste, Italy

1.	Ashoke Sen	1956	2004	HRI
2.	Srikumar Banerjee*	1946	2007	BARC
3.	G. Baskaran**	1948	2008	IMSc
4.	T.K. Chandrashekar	1956	2008	IoP-NISER
5.	J.B. Joshi*	1949	2008	HBNI
6.	S. K. Ghosh	1949	2010	BARC

*Homi Bhabha Chair, **RRF

7. Fellows of World Academy of Art and Science

1.	R.B. Grover*	1949	2013	Director HBNI
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*Homi Bhabha Chair



ADMISSIONS AND RESULTS

The academic programmes at the CIs were conducted as per schedule. The admissions statistics and the results are tabulated in Annex-4 in volume 2.

The abstracts of the theses fulfilling all the formalities for the award of the Degree of the Doctor of Philosophy are placed at Annex-5 in volume 2.

The titles of M.Tech./M.Phil/M.Sc. (Engg.) theses fulfilling all the formalities for the award of the Degree in Master of Technology/Master of Philosophy/Master of Engineering are placed at Annex-6 in volume 2.

Receipts and payments for the financial year ending on 31.3.2013 are given in Annex-7 in volume 2.

Important Meetings and Decisions

During the period of the report, following meetings of the decision making bodies of the Institute were organised and coordinated by the central office.

1.	Council of Management	23 rd April 2012	Chairman's Office, OYC, DAE
2.	Council of Management	25 th June 2012	Council Hall, HBNI Central Office
3.	Council of Management	25 th February 2013	Chairman's Office, CC, BARC
4.	Academic Council	19 th May 2012	Council Hall, HBNI Central Office
5.	Deans-Academic	21 st November 2012	Council Hall, HBNI Central Office

Following important decisions were taken during the meetings.

- a) The CoM agreed that there is a need for increasing the financial assistance to Ph.D. scholars of HBNI for attending conferences abroad and decided that the upper limit for the said financial assistance be enhanced to Rs. 80,000/- (COM 23.04.12).
- b) The CoM approved the proposal of appointing adjunct faculty from amongst eligible employees from AMD, HWB and NFC. CoM also directed that this approval should initially be for a period of 5 (five) years and grant of further extensions should be linked to deliverables. (COM 25.02.13).



11th Council of Management Meeting held on 25.02.2013 at Director, BARC's Conference Room, Central Complex, BARC

- c) The COM approved opening of two separate accounts: one to accept donation proposed to be given by Prof J B Joshi and the other to accept surplus generated by organising conferences. (COM 25.02.13).
- d) The AC approved the proposal for allowing the HBNI Ph.D. students to complete their course work and Oral General Comprehensive Examination (OGCE) in about two years from the date of enrolment (AC 19.05.12).
- e) The AC approved the inclusion of M.V.Sc. and M.Pharm. as eligible degrees for the Ph.D. programme in Life Sciences, and Ph.D. programme in Computational Biology in I.M.Sc., Chennai (AC 19.05.12).
- f) The AC gave in principle approval for starting the following programmes (AC 19.05.12).



Meeting of the Academic Council held on May, 19, 2012 at Council Hall, HBNI

- i) Ph.D. in Medical Physics:
- ii) Diploma in Radiotherapy and Diploma in Medical Imaging Technology:
- iii) PG Diploma in Fusion Technology:
- iv) DM in Gastroenterology and Pediatric Oncology



- g) The AC opined that, for HBNI purpose, the Central Universities guidelines being followed by HBNI with regard to faculty designation should be adhered to. However, for MCI purpose, the faculty in TMC and at RMC of BARC can use the titles commensurate with MCI guidelines. (AC 19.05.12).
- h) The AC opined that a 'Graduation' ceremony could be organized by TMC or any CI as was approved by the CoM for NISER. (AC 19.05.12).
- i) The AC decided that a Ph.D. scholar who gets financial assistance under the International Travel Scheme of HBNI can get additional financial assistance only from a non-DAE unit/body. (AC 19.05.12).
- j) The AC decided that, upon retirement, a person can continue to be the Chairman or a member of the doctoral committee if it is envisaged that the process of submission and examination of the thesis would be completed in about one year from the date of the retirement of the person concerned. (AC 19.05.12).
- k) The honorarium and TA for visit of experts for annual review should be paid by CI. HBNI will pay only for final examination and thesis evaluation (DA 21.11.12)
- l) Raja Ramanna Fellows may participate in PhD programs as co-guides provided that they were recognized as faculty prior to their superannuation. Deans reiterated the decision of the AC that an individual can continue to be a member of a doctoral committee for up to one year after superannuation in case the program is expected to complete within this period. (DA 21.11.12)

NEWS FROM CONSTITUENT INSTITUTIONS

(in brief, details available at respective websites)

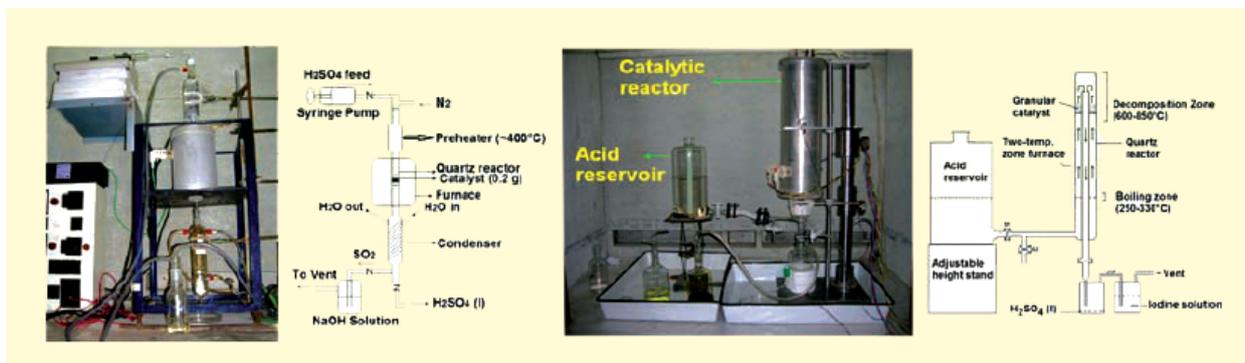
Bhabha Atomic Research Centre (www.barc.gov.in)

Engineering Scale Demonstration Facility for Actinide Partitioning of High Level Waste: The Indian nuclear power programme is sustained by the adoption of a closed fuel cycle wherein the fissile and fertile materials are recycled by reprocessing of spent fuel. The reprocessing step leads to the generation of high level waste (HLW) which is presently vitrified using borosilicate matrices. With the nuclear power profile on the verge of an exponential increase, it becomes imperative to consider and adopt cross-cut technologies that would not only lead to a substantial reduction in repository capacity both in terms of volumes and thermal loads but also lead to a reduction in radiotoxicity of the waste forms. Partitioning of high level waste is the first step towards achieving the above objectives. Towards these objectives, an engineering scale demonstration facility for partitioning of actual high level liquid waste (HLLW) arising from reprocessing of PHWR fuel has been set up at BARC, Tarapur. Not only will this facility address routine recovery of residual uranium from HLLW leading to higher waste loading in glass, but also serve as a test facility for partitioning of minor actinides from uranium lean HLLW. With the successful cold commissioning of this facility, a milestone has been achieved towards induction of partitioning technology for radioactive high level liquid waste.



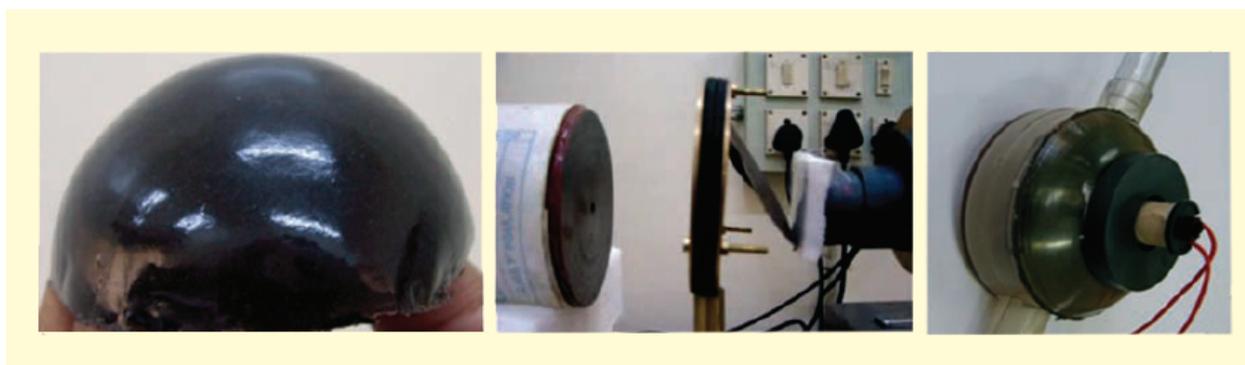
Development of ICMC-1.0 Monte Carlo Code for Neutron and Particle Transport: The Intra-nuclear Cascade Monte Carlo (ICMC) code for transport of neutrons, protons, pions and heavy ions has been developed at Nuclear Physics Division, BARC in the last few years, and further developments are underway. Scientists in BARC have developed the code for low energy neutron transport using pointwise cross section data below 20 MeV of neutron energy. Constructive Solid Geometry model, based on solid bodies, is adopted to construct geometry. A module for repetitive structure for lattice, core calculations in reactors and detector simulations is developed. A Graphical User Interface (GUI) has been incorporated for making the input, construction and visualization of the geometry and analysis of the output. The code has been validated for simulating benchmarks of accelerator driven sub-critical systems, neutron shielding, heat and neutron flux distribution, and k_{eff} of the critical and sub-critical assemblies.

Development of Catalyst for Decomposition of Sulfuric Acid: The Energy Intensive Step in Sulfur-Iodine Thermochemical Cycle for Hydrogen Generation using Nuclear Heat: An in-house catalyst development work undertaken at Chemistry Division on sulfuric acid decomposition reaction, the most endothermic step of Sulfur-Iodine (S-I) thermochemical cycle being pursued in the DAE for large scale hydrogen generation using the proposed Compact High Temperature Reactor (CHTR). Various catalyst



systems like iron oxide, substituted iron oxide and ferrites were evaluated in the temperature range of 600-825°C employing indigenously developed glass setups. Owing to higher activity, iron oxide based catalysts were investigated in detail for their possible deployment in an integrated glass setup of S-I process at Chemical Technology Division. Comparative studies on iron oxide based catalysts (Fe_2O_3 & $\text{Fe}_{1.8}\text{Cr}_{0.203}$) with a commercial Pt catalyst ($\text{Pt}/\text{Al}_2\text{O}_3$) have demonstrated that both Cr-substituted and un-substituted iron oxides are active for catalytic decomposition of sulfuric acid and are comparable to $\text{Pt}/\text{Al}_2\text{O}_3$ at temperatures above 750 °C and may therefore be a good substitute for the noble metal catalyst. The study has also established the poison resistant behavior of $\text{Fe}_{1.8}\text{Cr}_{0.203}$ catalyst in presence of I/I_2 impurities which are likely to be present in the sulfuric acid phase produced in the Bunsen section of S-I process.

Magnetic Nanoparticles-based Displacement Pump for Artificial Heart Support: The big disadvantage of the existing artificial heart pump support systems for failing hearts is that either air or current has to pass from outside to the device across the skin barrier of patients, and this may infect leading to infection complication. To avoid this complicity, a displacement pump is invented, where magnetic nanoparticles have been embedded into a medical grade biocompatible polymer. Nanoparticles of Fe_3O_4 as well as $\gamma\text{-Fe}_2\text{O}_3$ with particle diameter around 20-30 nm have been used. The back and forth motion of those magnetic membranes, suitable for the systolic and diastolic movements of heart, under



externally applied magnetic force has been demonstrated. The superparamagnetic nature of these nanoparticles allows us to use the magnetic membranes under the action of an external magnetic force without any magnetic hysteresis effect at room temperature. With magnetic actuation, the energy for moving the diaphragm is delivered by a small electromagnet worn outside the body, without physically crossing the skin barrier. The present invention is, therefore, directed to a flexible magnetic (superparamagnetic) membrane based actuation system comprising electronic and electromagnetic means adapted for regulating the actuation including the rate, force and wave triggering for coordinating with the desired end activity based on the to and fro motion of the membrane. There are several other important possible applications with this technology. (i) support for paralyzed diaphragm

to facilitate the breathing process (ii) support for non-responsive sphincters to facilitate controlled discharge of urine/fecal matters (iii) in micro fluidics, as a fluid-based remotely controlled switch, etc.

Indira Gandhi Centre for Atomic Research (www.igcar.gov.in)

Indira Gandhi Centre for Atomic Research, has the mandate to conduct broad based multidisciplinary programme of scientific research and advanced engineering development, directed towards the establishment of technology of Sodium Cooled Fast Breeder Reactors (FBR) in the country. The mission includes the development and applications of new and improved materials, techniques, equipment and systems for FBRs and associated fuel cycle. Apart from pursuing a mission-oriented technological development, at IGCAR, a strong emphasis on basic research has been placed, since its inception.



PFBR-ISI Vehicle in room temperature

Research on topical problems in materials science, Metallurgy, chemical and engineering sciences are being carried out at IGCAR, that contribute towards sustaining the dynamism and robustness of a research centre involved in the indigenous development of advanced technologies.

In the year 2012-13, Indigenous Development and Setting up a Superconducting Quantum Interference Device (SQUID)-based Vibrating Sample Magnetometer and Commissioning of Low Energy Positron Beam and Pulsed Positron Beam Facility have been completed. Studies on materials with negative thermal expansion, superconducting and nano-materials are in progress.



Superconducting Quantum Interference Device (SQUID) based vibrating sample magnetometer.

Some of the important activities completed in the domain of chemistry include thermochemical studies and thermophysical property measurements on several systems involving fuel and control rod materials such as, U-Pu mixed carbide, U-Sn intermetallic compounds, boron compounds, uranium-neodymium mixed oxides etc., R&D on cesium loaded iron phosphate glasses and demonstration of U,Pu recovery in mixer settlers using tri-iso-amylphosphate (TiAP) extractant. Advanced separation schemes for minor actinide recovery are under development.

In the materials front, studies on improvisation of components and structural materials for reactors and reprocessing equipments like IFAC (Improved alloy D9) stainless steel, ODS alloys, High Nitrogen steels etc. including advancements in welding, inspection and post-irradiation studies have been completed. Significant achievements have been made towards metallic fuel and Ferroboration development including irradiation studies in FBTR.

Severe accident simulation by experiments and modeling of sodium fires, post-accident heat removal and molten-fuel-coolant interaction has been completed. Modified designs of motor and control system of centrifugal extractors have been utilized in Reprocessing plant, CORAL, leading to improved operating

performance of the plant. Design of process to recycle the solvent and also to reduce the waste volume of solvent, by an advanced distillation process has been validated.

Raja Ramanna Centre for Advanced Technology (www.rrcat.gov.in)

Four new beamlines namely Soft X-Ray Absorption Beamline, Imaging Beamline, X-ray Diagnostic Beamline and Scanning EXAFS Beamline have been commissioned during 2012-2013, and this makes the



total 12 number of beamlines functional on Indus-2. To augment the research activity using the Protein Crystallography beamline in Indus-2 a Biochemistry Laboratory around this beamline has been established in RRCAT. A compact and cost-effective laser diode power supply for laser marker system has also been developed. The salient features of power supply are: small size, light weight, low cost, simple configuration, high reliability and ruggedness. Diode Pumped Solid State (DPSS) green laser operating at 532 nm with high output power (>100W) and high beam quality ($M^2 < 20$)

is required for various applications like processing of high reflectivity materials like copper or silicon, pumping of Rh6G based dye lasers and long distance dazzling in defence applications. To address the growing need for such high power and high brightness green laser beam a bench top DPSS green laser system is developed at RRCAT. A project funded by BRNS to indigenously develop Nd doped phosphate laser glass jointly with RRCAT, CGCRI and BARC has been initiated to overcome the problem of non-availability of good quality laser glass rods and discs for high energy, high power lasers. The project has successfully passed the first stage of developments in which the assigned targets were achieved.



Variable Energy Cyclotron Centre (www.vecc.gov.in)

The Variable Energy Cyclotron (VEC) is the main accelerator, operational at the centre since 1980. VECC is dedicated to carry out research and development in the fields of accelerator science & technology, nuclear science (theoretical and experimental), condensed matter physics, bio-physics, materials science, computer science & technology and in other related areas. In the field of accelerator technology, the centre has developed beamlines, magnets, components for beam injection, extraction and diagnostics etc. A large Superconducting Cyclotron is being constructed to provide nuclear physicists with a quantum jump in the accelerated particle energies for carrying out frontline experiments.

The centre has a program on building Radioactive Ion Beam (RIB) facility for studying nuclear reactions involving short-lived radioactive nuclei. The Centre is also engaged in exploration and recovery of helium gas from hot spring emanations and earthquake prediction utilizing related observations. The Centre is setting up a high power beam medical cyclotron for production of medically useful radioisotopes and materials research.



Serc school on Nuclear Matter Under Extreme Condition during January 07-25, 2013.

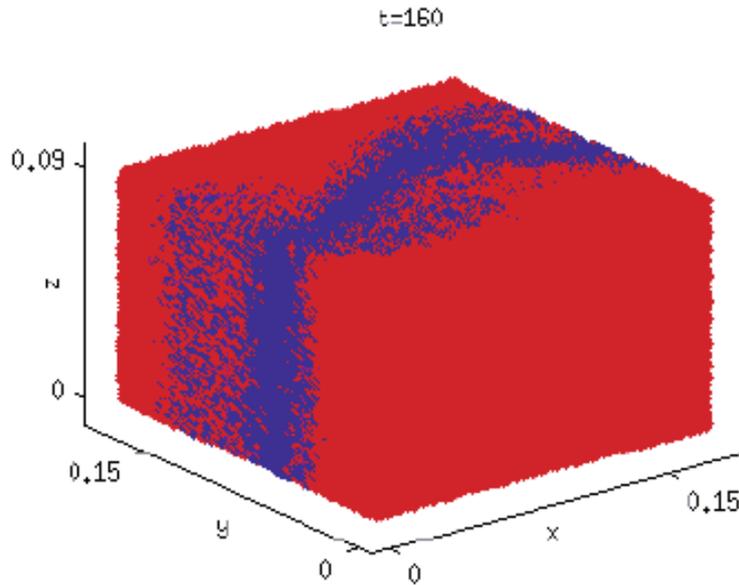
Saha Institute of Nuclear Physics (www.saha.ac.in)

SINP conducts basic research in five major areas, namely biophysical sciences including chemistry, condensed matter physics including surface physics and nanoscience, experimental nuclear and particle physics, theoretical physics including mathematics and plasma physics. In the area of biophysical sciences, research activity spans both theoretical and experimental biology. Basic and applied research using nuclear tools and techniques to explore structure and dynamics of nuclei, atoms, molecules, materials in bulk and nanoscales are being pursued in SINP. Development of detectors for various physics experiments and radiation-based imaging are also carried out. The institute is also engaged in theoretical and experimental/observational research in various areas of Astroparticle Physics involving topics in the interfaces of Cosmology, Particle Physics, Neutrino Physics and Astrophysics. Basic research is also conducted in the area of materials science with an emphasis on the structure and dynamics of systems confined to lower than three dimensions, as obtaining at surfaces and interfaces, in monolayer and multilayer films, and in nanoscale objects. It also explores the possible applications of such systems as in micro- and nano-electronics, and nano-biotechnology.

Institute for Plasma Research (www.ipr.res.in)

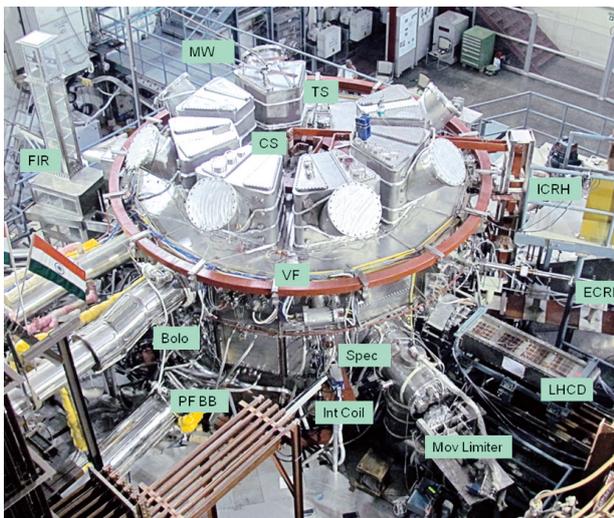
The activities of the institute range of fundamental research on plasmas, tokamak and fusion research, participation in International Thermonuclear Experimental Reactor (ITER) activity and industrial plasma applications. IPR also has a robust academic programme in both fundamental and technology development areas, by which research scholars, DGFS scholars, PDFs get training at the highest level. IPR employees also go for qualification upgradation using various schemes of the institute.

The fundamental experimental projects include the investigation of low energy plasma surface interaction, microwave-plasma interaction, plasma based wake-field acceleration scheme, multi-cusp plasma experiment to investigate the properties of quiescent plasma, dusty plasma experiments,



Growth of shearflow instability in strongly coupled dusty plasma medium (MD simulation)

a broad spectrum of topics ranging from fast electron time scale phenomena to the slow dusty plasma time scale regime, coherent to turbulent phenomena etc. In the computational front, the existing computing facilities at the institute are being used to their full potential. Apart from fluid simulations, expertise on other complex simulation techniques such as Particle – In – Cell (PIC), Molecular dynamics



SST-1 with auxiliary sub-systems

helicon plasmas, non-neutral plasma, electron temperature gradient turbulence and propagation of solitary structures in plasmas. New experiments on high power plasma torches, nonlinear dynamics and synchronization and magnetized beam plasma interaction with surfaces have also been started. The theoretical and computational studies at IPR are dedicated towards pushing the frontiers of plasma science and interdisciplinary areas and also providing support to the experimental program of the institute and other laboratories in the country. Frontline contributions have been made in a

Global Gyro-Kinetic simulations are being acquired and implemented to study variety of fundamental research issues in plasma science. Modelling and simulation of experiments carried on Aditya and SST-1 devices as well as the design activities for future tokamaks and Fusion Demo reactors are also being pursued. The fundamental programme attracts bright scholars for doing PhD.

IPR has India’s first indigenously built tokamak “Aditya” which is operational since 1989. In Aditya, a record number of 1600 plasma discharges are attempted during the year. The discharges are highly repeatable in nature and are aimed at the performance improvement. The

disruption studies from the selected Aditya discharges are added to the database of the International Tokamak Plasma Activity (ITPA). In addition, experiments carried out on Aditya have led to the training as well as Ph.D research of IPR students.

Steady-State Superconducting Tokamak – 1 (**SST1**), a dream tokamak which has put India among the few countries that has superconducting tokamak, has been refurbished and underwent rigorous engineering validations for the designed parameters. SST1 toroidal field coils were successfully charged up to 3.6 kA and hydrogen gas break-down using Ion Cyclotron Resonance Heating system was attempted in which toroidal spreading of the plasma was also observed through H-alpha signals indicating plasma break-down. This campaign has also ensured the functionality of many diagnostic systems integrated with SST-1 and the **successful first plasma is formed**. Other Radio- Frequency systems- Electron Cyclotron Resonance Heating and Lower Hybrid Current Drive – are also getting ready to power up the plasma in the SST-1 machine.

Seven countries (China, European Union, India, Japan, Korea, Russia, United States of America) are jointly building the world's largest tokamak fusion reactor, named ITER in Cadarache, France. India is a



Industrial scale system to activate brass valves using plasmas for better brass rubber bonding installed in M/S Triton Valves, Mysore

full partner with 10% in-kind contribution and IPR is the nodal agency for this international activity and contributes through **ITER-India**, a special project under an empowered board. ITER-India has signed most of its procurement arrangements with Iter Organization (IO) and the signing of different major manufacturing contracts with relevant industrial partners have started, in line with the detailed work schedule of the ITER project.

To support such major commitments in the field of fusion research, some new projects viz- large cryogenic systems, superconducting magnets, remote handling and fusion fuel cycle – were also initiated under the 12th plan projects. Existing programmes, like development of divertor technology, liquid lithium cooled ceramic breeder test blanket module design activities, neutronic performance of various variants are being examined in detail. The development of negative ion beam source is also being actively pursued by carrying out relevant experiments in a test bed.

A large number of international collaborations are being pursued. Under the European Union – India joint agreement, these collaboration activities led to getting IPR staff trained in fusion and other plasma science areas in large tokamaks. In this regard this programme has now also taken up the task of building the prototype magnets for the suppression of Edge Localized Modes (ELM) for Joint European Torus (JET) machine at United Kingdom.

Through the Facilitation Centre of Industrial Plasma Technologies (**FCIPT**), the monetization of various plasma technologies developed is being realized by relevant hand-shaking with industries. This is being achieved by ensuring good quality control and by timely completion demanded by the industries. The success of this is evident from the various new projects that are being received by the centre. FCIPT also focusses on development of plasma-based technologies that benefit the society and is environment friendly. Some of the notable



Brass valves undergoing plasma treatment



developments are installing a plasma pyrolysis system in Govt. Medical College in Srinagar for disposal of biomedical waste, plasma nitriding system development in Central Tool Room, Ludhiana, and installing environment friendly plasma surface activation technology for brass valves at M/S Triton Valves, Mysore.

IPR has another centre in Guwahati named “**Centre for Plasma Physics**” which caters to studying some fundamental aspects of plasmas. It also operates Board of Research in Fusion Science and Technology (**BRFST**), which supports research in plasma and fusion sciences in Indian universities.

Institute of Physics (www.iopb.res.in/index.php.php#)

During the year 2012-2013, the Institute of Physics has undertaken active research in various areas of theoretical and experimental physics. We briefly summarize the research undertaken in the Institute during the year 2012–13 in the following research areas.

I. High Energy Physics : The high energy physics group is activity involved in pursuing research in String theory, Cosmology and Particle physics. Some of the topics of recent interest are gauge / gravity duality, black hole Physics, anisotropic power law inflation, different aspects of relativistic heavy ion collisions, and dual superconductor model of Hadronization. Connection between phase transition in cosmology and Condensed matter system such as liquid crystal being investigated. In high energy phenomenology, cross section processes of one loop which are important for analysis of LHC data have been studied.

II. Condensed Matter Physics (CMP) : Research areas in CMP theory spans mesoscopic systems, statistical mechanics for non equilibrium systems and biophysics. Some of the topics were dynamic phase transition in DNA, fluctuation theorems, and phase transitions in driven lattice systems.

III. Nuclear Physics : In nuclear Physics, research has focused on nuclear structure and nuclear reaction. The mechanism for the formation of superheavy elements in astrophysical objects, nucleon-nucleus and nucleus-nucleus reaction, study of cluster decay properties have been pursued. Recently discovered superheavy nuclei and a new mode of fission decay for neutron-rich heavy nuclei has been studied. Through non-supersymmetric ground unified theory the gauge coupling unification is fully supplemented. Measurement of charge particle multiplicity and transverse energy at mid-rapidity and elliptic flow in Pb-Pb and P-Pb Collisions at 2.76 and 5 TeV with ALICE detector at CERN, LHC are reported.

In addition, studies on quantum information were also carried out this year.

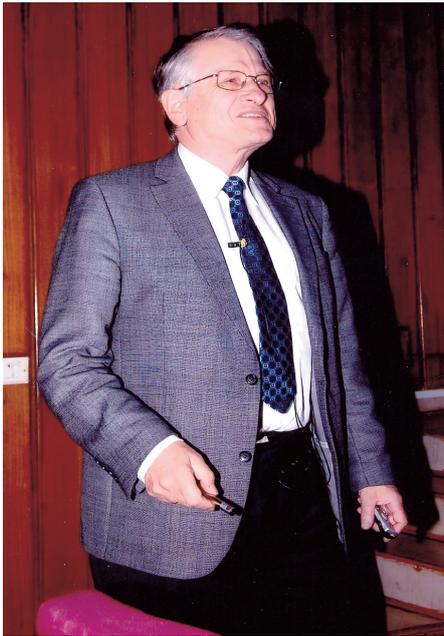
IV. Experimental Physics : In experimental physics, major activities include studies on accelerator based material science, surface and interface physics, and nano systems. Studies in these areas are carried out by using the state-of-the-art facilities created/developed at Institute of Physics over the years. Some of the topics of current interest are ion beam induced surface nanostructuring, pattern formation, epitaxial crystallization, and electronic structure studies of multiferroics, manganites etc.

Harish-Chandra Research Institute (www.hri.res.in)

A major recognition for HRI was the award of one of the first ‘Fundamental Physics Prize’ by the Milner Foundation to Prof. Ashoke Sen. He was the only recipient outside Europe and the USA. The Yuri Milner prize was instituted to honour outstanding theorists whose work has changed the course of investigations in different areas of theoretical physics even if they have not been experimentally realized till now.

Prof. Sen was also awarded the Padma Bhushan by the Government of India, and the M. P. Birla Golden Jubilee Award, during this period.

Major scientific achievements during this period include global analysis of the LHC data by the particle physicists at HRI, suggesting points of departure from the standard model scenario, the theoretical prediction of a magnetic 'superatom', and



Prof. Klaus von Klitzing delivering a HRI Triveni Lecture on "Quantum Hall physics".



Prof. Ashoke Sen being felicitated by AEC Chairman Dr. Ratan Sinha on winning the Yuri Milner Prize.

collaborative effort of the quantum information group with experimenters at IISc leading to the verification of the quantum 'no hiding theorem'.

In addition to regular colloquia, there were two HRI Triveni Lectures, by Prof. Klaus von Klitzing on "Quantum Hall physics" and by Prof. Charles Bennett on "Quantum Information". There were also two Girdharilal Mehta Lectures, by Prof. Subir Sachdev on "Quantum entanglement and the phases of matter", and by Prof. Fernando Quevedo on "The large hadron collider, our universe and string theory".

The physics groups held workshops on lattice theory, dark energy, LHC related issues, and string theory, while the mathematics group held schools on combinatorics, Galois theory, and its annual instructional School in summer.

Institute of Mathematical Sciences (www.imsc.res.in)

The Institute of Mathematical Sciences (IMSc), in Chennai, works primarily in the areas of Mathematics, Theoretical Physics and Theoretical Computer Science.

IMSc also offers the opportunity of learning for a few students during the summer vacation period. These students spend up to 6 weeks doing projects with faculty members. The faculty also supervises short-term projects during other periods. Several students visit the institute for a semester working on short-time research projects.

The year 2012 marks the 50th anniversary of the Institute, and a series of academic programmes, conferences, meetings, public lectures on research topics as well as on interdisciplinary themes has been taking place. List of lectures is given later in this report.



There is a vibrant visitors programme with the Institute hosting a large number of short and long term visitors from all over the world. Institute members are also involved in joint projects with colleagues from other national and international institutes. At present the ongoing projects are:

1. Mathematical Sciences without Walls
2. DAE - SRC Outstanding Research Investigator Award for the project titled *The mechanics of mitotic cell division*.
3. DBT - Developing tools for dynamical modelling of C elegans neuronal network activity.
4. DST - Interplay of non-linearity with quantum effects and curved geometry : Some applications.
5. DST - Computational Study of Functionalized Nanoparticles.
6. INO Project [DPR]
7. DST - Indo-Austrian [DST-BMWF] Joint Research Project on *Parameterized Complexity of Local Search*.
8. DST - SERC HR Development Project
9. ALGORITHMS & COMPLEXITY
10. Algebraic Problems.
11. Provably Efficient Re-processing Algorithms.
12. National Initiative in Mathematics - Regional Meetings of NBHM.
13. Potential Theory on Infinite Networks and Trees.
14. CEFIPRA: Arithmetic circuits computing polynomials. (with Univ Paris VI)
15. Indo-German research grant of the Humboldt Foundation for research on the graph isomorphism problem.
16. British Royal Society project on above guarantee kernelization with University of London.
17. LIA-Informel Project on Concurrency and Automata theory (with Univ Bordeaux and ENS-Cachan)
18. INRIA - Indo-French-Singapore project on Logic, Games and Control theory.

Tata Memorial Centre (www.tatamemorialcentre.com/education/profedu.htm)

The Tata Memorial Centre (TMC) comprises Tata Memorial Hospital (TMH), the Advanced Centre for Treatment, Research and Education in Cancer (ACTREC), and Centre for Cancer Epidemiology (CCE). The mandate of TMC is Service, Research and Education.

ACTREC



TATA MEMORIAL HOSPITAL



The TMC continued to provide the highest standard of patient care through its services and research, and builds capacities by imparting knowledge through various educational activities.

Tata Memorial Hospital (TMH)

An overall increase of 1.48 % in new cases registered as compared to last year. During the year, 34073 new cases were registered in addition to the 5030 cases registered in Preventive Oncology. About 20077 referral cards were issued for investigations like mammography, pathology etc.

The disease management groups formed for each cancer site, ensured evidence based diagnosis and treatment deciding holistically on the treatment modality viz., surgery, radiation and chemotherapy as combination or independent, for each individual patient. This also ensured better outcome and quality of life for the patient.

The 10th Annual Meeting on Evidence Based Management of Cancers in India (EBM-2012) was held from 24th to 26th February 2012. The EBM meeting for 2012 was focused on Head and Neck cancers, Hodgkin's Lymphoma and Infections and Cancer.



The Head and Neck sessions covered topics ranging from pathology, the role of imaging modalities from conventional modalities to PET scan, the optimum diagnostic pathways, therapeutic algorithm in the management of Head and neck cancers, late effects of therapy and rehabilitation.



The Hodgkin's Lymphoma sessions highlighted currently accepted standard of care but also addressed controversial issues and ongoing research areas.

The Infections and Cancers sessions discussed epidemiology of infection related cancers, HIV, current evidence, Therapeutics and prevention of infection.

Clinical Research Secretariat (CRS) along with Department of Atomic Energy Clinical trials unit (DAE-CTC) has been facilitating research at Tata Memorial Hospital for almost a decade, through support for clinical trials in the form of infrastructural, funds, trained manpower, study design, statistical assistance, data management and analyses, data monitoring, translations; propagating evidence based medicine practice and capacity building. It supported 15 Clinical trials during the year.

In 2012, seven international teams visited Clinical Research Secretariat (CRS) for collaborative trials across the countries. DAE-CTC unit and CRS continued to provide support in the form of funds and human resource for research and conferences. As part of its mandate to update and train in research, two courses viz. "Clinical Research Methodology Course (CRM)" and "Good Clinical Practice Workshop (GCP)" were organized during the year. The CRM focuses on various aspects of the design, conduct and reporting of clinical trials and publication. The Good Clinical Practice Workshop, is another annual event emphasizing on Principles of GCP, Informed Consent process, Investigator Responsibilities and Monitoring and Adverse Event Reporting. About 350 participants were trained under these courses

**Conferences Organized by CIs during 2012-2013**

Sr. No.	Name of Conference	Organized by	Venue	Period	
				From	To
1.	Technical workshop on fundamental issues at the interface of materials and mechanics related to energy applications	BARC	Navi Mumbai	16/4/2012	17/4/2012
2.	INS National Workshop on Design & Fabrication of Accelerator and ITER Components	BARC	HBNI, Mumbai	23/4/2012	27/4/2012
3.	DAE-BRNS Theme meeting on Multiphysics Modeling for current and future reactors	BARC	TSH, Mumbai	8/5/2012	10/5/2012
4.	INS National Workshop on seismic design of Industrial structures equipment & piping systems	BARC	AERB, Mumbai	25/6/2012	29/6/2012
5.	DAE symposium on Nuclear Physics	BARC	Delhi	3/7/2012	12/7/2012
6.	Meeting to discuss issues related to uranium in ground water in punjab	BARC	Punjab	4/7/2012	4/7/2012
7.	4th AEACI-BRNS school	BARC	Kolkata	21/7/2012	28/7/2012
8.	Symposium on Nuclear Energy and Development of country	BARC	Tarapur	25/8/2012	26/8/2012
9.	31st Course on accident prevention and Promotion of occupational Health & Safety	BARC	Mumbai	3/9/2102	14/9/2012
10.	Symposium on materials and processing MAP-2012	BARC	TSH, Mumbai	10/10/2012	12/10/2012
11.	National conference carbon materials-2012	BARC	TSH, Mumbai	1/11/2012	3/11/2012
12.	9th DAE medical professional meet (MEDIMEE-2012)	BARC	NFC, Hyderabad	1/11/2012	2/11/2012
13.	INS-23rd Annual Conference (INSAC-2102)	BARC	Mumbai	7/11/2012	9/11/2012



14.	2 days conference on Gas Chromatography	BARC	TSH, Mumbai	23/11/2012	24/11/2012
15.	Annual DAE-BRNS Solid State Physics Symposium	BARC	IIT, Mumbai	3/12/2012	7/12/2012
16.	International Workshop on personal computers and practice accelerators controls (PcaPAC-2012))	BARC	Kolkata	4/12/2012	7/12/2013
17.	SRESA workshop on reliability and Life assessment of electronic systems	BARC	TSC, Mumbai	6/12/2012	7/12/2012
18.	Holding of Biennial conference of IASTA	BARC	Navi Mumbai	11/12/2012	13/12/2012
19.	19th National Symposium on Radiation Physics (NSRP-19)	BARC	Tamilnadu	12/12/2012	14/12/2012
20.	Workshop on assessment of phase diagram & thermodynamic data using thermocalc APTT-2012	BARC	Mumbai	17/12/2012	18/12/2012
21.	DAE-BRNS Life Sciences Symposium (LSS-2012)	BARC	TSH, Mumbai	17/12/2012	19/12/2012
22.	DAE-BRNS sponsored conference on molten salts in nuclear technology (CMSNT-2013)	BARC	TSH, Mumbai	9/1/2012	11/1/2012
23.	Symposium on Neutron Scattering	BARC	Mumbai	14/1/2013	18/1/2013
24.	5th ISEAC Triennial International conference on advances and recent trends in electrochemistry	BARC	Hyderabad	16/1/2013	20/1/2013
25.	IPA theme meeting entitled survey in Physics and Industry (SPI-2013)	BARC	TSH, Mumbai	21/1/2013	22/1/2013



26.	INS National Workshop on Structural Integrity Assessment Procedure for pressure Vessel and Piping	BARC	Mumbai	21/1/2013	25/1/2013
27.	XXXVIII Annual Conference of environmental mutagen society of india	BARC	TSH, Mumbai	28/1/2013	30/1/2013
28.	DAE-BRNS National Laser Symposium (NLS-21)	BARC	TSH, Mumbai	6/2/2013	9/2/2013
29.	Supervisory Training Programme	BARC	Mumbai	11/2/2013	22/2/2013
30.	National Training Course on Physical Protection of Nuclear Materials and Nuclear Facilities	BARC	Mumbai	18/2/2013	22/2/2013
31.	DAE-BRNS 11th symposium on nuclear and radiochemistry (NUCAR-2013)	BARC	Jabalpur	19/2/2013	23/2/2013
32.	Theme meeting on physics aspects of accelerator radiation protection	BARC	TSH, Mumbai	20/2/2013	22/2/2013
33.	BRNS Sponsored Theme meet on Electronics and Security (TMES)	BARC	Mumbai	27/2/2013	27/2/2013
34.	12th ISMAS Triennial International Conference on Mass spectrometry (12th ISMAS-TRICON-2013)	BARC	Goa	4/3/2013	8/3/2013
35.	Workshop on 18th national symposium on environment (nse-18)	BARC	Aandhra Pradesh	11/3/2013	13/3/2013
36.	Technologies for Development of Rural India	BARC	UP	12/3/2013	13/3/2013
37.	CEA-IGCAR cooperation on LMFBR Safety Seminar	BARC	Kalpakkam	18/3/2013	19/3/2013
38.	National symposium on radiation & photochemistry (NSRP-2013)	BARC	Shilong	20/3/2013	22/3/2013
39.	Theme Meeting on Unveiling Future with Cyclotrons	VECC	Kolkata	28/06/2012	28/06/2012
40.	QGP Meet	VECC	Kolkata	03/07/2012	05/07/2012
41.	20th CBM Collaboration Meeting	VECC	Kolkata	24/09/2012	28/09/2012



42.	NUSTAR Week 2012	VECC	Kolkata	08/10/2012	12/10/2012
43.	Workshop on Science with Rare Ion Beams SCRIBE-2012	VECC	Kolkata	07/11/2012	09/11/2012
44.	BRNS workshop on Evaluation of Nuclear Structure and Decay Data	VECC	Kolkata	26/11/2012	29/11/2012
45.	Ninth International Workshop on Personal Computers and Particle Accelerator Controls (PCaPAC 2012)	VECC	Kolkata	04/12/2012	07/12/2012
46.	SERC school on Nuclear Matter Under Extreme Condition	VECC	Kolkata	07/01/2013	25/01/2013
47.	DAE-BRNS Theme Meeting on Liquid Helium Plants, Cryogenic Systems and their Application (LHeP-CSA), February 25-26, 2013	VECC	Kolkata	25/02/2013	26/02/2013
48.	SPIM (Summer Programme in Mathematics)	HRI	Allahabad	16/06/2012	04/07/2013
49.	Instructional School for Lecturers on Combinatorics	NBHM	Allahabad	01/06/2012	14/06/2012
50.	Annual Foundation School (AFS – III)	NBHM	Allahabad	06/07/2012	31/07/2012
51.	Lectures on Lattice Theory	HRI	Allahabad	03/09/2012	07/09/2012
52.	Discussion Meeting on Dark Energy	HRI	Allahabad	04/11/2012	07/11/2012
53.	Collaboration Meeting on LHC Related Issues	HRI	Allahabad	02/11/2012	05/11/2012
54.	Advanced Instructional School (AIS) for Lecturers on Aspects of Galois Theory	NBHM	Allahabad	10/12/2012	29/12/2012
55.	Indian Strings Meeting (ISM)	HRI	Puri	16/12/2012	21/12/2012
56.	Instructional Workshop on Particle Physics “Sangam@HRI”	HRI	Allahabad	25/03/2013	30/03/2013
57.	National Fluorescence Workshop (FCS 2012) : Fluorescence Methods in Single Molecule Spectroscopy	SINP	Kolkata	3/12/2012	3/12/2012



58.	4th School-Cum-Workshop on Low Energy Nuclear Astrophysics	SINP	Kolkata	26/11/2012	29/11/2012
59.	12th International Conference on Surface X-ray and Neutron Scattering	SINP	Kolkata	25/7/2012	28/7/2012
60.	International workshop on 'Future plan with radioactive beam'	SINP	Kolkata	16/04/2012	18/04/2012
61.	SERC School on Laser Produced Plasmas: Physics & Applications	RRCAT	Indore	09/07/2012	21/07/2012
62.	SERC School on Micro-fabrication & Micromachining	RRCAT	Indore	29/10/2012	03/11/2012
63.	Seventh International Accelerator School for Linear Colliders - 2012	RRCAT	Indore	27/10/2012	08/12/2012
64.	Indus Synchrotron Source Utilization Meeting: High Pressure Structure Determination using XRD	RRCAT	Indore	23/07/2012	25/07/2012
65.	Indus Synchrotron Source Utilization Meeting: EXAFS	RRCAT	Indore	27/09/2012	28/09/2012
66.	Indus Synchrotron Source Utilization Meeting: X-ray fluorescence	RRCAT	Indore	19/03/2013	20/03/2013
67.	Severe Accident Analysis and Experiments	IGCAR	Kalpakkam	26/04/2012	27/04/2012
68.	Robust I&C Systems for Nuclear Facilities	IGCAR	Kalpakkam	29/05/2012	29/05/2012
69.	All About Creep	IGCAR	Kalpakkam	04/06/2012	04/06/2012
70.	Technological Advancement in Production of Enriched Boron for the Control Rods of Fast Reactors	IGCAR	Kalpakkam	22/06/2012	22/06/2012
71.	All about Materials performance under sodium	IGCAR	Kalpakkam	07/08/2012	07/08/2012
72.	Annual Meet of Quality Circles	IGCAR	Kalpakkam	24/08/2012	24/08/2012
73.	Nitrogen Steels and Interstitial Alloys (HNS 2012)	IGCAR	Chennai	27/09/2012	29/09/2012



74.	Metallic Fuelled FBR and Pyrochemical Reprocessing	IGCAR	Kalpakkam	12/10/2012	12/10/2012
75.	Thin film technology	IGCAR	Kalpakkam	29/10/2012	29/10/2012
76.	Challenges and Issues in Surface Modification, Thin Films and Coatings, Structure	IGCAR	Kalpakkam	05/11/2012	06/11/2012
77.	Supercritical Fluids	IGCAR	Kalpakkam	20/11/2012	20/11/2012
78.	Fatigue of Structures and Materials	IGCAR	Kalpakkam	30/11/2012	30/11/2012
79.	Radiation Physics	IGCAR	Kalpakkam	12/12/2012	14/12/2012
80.	Recent Trends in Computer and Networking Technologies (Sangoshthi-2012)	IGCAR	Kalpakkam	21/12/2012	23/12/2012
81.	Operating Pressure Equipment (OPE) 2013	IGCAR	Kalpakkam	13/02/2013	16/02/2013
82.	Liquid Metal Fast Reactor Safety	IGCAR	Kalpakkam	18/03/2013	21/03/2013
83.	National Instruments India Celebrated Technology Day with Institute for Plasma Research	IPR	Gandhinagar	15/6/2012	15/6/2012
84.	International Conference on Complex Processes in Plasmas and Nonlinear Dynamical Systems	IPR	Gandhinagar	6/11/2012	9/11/2012
85.	23 rd Meeting of the ITPA Topical Group on Diagnostics	ITER-India, IPR	ITER-India, Gandhinagar	27/11/2012	30/11/2012
86.	6 th ITER International School (IIS-2012),	IPR	Gandhinagar	2/12/2012	6/12/2012
87.	2 nd Joint IAEA-ITER Technical Meet on Analysis of ITER Materials and Technologies	IPR	Gandhinagar	11/12/2012	13/12/2012
88.	24th National Symposium on Cryogenics	IPR	Gandhinagar	21/01/2013	24/01/2013
89.	Workshop on Fusion for Neutrons (F4N)	IPR	Gandhinagar	11/02/2013	13/02/2013
90.	DST-SERC School on "Tokamaks and Magnetised Plasma Fusion	IPR	Gandhinagar	25/02/2013	15/03/2013
91.	IUVSTA Workshop on Ultra High Vacuum Techniques for Large Volume Devices (IUVSTA-LVD)	IPR	Gandhinagar	19/03/2013	22/03/2013

Colloquia Organized by CIs during 2012-2013

Sr. No.	Speaker	CI	Date	Title
1.	Dr. S. Chaurasia, HP&SRPD, BARC	BARC	13/04/2012	Studies of high energy density physics with intense laser
2.	Prof Yorick Blumenfeld, CERN	BARC	20/04/2012	Nuclear Physics Research at ISOLDE :Present and Future
3.	Prof M Vahia, TIFR	BARC	18/05/2012	Ancient Astronomy, Myths and Architecture in Indian Context
4.	Dr. D Lahiri, HP&SRPD, BARC	BARC	08/06/2012	Investigation of <i>Local</i> Structure in Nano-systems - Some Recent XAFS Results
5.	Dr. B Jha, NPD, BARC	BARC	15/06/2012	Clustering in Light Nuclei
6.	Dr. P Mathi, L&PTD, BARC	BARC	01/06/2012	Ultrafast Charge Transfer Processes in Doped Water Clusters
7.	Dr. Shyam Sunder Tiwari, Ex IGCAR	BARC	29/05/2012	Fast Ion Beam Choppers and Beam Current Monitoring Technology
8.	Dr. Manoranjan Ghosh, TPD, BARC	BARC	13/07/2012	Role of Environment on Various Properties of ZnO Nanoparticles
9.	Dr. Jaroslaw (Jarek) Majewski, Lujan Neutron Scattering Center, USA	BARC	18/07/2012	Neutron Reflectometry Studies of Biologically Relevant Systems
10.	Dr. Prashant Shukla, NPD, BARC	BARC	20/07/2012	The New Particle and the New Phase of Matter at Large Hadron Collider: A CMS Experiment Search
11.	Dr. Hiren Ghosh, RPCD, BARC	BARC	27/07/2012	Ultrafast Charge Transfer Dynamics in Dye-Sensitized and Quantum Dot Solar Cell Material
12.	Dr. Arnab Bhattacharya, TIFR	BARC	03/08/2012	N-lightenment
13.	Dr. Deepak Dhar, TIFR	BARC	17/08/2012	Modelling Proportionate Growth
14.	Dr Kelly J. Beierschmitt, SNS, ORNL	BARC	10/09/2012	Science at Spallation Neutron Source, ORNL
15.	Prof. Yogesh Joglekar, Purdue Univ. Indianapolis	BARC	15/10/2012	Interactions, dispersion, and relativity in graphene
16.	Dr. Saswati Sen, TPD, BARC	BARC	19/10/2012	Optically transparent ceramics: an alternative to single crystals?
17.	Prof. S.M. Shivaprasad, JNCASR, Bnagalore	BARC	09/11/2012	Kinetics of Growth of thin films of nano-structured GaN
18.	Dr. Gagan Mohanty, TIFR	BARC	30/11/2012	Experimenting with the Higgs - Indian Connections



19.	Dr. Apoorva Patel, IISc, Bangalore	BARC	21/09/2012	Towards Understanding the Origin of Genetic Languages*
20.	Dr. Milan Sanyal, SINP, Kolkata	BARC	20/09/2012	Synchrotron X-ray Scattering Techniques to Probe , Formation and Ordering of Nano-materials
21.	Dr. Joglekar, Indiana SU	BARC	15/10/2012	Interactions, dispersion, and relativity in graphene
22.	Prof. R. Palit, TIFR	BARC	28/10/2012	Probing various shapes and phases of nuclei using Indian National Gamma Array
23.	Dr. BN Jagtap, A&MPD, BARC	BARC	2/11/2012	Nobel Prize in Physics 2012
24.	Dr. William Ratcliff, NIST, Maryland, US	BARC	14/12/2012	The Multiferroic Renaissance
25.	Prof. Tiziano Camporesi, CERN	BARC	18/12/2012	CERN, LHC and CMS: a look at the future
26.	Narayani Choudhury (Ex BARC), ARCANSAS, US	BARC	21/12/2012	Geometric Frustration in Compositionally Modulated Ferroelectrics
27.	Prof Sudipta Roy, University of Newcastle, UK	BARC	08/01/2013	Sn-rich Cu-Sn deposition from an environmentally benign electrolyte
28.	Dr. Motoyasu Kinoshita, University of Tokyo, Japan	BARC	10/01/2013	Formation process of irradiation-damage free structure in high burn-up LWR fuel.
29.	Prof. Avinash Khare, IISER, Pune	BARC	11/01/2013	Nonlinear Schrödinger equation with a forcing term
30.	Michael Preuss, EPSRC Leadership Fellow Deputy Director MPC and Rolls-Royce Nuclear UTC University of Manchester	BARC	30/01/2013	Variant selection in Ti alloys
31.	Prof. Prasanta K. Panigrahi, IISER, Kolkata	BARC	31/01/2013	Quantum Mechanics with Complex Potentials
32.	Prof. Stefan Blügel, Peter Grünberg Institut Forschungszentrum Julich, Germany	BARC	04/02/2013	The Hybrid Organic- Ferromagnetic Interface
33.	Shri K. Anantharaman Raja Ramanna Fellow	BARC	06/02/2013	Tritium Issues in Water Reactors
34.	Prof Chetan Solanki, IITB, Mumbai	BARC	08/02/2013	Solar Photovoltaic Solutions from mW to MW Range
35.	Martin Steinbrück, Karlsruhe Institute of Technology, Institute for Applied Materials, Germany	BARC	11/02/2013	High-temperature oxidation and mutual interactions of materials during severe accidents in LWRs
36.	Prof Jayendra	BARC	18/02/2013	Quantum Physics Meets Biology: Case of



	Bandyopadhyay, BITS Pilani			Avian Magnetoreception
37.	Dr. Mukesh Kumar, SSPD, BARC	BARC	01/03/2013	Crystal Structure of Human Seminal Plasma Protein PSP94
38.	Dr. Umesh Garg, US	BARC	12/03/2013	Nuclear Incompressibility, the Asymmetry Term, and the MEM Effect
39.	Dr. Sukanta Karmakar, HP&SRPD, BARC	BARC	15/03/2013	Measuring Pressure Dependence of Superconducting Transition Temperature
40.	Mr. P C Rout, NPD, BARC	BARC	22/03/2013	Damping of the Nuclear Shell Effect with Temperature
41.	Prof. Abhay L. Deshpande, Department of Physics and Astronomy, Stony Brook University, USA	VECC	23/07/2012	Exploring the glue that binds us all: The science of the Electron Ion Collider
42.	Prof. Hemchandra Shertukde, University of Hartford, USA	VECC	11/12/2012	Identifying human embryonic stem cell using signal characteristic analysis
43.	Prof. D. K. Srivastava, Variable Energy Cyclotron Centre	VECC	09/01/2013	Rejoice that you are doing basic research
44.	Prof. D. P. Duari	VECC	11/01/2013	Challenges of Astrophysics
45.	Prof. Amitava Raychaudhuri, Department of Physics, Calcutta University, Kolkata	VECC	21/01/2013	The Higgs Boson: Its role in the standard Model and its detection at the LHC
46.	Prof. Alok Chakrabarti, Variable Energy Cyclotron Centre, Kolkata	VECC	23.01.2013	Our Cosmic Connection
47.	Prof. Krish Ram, Professor of Physics, University of Kwa-Zulu Natal, Durban	VECC	04/02/2013	Radioactive Ion Beams in Materials Research
48.	Dr. Sayan Chakrabarti, (Centra, Lisbon)	IOP	10/05/2012	Floating Orbits Around Rotating Black Holes and Imprints; of Massive Scalars
49.	Prof. L. Satpathy, IOP, BBSR	IOP	14/05/2012	Mass Formulae for Nuclei
50.	Dr P. K. Muduli, University of Leipzig, Germany	IOP	18/05/2012	Spin-polarized tunneling and transport in meso-scale few-layer graphene devices
51.	Prof. S. Uma Sankar, IIT, Mumbai	IOP	28/05/2012	Looking Ahead with Neutrino
52.	Prof. S. Uma Sankar, IIT, Mumbai	IOP	01/06/2012	Super Luminal Neutrino
53.	Dr. Tanumoy Mandal, IMSc Chennai	IOP	06/07/2012	LHC Signatures of Color Octet Leptons



54.	Dr. Sajal Kumar Ghosh, Department of Physics, University of California ,USA	IOP	09/08/2012	Amphiphiles for soft matter and biophysics
55.	Dr. Niraj Kumar, UCSD, USA	IOP	27/08/2012	Non-equilibrium thermodynamics and efficiency of small systems
56.	Dr. Sriparna Chatterjee, IOP	IOP	18/09/2012	Growth and applications of TiO ₂ nanostructures
57.	Dr. Rajib Biswal, IOP	IOP	19/09/2012	Fundamentals and applications of functional oxide materials
58.	Dr. M. Chakraborty Department of Physics, POSTECH, Pohang, KOREA	IOP	20/09/2012	Stability of Holstein and Frohlich bipolarons
59.	Prof. Sayan Kar, IIT, Kharagpur :	IOP	21/09/2012	Unusual bound state in quantum mechanics
60.	Prof. R. Srinivasan, Former Professor of Physics, IIT, Madras and Former Director of UGC- DAE CSR, Indore	IOP	24/09/2012	Laser Cooling of Atoms
61.	Dr. Subinoy Das, (Aachen, Germany)	IOP	05/10/2012	Dark Matter, Dark Energy and their connection to Neutrinos
62.	Dr. Sachin Jain, TIFR, Mumbai	IOP	11/10/2012	Constraints on Fluid Dynamics from Equilibrium Partition Function
63.	Prof. D. P. Roy, HBCSE, Mumbai	IOP	17/10/2012	Dark Matter in SUGRA Models with Universal and Nonuniversal Gaugino Masses
64.	Dr. Mriduparna Deka, Germany	IOP	07/11/2012	Proton spin
65.	Prof. M. P. Das, ANU, Australia	IOP	27/11/2012	Who is afraid of anomalies
66.	Ms. Mamata Sahoo, (Ex- Doctoral Scholar, IOP)	IOP	30/11/2012	Transcriptional proof reading in dense RNA polymerase traffic
67.	Mr. Bodhaditya Santra, Kernfysisch Versneller Instituut, University of Groningen, The Netherlands	IOP	04/12/2012	Electric Dipole Moments in heavy atomic systems
68.	Mr. Suranita Kanjilal, Institut für Meteorologie und Geophysik, J.-W.Goethe Universität Frankfurt Altenhoferallee 1, 60438 Frankfurt,	IOP	05/12/2012	1D and 2D Benchmark of Two phase flow In Geodynamics



	Germany			
69.	Dr. R. Sarkar, TU Dresden, 01069 Dresden, Germany	IOP	13/12/2012	Microscopic investigations on the ferromagnetic quantum critical system YbNi ₄ (P _{1-x} As _x)
70.	Prof. P. Jena, Physics Department Virginia Commonwealth University, USA	IOP	19/12/2012.	Nano Materials for Hydrogen Storage
71.	Professor Stephen Lars Olsen Department of Physics, Seoul National University, Korea :	IOP	21/12/2012	XYZ-meson: Recent results and current status
72.	Prof. Bum-Hoon Lee, Center for Quantum Spacetime and Department of Physics Sogang University Seoul, Korea	IOP	24/12/2012	Vacuum Bubbles : Revisited
73.	Dr. P. Sekhar Burada, Institute for Theoretical Physics, Germany	IOP	27/12/2012	Transport: from passive diffusion to active swimming
74.	Dr. S. B. Ota, IOP	IOP	28/12/2012	Alpha ₁₅ Superconductors
75.	Dr. Amitabh Virmani, IOP	IOP	03/01/2013	Subtracted Geometry from Harrison Transformations
76.	Dr. S. B. Ota, IOP :	IOP	17/01/2013	Measurement of low temperatures with diodes
77.	Prof. S. D. Mahanti, Department of Physics and Astronomy, Michigan State University, USA	IOP	28/01/2013	Topological Insulators
78.	Prof. Jogesh C. Pati, SLAC, Stanford University, USA	IOP	31/01/2013	Unification of Forces and the Evolution of The Universe
79.	Dr. Joydeep Chakraborty, PRL, Ahmedabad	IOP	05/02/2013	Investigating Beyond Standard Model,.
80.	Prof. Bidhan Candra Bag, Department of Chemistry, Visva Bharati, Santiniketan, India	IOP	08/02/2013	Non Linear Dynamics of Particle in Presence of a Magnetic field
81.	Prof. Sudhir Vempati, IISc, Bangalore	IOP	11/02/2013	Status of Supersymmetric Standard Models
82.	Dr. Arnab Kundu, University of Texas	IOP	13/02/2013	Dynamics of fundamental flavours in holographic duals of large N gauge theories
83.	Dr. S. B. Ota, IOP	IOP	15/02/2013	Superconductivity centennial and 2011 APS march meeting



84.	Prof. Sudhansu S. Mandal, IACS	IOP	18/02/2013	Pairing of Second Generation Composite Fermions in the Lowest Landau Level
85.	Dr. Sayantani Bhattacharya, ICTS, TIFR, Bangalore	IOP	19/02/2013	Fluid / Gravity Correspondence
86.	Prof. Arunava Chakrabarti, University of Kalyani, West Bengal	IOP	20/02/2013	Metal-insulator transition and engineering of extended states in disordered systems beyond one dimension
87.	Dr. Ritam Mallick, PDF, IOP	IOP	27/02/2013	The maximum mass of Neutron Star
88.	Prof. R. Palit, TIFR, Mumbai	IOP	28/02/2013	Exotic Rotations of Atomic Nuclei
89.	Dr. Vijay Kumar, Sant Longowal Institute of Engineering & Technology	IOP	28/02/2013	Electrochemical synthesis of different metal-conducting polymer composites and their modifications by gamma and heavy ion radiations
90.	Dr. Bindusar Sahoo, (NIKHEF)	IOP	01/03/2013	Topologically massive higher-spin gravity
91.	Dr. Sibashisa Dash, University of Milan, Italy	IOP	01/03/2013	Electronic Properties and Magnetization of Mn-Doped Semiconductor Surface/Interface
92.	Prof. Anindya Datta, Calcutta University	IOP	13/03/2013	Vacuum Stability constraints on Universal Extra Dimensional Models in the light of Higgs Discovery and its impact on LHC search
93.	Prof. Naba Kumar Mondal, TIFR, Mumbai (Spokesperson of INO)	IOP	18/03/2013	NEUTRINOS – A NEW WINDOW TO THE UNIVERSE
94.	Prof. Rahul Sinha, IMSc., Chennai	IOP	19/03/2013	Inferring the nature of the boson at 125-126 GeV
95.	Prof. D. P. Roy, HBCSE	IOP	25/03/2013	Determination of the third neutrino mixing-angle
96.	Dr. P. Balasubramanian, Department of Physics, Tamkang University, Taiwan	IOP	08/05/2012	Exploring the physical properties of materials using neutrons and X-rays
97.	Dr. SuvrataRaju, HRI Allahabad	HRI	23/04/2012	Scattering Amplitudes and AdS/CFT Correlators
98.	Prof. D.V. Ahluwalia, Univ. of Canterbury, New Zealand	HRI	30/04/2012	Neutrino oscillations, flavor-oscillations clocks and quantum entanglement
99.	Prof. Aftab Alam, Ames Laboratory, USA	HRI	02/05/2012	Chemically mediated quantum criticality in Laves Phases NbFe ₂
100.	Prof Partha Ghosh, SN Bose Institute, Kolkata	HRI	06/07/2012	New Mathematical Insights into human cognition
101.	Prof. Amitava Raychaudhuri, Calcutta University	HRI	20/07/2012	The Higgs boson and its discovery for non-experts



102.	Dr.SaikatGhosh, IIT Kanpur	HRI	19/11/2012	Coupling Photons one-at-a-time to Single Quantum Emitters
103.	Prof. C.S. Dalawat, HRI Allahabad	HRI	26/11/2012	Primitive Extensions
104.	Prof.Surhud More, IPMU Japan	HRI	05/12/2012	Galaxy-Dark Matter Connection: A Cosmological perspective
105.	Prof.KanakSaha, MPE Germany	HRI	11/01/2013	Structure and evolution of disk galaxies: Impact of Dark matter halos
106.	Dr.ArnabKundu, University of Texas	HRI	30/01/2013	Gauge-gravity duality and aspects of strongly coupled systems
107.	Dr.Aloke Gupta, ARIES Nainital	HRI	12/02/2013	Multi-Wavelength variability and quasi periodic Oscillations (QPOs) in Blazars
108.	Prof. SM Roy, INSA Senior Scientist at HBCSE, Mumbai	HRI	09/11/2012	Testing Casual Quantum Mechanics by Joint Quadrature Measurements
109.	Prof.SubirSachdeva, Harvard University	HRI	2012	Quantum Entanglement and Phases of Matter
110.	Prof.Quevedo Fernando, ICTP Trieste	HRI	05/12/2012	The Large Hadron Collider, Our Universe and String Theory
111.	Prof. Charles H Bennett, TJ Watson, IBM Research Centre, USA	HRI	24/02/2013	Quantum Information, the ambiguity of the past, and the complexity of the present
112.	Prof. Klaus von Klitzing, Max Planck Institute for Solid State Research, Germany	HRI	11/12/2012	News from Quantum Hall
113.	Prof. Rob Tjeldeman, Lieden University, Netherlands	HRI	01/02/2013	Mathematical Theory of Discrete Tomography
114.	Dr. Arun Sharma, BARC, Mumbai	RRCAT	07/05/2012	Applications of Accelerators for Value Addition to Food and Agricultural Commodities
115.	Dr. Ravindra D. Makde, BARC, Mumbai	RRCAT	11/05/2012	Recognition of fundamental particle of our genetic material: an atomic view
116.	Dr. Tarun K. Sharma, RRCAT, Indore	RRCAT	08/06/2012	An introduction to quantum well Lasers
117.	Mr. Manoj Leelachand Gandhi, RRCAT, Indore	RRCAT	15/06/2012	Power Supplies for Indus Accelerators - An Overview
118.	Dr. Rajeev Khare, RRCAT, Indore	RRCAT	22/06/2012	Principle and application of Dye Lasers
119.	Dr.M.R.Iyer, Ex BARC & IAEA, Member KKNPP Expert Group	RRCAT	27/06/2012	Challenges in improving public perception of nuclear power
120.	Prof. Bhas Bapat, Physical Research Laboratory, Ahmedabad	RRCAT	28/06/2012	Gentle ionisation and violent explosion of molecules by soft x-rays
121.	Dr. Rama Chari, RRCAT, Indore	RRCAT	29/06/2012	Ultrafast Spectroscopy for nano structures



122.	Prof. Daniel Sigg, LIGO Hanford Observatory, Caltech, USA	RRCAT	09/07/2012	Squeezed Light Techniques for Gravitational Wave Detection
123.	Prof. P. K. Kaw, Institute for Plasma Research, Gandhinagar	RRCAT	18/07/2012	Prospects of Magnetic Confinement Fusion
124.	Prof. Mandar M. Deshmukh, TIFR, Mumbai	RRCAT	23/08/2012	Coupling between quantum Hall state and electromechanics in suspended graphene resonator
125.	Dr. G. S. Lodha RRCAT, Indore	RRCAT	07/09/2012	Basics of X-Ray Optics
126.	Prof. Dr. B. M. Arora, IIT Bombay, Mumbai	RRCAT	14/09/2012	A Materials Perspective on Solar Cells
127.	Mr. Shyam Sundar, RRCAT, Indore	RRCAT	21/09/2012	Different Mechanisms for Resistivity in Metals
128.	Dr. Anirban Mitra IIT, Roorkee	RRCAT	05/10/2012	Introduction to Surface Plasmon Polariton and Localized Surface Plasmons
129.	Prof. Jaydeep K Basu, IISc, Bangalore	RRCAT	10/10/2012	Structure and Dynamics of Polymer Grafted Nanoparticles in bulk and thin films
130.	Shri Harishchandra Singh, RRCAT, Indore	RRCAT	12/10/2012	Symmetry consideration for XANES and XRD data analysis.
131.	Prof. A. Subrahmanyam IIT, Madras	RRCAT	28/10/2012	Current Trends in Thin Films
132.	Mr. Krishnakanta Mondal, RRCAT, Indore	RRCAT	30/11/2012	Introduction to Clusters
133.	Mr. Nageshwar Singh, RRCAT, Indore	RRCAT	07/12/2012	Studies on narrow bandwidth high repetition rate dye laser
134.	Mr. Salahuddin Khan, RRCAT, Indore	RRCAT	14/12/2012	Carrier dynamics using pump-probe spectroscopy
135.	Dr. Shailendra Kumar, RRCAT, Indore	RRCAT	21/12/2012	Photothermal and Surface Photovoltage Spectroscopies
136.	Dr. J. Jayabalan, RRCAT, Indore	RRCAT	04/01/2013	Twisting light the "wrong" way – Metamaterials
137.	Professor Rober Fedosejevs, University of Alberta, Canada	RRCAT	09/01/2013	Prospects for Fast Ignition and Shock Ignition for Laser Fusion Energy
138.	Dr Varshni Singh, Louisiana State University, USA	RRCAT	10/01/2013	X-ray Lithography for Micro-Fabrication, Materials Characterization and Thin Films
139.	Dr. Rahul Shukla, RRCAT, Indore	RRCAT	15/01/2013	Design and Development of High Aspect Ratio Electrostatic Microactuator at RRCAT
140.	Dr. Tarun Sharma, RRCAT, Indore	RRCAT	08/03/2013	Fundamental physics of quantum well structures
141.	Dr. M.A. Manekar, RRCAT, Indore	RRCAT	04/04/2013	Magneto-structural transition and magnetic field-induced effects in Fe-Rh based pseudobinary alloys



142.	Prof. Kenneth E. Gonsalves, University of North Carolina , Charlotte, USA and IIT Mandi	RRCAT	14/02/2013	Polymers in nano lithography
143.	Dr. Yoshihiro Asano, Spring-8, Japan	RRCAT	18/02/2013	Radiation safety aspects of synchrotron radiation facilities
144.	Dr. Narasimhan Swaminathan, Indian Institute of Tecnology- Madras, Chennai	IGCAR	09/04/2012	Multiscale Modeling of Radiation Damage and Amorphization of Nanocrystalline Silicon Carbide
145.	Seaborg Memorial lecture by Dr. S. Kailas, BARC, Mumbai	IGCAR	09/04/2012	Evolving Nuclear Land Scape
146.	Shri A. S. Suneesh, Fuel Chemistry Group	IGCAR	19/04/2012	Development and demonstration of lanthanide-actinide separations using glycolamic acid
147.	Dr. Satyaprakash Sahoo, Research Associate, Puerto Rico University, USA	IGCAR	26/06/2012	Properties and Applications of Solution-Processed Graphene
148.	Dr. A. Bharathi, Head, Low Temperature Studies Section, CMPD, MSG	IGCAR	04/07/2012	Structural Investigation in $BaFe_{2-x}Ru_xAs_2$ Superconductors using Synchrotrons
149.	Shri T. Ravi, CG, IGCAR	IGCAR	07/07/2012	Radiation protection procedures
150.	Dr. Sandip Kumar Dhara, Head, Nanomaterials and Sensors Section, SND, MSG	IGCAR	11/07/2012	Raman imaging a potential technical tool for Materials characterization
151.	IGC colloquium by Shri S. K. Chande, Vice-Chairman, AERB	IGCAR	18/07/2012	Lessons from FUKUSHIMA
152.	Shri Prasana Kumar Sahoo, Senior Research Fellow, Surface & Nanoscience Division, MSG	IGCAR	18/07/2012	GaN Nanostructures: Growth Kinetics, Physical Properties and Applications
153.	Shri Jammu Ravi FCD, CG	IGCAR	27/07/2012	Experience at "Plutonium Futures –The Science 2012"
154.	Dr. Abhishek Mishra, Université de Bretagne Sud NT CEDEX, France	IGCAR	06/08/2012	Macroscopic rupture in bending of sheet metal
155.	Dr. A. K. Arora, Head, CMPD, MSG	IGCAR	08/08/2012	Zirconium Tungstate – Kahani abhi baki hai
156.	Prof. P.C. Kesavan, Distinguished Fellow, MSSRF, Chennai	IGCAR	13/08/2012	Ionizing Radiation harmful at any dose



157.	Dr. Minisha Mehta, Department of CMOS- Technology & Devices, Fraunhofer Institute for Microelectronic Circuits and Systems, Duisburg, GERMANY	IGCAR	23/08/2012	An intentionally positioned InAs quantum dot in a micron sized light emitting diode
158.	Prof. J.B. Joshi, Homi Bhabha Chair, UICT, Mumbai	IGCAR	27/08/2012	Synthesis, application and characterization of Solvents and Diluents for relevance to Reprocessing Applications
159.	Dr. B. V. R. Tata, Head, LSSS, CMPD, MSG	IGCAR	27/08/2012	PPF of Photonic Crystals
160.	Dr. R. Ramaseshan, TFCS, SND, MSG	IGCAR	05/09/2012	Significance of Al on the Physical Properties of TiAlN thin films
161.	Prof. Claudio Arnone, Dept. of Electrical, Electronic and Telecommunication Engineering (DIEET), University of Palermo, Italy	IGCAR	11/09/2012	Writing for Microlithography Laser
162.	Shri Hari Babu Sata, SRF, MPS, MPD, MSG	IGCAR	18/09/2012	Positrons in search of defects associated with nano-structural changes: Studies on 9Cr Ferrous alloys
163.	Dr. Niranjana Kumar, Thin Films and Coatings Section, SND, MSG	IGCAR	27/09/2012	Grain size dependent tribological mechanism in crystalline diamond films
164.	Prof.R.K. Singh Raman, Department of Mechanical and Aerospace Engineering, Department of Chemical Engineering, Monash University, Australia	IGCAR	01/10/2012	Stress Corrosion Cracking of Steels: Novel Approach to Generating Design Data
165.	Prof.R.K. Singh Raman, Department of Mechanical and Aerospace Engineering, Department of Chemical Engineering, Monash University, Australia	IGCAR	03/10/2012	Advanced Approaches to Corrosion Mitigation: Nanocrystalline Structure and Graphene Coating
166.	Dr. J. Janaki, Low Temperature Studies Section, CMPD, MSG	IGCAR	10/10/2012	Studies on Perovskite-structured cobaltites
167.	Dr. S. Mathi Jaya, Ion Beam & Computer Simulation Section, MPD, MSG	IGCAR	17/10/2012	Modeling the magneto-transport characteristics of magnetic tunnel junctions: Approaches, Achievements and Opportunities



168.	Prof. B. S. Murthy, IIM Madras	IGCAR	25/10/2012	Ecstasy, Excitement and Challenges in Advanced Materials Research
169.	Dr. Amarnath Chellachamy Anbalagan, ITODYS, Université Paris, Diderot, France	IGCAR	26/10/2012	Graphene and Polyaniline: Synthesis, characterization and application
170.	Dr. R. Vijayaraghavan Centre for Nanomaterials, Materials Chemistry Division School of Advanced Sciences, VIT University	IGCAR	26/10/2012	Inorganic Functional Materials for Selected Applications – From Bio to Energy
171.	Dr. S. Amirthapandian, Ion Beam & Computer Simulation Section, MPD, MSG	IGCAR	02/11/2012	A new HRTEM facility - Capabilities and Case Studies
172.	Dr. Klaus Ellmer, Abt. Solare Brennstoffe (EI-6), Helmholtz-Zentrum Berlin für Materialien und Energie, Berlin, Germany	IGCAR	07/11/2012	Reactive Magnetron Sputtering of TCO Thin Films: Role of Energetic Particle (Ion) Bombardment
173.	Prof. Walter Arnold, Physikalisches Institut, Universität Göttingen, Department of Material Science and Materials Technology, Germany	IGCAR	26/11/2012	Relaxation modes in complex metallic glasses studied by local and global mechanical spectroscopy
174.	Prof. Per Nylén and Dr. Mohit Kumar Gupta, Production Technology Centre, University West, Trollhättan, Sweden	IGCAR	05/12/2012	Design of Thermal Spray Coatings
175.	Prof. Junpei Yamanaka, Graduate School of Nagoya City University, Nagoya City, Japan	IGCAR	07/12/2012	Large Size Photonic Colloidal Crystals Immobilized in Hydrogels
176.	Prof. Douglas R. MacFarlane Australian Centre for Electromaterials Science Monash University, Australia	IGCAR	28/12/2012	Ionic Liquids: Applications in the Chemical-, Electro- and Bio- Sciences
177.	Prof. M. Okazaki, Nagaoka University of Technology, Japan	IGCAR	10/01/2013	Thermal ratcheting of superalloys under thermal cycles with a temperature gradient
178.	Prof. Alexandra	IGCAR	18/01/2013	Thermochemical Studies of Lanthanide and



	Navrotsky, Director, UC Davis, University of California, USA			Actinide Materials
179.	Dr. Thomas Reichmann, Department of Inorganic Chemistry / Materials, Chemistry, University of Vienna, Währingerstrasse 42, A-1090 Vienna, Austria	IGCAR	07/02/2013	Thermochemical investigations in Cadmium – RE (RE = Ce, Pr, Nd, Gd) systems
180.	Prof. Philippe Marcus, Ecole Nationale Supérieure de Chimie de Paris, France	IGCAR	04/03/2013	Passivity and Passivity Breakdown: Current State of Understanding
181.	Dr. Partha Guha, Mathematical Phys. Group, S N Bose National Centre for Basic Sciences, Kolkata	IPR	02/04/2012	Darboux integrability and Hamiltonization for 3D dynamical systems
182.	Dr. Ajay Deep Kachhvah, Indian Institute of Technology Madras, Chennai	IPR	04/04/2012	Weight Bearing Hierarchical Networks: Avalanche, Statistics and Transport
183.	Dr. Bhawna Pandey, G.B.Pant University of Ag. & Tech. Pantnagar	IPR	30/04/2012	Neutron Cross-Sections Relevant To Nuclear Energy Program
184.	Dr. Bhimsen K. Shivamoggi, University of Central Florida, Orland, FL 32816-1364	IPR	12/07/2012	Beltrami States in Plasmas
185.	Mr. Aakash Sahai, Duke University Durham, NC 27708	IPR	23/07/2012	Laser Plasma Acceleration using Relativistic Transparency
186.	Dr. G. Thejappa, Astronomy Department, University of Maryland, College Park, MD 20742	IPR	24/07/2012	Identification of Four- and Three-wave Interactions in Solar Type III Radio Bursts Using Higher Order Spectral Techniques
187.	Mr. K.Satpathy, IGCAR, Kalpakkam	IPR	27/07/2012	Studies On Gas Entrainment Inception In Hot Pool Of Liquid Metal Fast Breeder Reactors Through CFD Approach
188.	Dr. Devang A. Joshi, R.C. Technical Institute, Ahmedabad	IPR	31/07/2012	Crystal Growth and Anisotropic Magnetic Properties of Some Rare Earth Intermetallics



189.	Dr Paresh Prajapati, MSU, Vadodara	IPR	01/08/2012	Studies of neutron-induced fission and nuclear reaction for AHWR and ADS applications
190.	Dr. Prasad Perlekar, Department of Applied Physics, Eindhoven University of Technology 5600MB, Eindhoven, Netherlands	IPR	07/08/2012	Life at high Reynolds number
191.	Dr Bhupesh Kumar, IIT, Kanpur	IPR	09/08/2012	Laser ablation at solid-liquid interface: Formation of nanoparticles
192.	Dr. Utpal Sarkar, Physical Research Laboratory, Navrangpura, Ahmedabad	IPR	11/09/2012	Neutron-Antineutron Oscillation and Project X
193.	Mr. R. K Gangwar, Dept. of Physics, Indian Institute of Technology, Roorkee	IPR	27/09/2012	Electron-impact excitation and plasma modeling of inert gas atoms
194.	Prof R. Shanker, Atomic Physics Laboratory, Banaras Hindu University, Varanasi- 221005	IPR	28/09/2012	Fragmentation Dynamics of Multiply Charged Molecules of Atmospheric Interest Under Impact of Kev- Electrons by Ion-Ion Coincidence Technique
195.	Dr. Klaus Ellmer, Thomas Welzel, Helmholtz-Zentrum für Materialien und Energie, dept. solar fuels, Hahn- Meitner-Platz 1, 14109 Berlin, Germany	IPR	09/11/2012	Reactive Magnetron Sputtering of TCO Thin Films: Role of Energetic Particle (Ion) Bombardment
196.	Shri Arup Jyoti Choudhury, Complex Plasma Laboratory, Yokohama National University, Japan	IPR	11/11/2012	Prospective on plasma in surface protection and functionalization of materials
197.	Dr. Deepak Kumar, Physics and Astronomy, 113 Bloomberg Center, Johns Hopkins	IPR	26/11/2012	What can we learn from space resolved VUV to SRX measurements



	University, 3701 San Martin Dr, Baltimore, MD 21218			
198.	Keshav Walia, NIT Jalandhar	IPR	26/11/2012	Theoretical Investigations of Some Nonlinear Phenomena In Plasma
199.	Dr. Sunil Rawat, BARC, Mumbai	IPR	29/11/2012	Behaviour of solids under high strain rate deformation
200.	Dr. Imant Buceniaks, Institute of Physics, Latvia University	IPR	30/11/2012	IPUL experience in design and construction of EM induction pump (based on permanent magnets) for liquid metals
201.	Mr Baudewijn Vangucht, Microtherm Group, Belgium	IPR	30/11/2012	High Performance Thermal Insulation Solutions
202.	Dr. Saikat Chakraborty Thakur, Center for Energy Research, University of California at San Diego, La Jolla, CA 92093	IPR	07/12/2012	Suppression of drift wave turbulence and zonal flow formation by changing axial boundary conditions in a linear plasma device
203.	Dr. Matthew Evans, LIGO Scientific Collaboration, Massachusetts Institute of Technology, USA	IPR	13/12/2012	Squeezing the Most from a Gravitational Wave Detector Network
204.	Mr. Alessandro Tesini, Section Leader, Remote Handling, ITER Organization	IPR	14/12/2012	ITER Remote Handling System
205.	Dr. Onuttom Narayan, University of California Santa Cruz 1156 High Street, Santa Cruzon	IPR	21/12/2012	Energy transport in low dimensional systems
206.	Dr. Satish Tailor, Malaviya National Institute of Technology, Jaipur	IPR	17/01/2013	Development and Characterization of Plasma Sprayed Aluminum based Nano Composite Coatings
207.	Dr. Remmelt Haange, Deputy Director General – ITER Organization	IPR	23/01/2013	Lessons Learnt from W-7X
208.	Dr. Lorne Horton, Culham Center for Fusion Energy, UK	IPR	24/01/2013	Experimental campaign on JET tokamak for 2013



209.	Prof. Francesco Romanelli, Culham Center for Fusion Energy, UK	IPR	25/01/2013	European Union Fusion Road Map
210.	Prof. Stan Whitcomb, LIGO Laboratory, Caltech, USA	IPR	29/01/2013	Potential future directions for the development of interferometers
211.	Dr. Jannie S.J. van Deventer, University of Melbourne, Australia	IPR	08/02/2013	Why we need to rethink the extraction of precious metals
212.	Mr. K.T. Patel, Electrical Research and Development Association (ERDA), Baroda	IPR	25/02/2013	EMI and EMC of electrical and electronic equipments with special reference to RF interference
213.	Prof. Saulius Juodkazis, Head of Nano-lab & Deputy Director of Centre of Microphotonics, Swinburne University of Technology, Australia	IPR	18/03/2013	Nano-advantaged surfaces for sensing applications
214.	Mr. Anil Srivatava, Director, Systems Dynamics (Software) Pvt. Ltd., 2nd Floor, Khemka House, Drive-in Exit Road, Thaltej, Ahmedabad	IPR	18/03/2013	Human expertise mapping and people matching
215	Mr. Bhubanesh Bhatt, Wolfram Research	IPR	25/03/2013	Numeric, Symbolic, Probability and Statistics
216	Prof. Victor Malka, Laboratoire d'optique applique (LOA), Ecole Polytechnique Palaiseau (France)	IPR	28/03/2013	High quality electron and X-ray beams produced with laser plasma accelerators
217	Holger Nielsen Niels Bohr Institute, Copenhagen, Denmark	IMSc	03/04/2012	Anomaly and Dirac sea
218	Sebastian Kuhnert Humboldt University, Berlin	IMSc	03/04/2012	Canonical Representations for Circular Arc Graphs
219	Vikram Soni	IMSc	04/04/2012	Magnetars: New Stars, New Physics



	Jamia Milia University, New Delhi			
220	Shankhadeep Chakraborty IOP Bhubaneshvar	IMSc	04/04/2012	Correlators of Giant Gravitons from dual ABJ(M) Theory.
221	Amritanshu Prasad IMSc	IMSc	04/04/2012	Polynomial representations of $GL(n)$: characters
222	Assa Aravindh IGCAR, Kalpakkam	IMSc	09/04/2012	Ab initio investigations on the Magnetic and Electronic properties of Fe-Co and Fe-Ni nanostructures
223	Bikash Sinha SINP, Kolkata	IMSc	09/04/2012	Dark Matter
224	Justin R. David IISc, Bangalore	IMSc	11/04/2012	Exact results for the BTZ black hole
225	Sachin Sharma IMSc	IMSc	11/04/2012	The t-analog of the basic string function for twisted affine Kac-Moody algebras
226	Seema Satin IMSc	IMSc	16/04/2012	Stochastic gravity and Noise Kernel
227	Prateep Chakraborty IMSc	IMSc	16/04/2012	Computing Cohomology algebras of certain spaces using fiber bundle
228	B Chandrasekar IIT Bhubaneswar	IMSc	18/04/2012	Tunneling in AdS and Boundary Matrix Models
229	R. Venkatesh IMSc	IMSc	18/04/2012	Conjugacy classes of Coxeter Elements
230	Arkadev Chattopadhyay University of Toronto	IMSc	19/04/2012	A little advice can be very helpful
231	Sridhar Anandkrishnan Penn. State Univ., USA	IMSc	19/04/2012	Glacier and Ice Sheets in a Changing Climate
232	Partha Mukhopadhyay, Sourav Chakraborty, CMI & C.R. Subramanian, V.Arvind, IMSc	IMSc	21/04/2012	Randomization in computer science: Golden jubilee thematic lectures in TCS
233	F. T. Farrell SUNY, Binghamton	IMSc	23/04/2012	The failure of smooth rigidity and the best of all possible maps
234	Amilcar R. de Queiroz Instituto de Fisica, Universidade de Brasilia, Brazil	IMSc	24/04/2012	EDM from any η -QCD Vanishes for Mixed States
235	Pooja Singla IISc	IMSc	25/04/2012	Extensions of abelian groups and similarity of matrices
236	Steven Spallone TIFR	IMSc	26/04/2012	Discrete Series Characters, p-adic Orbital Integrals, and Modular Forms
237	Nabyendu Das IISc, Bangalore	IMSc	30/04/2012	Aspects of Quantum phase transition in ferroelectrics



238	Gaurav Narain IMSc	IMSc	02/05/2012	Short Distance Freedom of Quantum Gravity
239	Steven Spallone TIFR, Mumbai	IMSc	02/05/2012	An Integration Formula for Unipotent Radicals
240	K V P Lata Pondicherry University	IMSc	03/05/2012	CP violation with electric dipole moment of atomic mercury
241	Vinod Gaur IIA Bangalore	IMSc	03/05/2012	The Plate Tectonic Revolution
242	Sebastian Horvath Dept of Physics and Astronomy, University of Canterbury, New Zealand	IMSc	08/05/2012	Amplitudes for space-like separations and causality
243	Manu Basavaraju IMSc	IMSc	10/05/2012	The Discharging Method
244	Dharam Vir Ahluwalia Dept of Physics and Astronomy, University of Canterbury, New Zealand	IMSc	11/05/2012	About neutrinos: from Pauli, to Pontecorvo, to Goldman, and things in between
245	Saket Saurabh IMSc	IMSc	17/05/2012	A tale of Simple Algorithm (Really :))
246	Ashutosh Rai IMSc Chennai	IMSc	18/05/2012	Recent developments in lower bounds on kernelization
247	Fahad Panolan IMSc Chennai	IMSc	18/05/2012	Randomization in Parameterized Complexity via the k-path problem
248	Venkatesh Raman, Arvind, Saket Saurabh, IMSc., & NarayanaSwamy, IIT Madras	IMSc	19/05/2012	Graphs: Explorations and Algorithms, Golden jubilee thematic lectures in TCS
249	Rahul Sinha IMSc	IMSc	30/05/2012	The beautiful and charming path to New Physics
250	Ritwik Mukherjee IMSc	IMSc	30/05/2012	Counting Curves via Topology
251	Ravindra, G.V. University of Missouri{St. Louis	IMSc	07/06/2012	Extension theorems for subvarieties and vector bundles.
252	Sudipta Sarkar IMSc	IMSc	13/06/2012	Zeroth Law for black holes
253	Shyamashree Upadhyay IIT Guwahati	IMSc	15/06/2012	The Hilbert-Kunz function of certain hypersurfaces
254	Ashutosh Trivedi UPenn, USA	IMSc	15/06/2012	Formal Design and Analysis of Cyber-Physical Systems
255	Anish Mallick IMSc	IMSc	15/06/2012	Hilbert's Third Problem and Scissors Congruences



256	Uday Bhaskar Sharma IMSc	IMSc	22/06/2012	Frobenius-Schur Index
257	Kamal Lodaya, R. Ramanujam, S. Sheerazuddin, IMSc & S.P. Suresh, CMI	IMSc	23/06/2012	Concurrency in the multicore age: Golden jubilee thematic lectures in TCS
258	Nitin Saurabh IMSc	IMSc	25/06/2012	Algebraic Models of Computation
259	Samir Kunkri Mahadevananda Mahavidyalaya, Barrackpore, West Bengal	IMSc	26/06/2012	Simulating the singlet state correlation with non-quantum resources
260	Gaurav Rattan IMSc	IMSc	26/06/2012	Spectral algorithms for some graph problems
261	A P Balachandran IMSc	IMSc	27/06/2012	Algebraic theory of entanglement
262	Ravi Kunjwal IMSc	IMSc	28/06/2012	Limits on nonlocal correlations from physical principles { a review
263	Ashutosh Rai	IMSc	28/06/2012	Improved parameterized algorithms for split deletion problem
264	Rekha Biswal IMSc	IMSc	29/06/2012	Structure theorem for ω -nitely generated modules over Dedekind domains
265	R. Balaji University of Colorado, USA	IMSc	02/07/2012	Sea Level Rise in a Changing Climate - Projections and Implications for Resource Management
266	Vasudharani Devanathan Group Leader- Cardiovascular Division, Institute for Pharmacology and Toxicology, University of Tübingen, Tübingen, Germany	IMSc	04/07/2012	Roles of G-alpha-i proteins in cardiovascular diseases-thrombosis and ischemia reperfusion injury
267	Jayadev S. Athreya UIUC	IMSc	04/07/2012	Gap Distributions and Homogeneous Dynamics
268	Lavanya Sivakumar IMSc Chennai	IMSc	05/07/2012	Finding Edge-disjoint Trees in Graphs
269	Pradeep Servepalli Georgia Institute of Technology	IMSc	06/07/2012	Topological Subsystem Codes From Graphs and Hypergraphs
270	Sudipta Kumar Basu IMSc	IMSc	06/07/2012	Whitney embedding theorem
271	Ayan Paul University of Notre Dame	IMSc	09/07/2012	Prospects of Charm



272	Kallol Sen IISc, Bangalore	IMSc	10/07/2012	Exact holographic counter terms
273	Dibyendu Das IIT Bombay	IMSc	11/07/2012	Giant number fluctuations in interacting and growing microbial populations
274	Bastien Maubert IRISA, Rennes, France	IMSc	11/07/2012	Towards a notion of uniform strategies
275	Michael Lau Universite Laval	IMSc	12/07/2012	Affine Lie Algebras and their Friends and Neighbours
276	Vinodchandran Variyam University of Nebraska, Lincoln	IMSc	12/07/2012	On the Space Complexity of the Graph Reachability Problem
277	Raman Nurani DFMSim-India	IMSc	12/07/2012	Recent Trends in Semiconductor Manufacturing and Computational Complexity
278	Shailesh Chandrasekharan Duke University	IMSc	17/07/2012	Solutions to some unsolved sign problems in strongly correlated lattice fermion systems
279	T Geetha IMSc	IMSc	18/07/2012	Cellularity of wreath product algebras
280	Sachin Gautam Columbia University	IMSc	19/07/2012	Yangians and their Representations
281	Shakir Ali Aligarh Muslim University	IMSc	19/07/2012	On commuting and centralizing mappings in rings and algebras
282	N. S. Narayanaswamy IIT Madras	IMSc	19/07/2012	Min-Cos-R is FPT
283	Gagan Bihari Mohanty TIFR, Mumbai	IMSc	20/07/2012	Experimenting with the Higgs { Recent Results from LHC
284	K. Narayan Kumar, Madhavan Mukund, CMI, Supratik Chakraborty, IIT Bombay & R. Ramanujam, IMSc	IMSc	21/07/2012	Automata in the real world: Golden jubilee thematic lectures in TCS
285	Anish Ghosh University of East Anglia	IMSc	24/07/2012	Abundance of bounded orbits
286	Aditya Bawane IMSc	IMSc	24/07/2012	Project Presentation
287	Anitha Thillaisundaram HRI	IMSc	25/07/2012	The concept of p-deficiency and its applications
288	Anish Ghosh University of East Anglia	IMSc	26/07/2012	Homogeneous dynamics and number theory
289	Kunal Dutta IMSc	IMSc	26/07/2012	Concentration of Measure: A TCS perspective.
290	Sachin Gautam Columbia University	IMSc	27/07/2012	Difference Equations
291	Vani Starry Manoharan	IMSc	01/08/2012	Impact of human activities on climate



	Argonne National Laboratory, Chicago, USA			change in the tropics
292	Neeraj Kumar Kamal IMSc, Chennai	IMSc	06/08/2012	Imbalance of positive and negative links induces regularity
293	Mathew Francis LIRRM, University of Montpellier, France	IMSc	07/08/2012	The maximum clique problem in multiple interval graphs
294	J Pasupathy IISc, Bangalore	IMSc	08/08/2012	Heisenberg's road to quantum mechanics and influence of Einstein on Heisenberg
295	Kumar Murty University of Toronto	IMSc	09/08/2012	Bounded Generation
296	Ramakrishna Nanduri IMSc	IMSc	09/08/2012	Hilbert Coefficients of Schubert varieties in Grassmannians
297	Ravishankar Krishnaswamy Carnegie Mellon University	IMSc	13/08/2012	Approximation Techniques for Stochastic Optimization Problems
298	G Rajasekaran IMSc	IMSc	13/08/2012	Standard Model, Higgs boson and what next?
299	Gauhar Abbas IMSc	IMSc	14/08/2012	Extraction of strong coupling from hadronic tau decays
300	M Sivapalan University of Illinois at Urbana-Champaign	IMSc	14/08/2012	Predictions under Change: Water, Earth and Biota in the Anthropocene (Please note that the venue is shifted to Dept of Civil Engineering, IIT Madras)
301	Arghya Mondal IMSc	IMSc	14/08/2012	Automorphisms of Riemann Surfaces
302	Sunita Vatuk Rutgers University, USA	IMSc	16/08/2012	From three cultures, working together: mathematicians, math educators and teachers
303	S Lakshmiarahan University of Oklahoma	IMSc	16/08/2012	Dynamic Data Assimilation - An Overview
304	Krishnaswami Alladi University of Florida	IMSc	17/08/2012	Rogers-Ramanujan partitions and products modulo 6 and 7
305	Umesh Dubey TIFR, Mumbai	IMSc	20/08/2012	Geometry of tensor triangulated categories
306	Umesh Dubey TIFR	IMSc	21/08/2012	Spectrum of tensor triangulated categories
307	Ayan Paul University of Rome	IMSc	21/08/2012	Flavour in the Warped Extra Dimensions
308	Ajit. M. Srivastava Institute of Physics, Bhubaneswar	IMSc	22/08/2012	From The Universe to Relativistic Heavy-ion Collisions: CMBR Anisotropies and Flow Fluctuations
309	Markus Blaeser Saarland University,	IMSc	22/08/2012	Algebraic Complexity Theory: Models, Problems, Challenges



	Germany			
310	K N Raghavan IMSc	IMSc	22/08/2012	Representation theory Seminar: Intro to symmetric polynomials
311	P. Sankaran IMSc	IMSc	22/08/2012	Characteristic classes
312	I Karthik IMSc	IMSc	23/08/2012	Generalized Attractors in Five-Dimensional Gauged Supergravity
313	R. Ramanujam, Kamal Lodaya, Sitabhra Sinha, IMSc & S.P. Suresh, CMI	IMSc	23/08/2012	A Celebration of Turing: Golden jubilee thematic lectures in TCS
314	Andreas Krebs Univ Tubingen, Germany	IMSc	27/08/2012	Dense Completeness
315	K N Raghavan IMSc	IMSc	29/08/2012	Symmetric functions, Schur functions : RT Seminar
316	P. Sankaran	IMSc	29/08/2012	Characteristic classes
317	K Narayan CMI, Chennai	IMSc	30/08/2012	Lifshitz scaling and hyperscaling violation in string theory
318	Amritanshu Prasad IMSc	IMSc	30/08/2012	Similarity Classes of Matrices
319	Kamal Lodaya	IMSc	30/08/2012	Probabilistic systems and their verification
320	Kabir Ramola TIFR, Mumbai	IMSc	03/09/2012	Columnar Order and Ashkin-Teller Criticality in the Hard Square Lattice Gas
321	R Parthasarathy Bharatiar University, Coimbatore	IMSc	05/09/2012	Harish-Chandra's Construction of Discrete Series Characters: 'Global - Infinitesimal' transfer: RT Seminar
322	Helmut Seidl Tech Univ Muenchen, Germany	IMSc	06/09/2012	Abstract Interpretation meets Mathematical Optimization
323	V. Arvind	IMSc	06/09/2012	On generating hard SAT instances
324	R Parthasarathy Bharatiar University, Coimbatore	IMSc	07/09/2012	RT Seminar: Harish-Chandra's Construction of Discrete Series Characters: 'Global - Infinitesimal' transfer
325	T. Mubeena IMSc	IMSc	07/09/2012	Residually finite groups
326	Argha Banerjee IMSc.	IMSc	10/09/2012	The response of Himalayan Glaciers to Climate Change
327	Sathya Peri IIT, Patna	IMSc	10/09/2012	Correctness of Closed Nesting in Software Transactional Memory Systems
328	Arif Mohd Dept. of Physics, University of Mississippi/SISSA, Italy	IMSc	12/09/2012	Black-hole entropy in first-order gravity



329	R Venkatesh IMSc	IMSc	12/09/2012	New interpretation of Chromatic Polynomials using Kac-Moody algebras
330	Ramanujam	IMSc	13/09/2012	Introducing Large Games
331	Balachandran Sathiapalan IMSc	IMSc	14/09/2012	Loop Variables and Gauge Invariant Exact Renormalization Group Equations for (Open) String Theory
332	Pampa Paul IMSc	IMSc	14/09/2012	Harish-Chandra homomorphism and its applications.
333	Meena Mahajan, Vikram Sharma, IMSc & Prajakta Nimbhorkar, CMI	IMSc	15/09/2012	Matchings in Graphs: Golden jubilee thematic lectures in TCS
334	P. Sankaran IMSc	IMSc	17/09/2012	Characteristic classes
335	Rajaram Nityananda TCIS Hyderabad, NCRA-TIFR, Pune	IMSc	18/09/2012	Unifying the evolution of phases of optical beams under changes of both direction and polarisation
336	Pampa Paul IMSc	IMSc	18/09/2012	Discrete series and their Harish-Chandra modules
337	Pampa Paul IMSc	IMSc	20/09/2012	Borel de Siebenthal and holomorphic discrete series
338	Sreejith	IMSc	20/09/2012	An introduction to Descriptive complexity
339	Krishanu Dan IMSc	IMSc	24/09/2012	Unimodular Row Extension Property of $k[x_1; x_2; \dots; x_n]$, where k is a field.
340	P. Sankaran IMSc	IMSc	25/09/2012	Characteristic classes
341	Uday Bhaskar Sharma IMSc	IMSc	26/09/2012	Multiplicity-free Restrictions for Symmetric Groups
342	Yadu	IMSc	27/09/2012	How to learn an unknown concept?
343	Sushanta Dattagupta Viswa-Bharati, Santiniketan	IMSc	28/09/2012	Partial Decoherence of a Mesoscopic System
344	Chandrashekar Madaiah University College Cork, Ireland	IMSc	01/10/2012	Two-state quantum walk on different lattices and its applications
345	P. Sankaran IMSc	IMSc	01/10/2012	Characteristic classes
346	Alok Laddha CMI, Siruseri	IMSc	03/10/2012	Space-time covariance in Loop Quantum gravity
347	Anupam Singh IISER Pune	IMSc	03/10/2012	Strongly Real Classes in finite Unitary groups
348	J. Oesterle University of Paris VI	IMSc	04/10/2012	Panorama lectures on Multiple zeta Values



349	A Raghuram IISER, Pune	IMSc	04/10/2012	From Calculus to Number Theory (via cohomology)
350	R. Vidya Center for Materials Science and Nanotechnology University of Oslo, Norway.	IMSc	04/10/2012	Understanding role of defects in ZnO using density-functional calculations
351	Ashutosh	IMSc	04/10/2012	OR Conjecture and its proof
352	J. Oesterle University of Paris VI	IMSc	05/10/2012	Panorama lectures on Multiple zeta values
353	J. Oesterle University of Paris VI	IMSc	08/10/2012	Panorama lectures on Multiple zeta values
354	Prateep Chakraborty IMSc	IMSc	08/10/2012	Bockstein Homomorphism and some applications
355	S Senthamarai kanna Chennai Mathematical Institute	IMSc	10/10/2012	A Vanishing Result on Cohomology of line bundles on Schubert Varieties
356	Sourish Kumar Maitra IMSc	IMSc	10/10/2012	Interpretations about non locality, gravity and quantum measurement
357	J.Oesterle University of Paris VI	IMSc	10/10/2012	Panorama lectures on Multiple zeta values
358	Debraj Chakrabarti TIFR CAM	IMSc	11/10/2012	Holomorphic Maps
359	P. Sankaran IMSc	IMSc	11/10/2012	Characteristic classes
360	Karteek	IMSc	11/10/2012	Power of negations
361	J. Oesterle University of Paris VI	IMSc	12/10/2012	Panorama lectures on Multiple zeta values
362	Madhushree Basu IMSc	IMSc	15/10/2012	Free product of n -nite dimensional non-commutative probability spaces
363	J. Oesterle University of Paris VI	IMSc	16/10/2012	Panoram lectures on Multiple zeta values
364	J. Oesterle University of Paris VI	IMSc	16/10/2012	Panorama lectures on Multiple zeta values
365	Mridupawan Deka JINR, Dubna	IMSc	17/10/2012	Quark and gluon angular momenta from lattice QCD
366	S Senthamarai kanna CMI	IMSc	17/10/2012	A Vanishing Result on Cohomology of line bundles on Schubert Varieties
367	P. Sankaran IMSc	IMSc	17/10/2012	Characteristic classes
368	J. Oesterle University of Paris VI	IMSc	18/10/2012	Panorama lectures on Multiple zeta values
369	Mamata Sahoo Max Planck Institute of Colloids and Interfaces, Germany	IMSc	18/10/2012	Driven non-equilibrium systems and biological processes like transcriptional proofreading in dense RNA polymerase traffic



370	Sasanka Roy, CMI, John Augustine, IIT Madras & Vikram Sharma, IMSc	IMSc	20/10/2012	Computational Geometry: Searching for a nearest neighbour - Golden jubilee thematic lectures in TCS
371	J. Oesterle University of Paris VI	IMSc	20/10/2012	Oscillating series by Ramanujan
372	J. Oesterle University of Paris VI	IMSc	23/10/2012	Panorama lectures on Multiple zeta values
373	Arnab Kundu University of Texas, Austin	IMSc	23/10/2012	Dynamics of Fundamental Flavours and Holographic Duals of Large N Gauge Theories.
374	C. P. Anil Kumar IMSc	IMSc	23/10/2012	A new approach to representation theory of symmetric groups.
375	Bhaswar Ghosh Computational Systems Biology Lab, EPFL, Lausanne, Switzerland	IMSc	25/10/2012	Divergent promoter architectures employed by the co-regulated budding yeast ribosomal protein genes
376	J. Oesterle University of Paris VI	IMSc	25/10/2012	Panorama lectures on Multiple zeta values
377	Yann Strozecki Univ of Versailles, France	IMSc	25/10/2012	Methods for enumeration
378	P. Sankaran IMSc	IMSc	25/10/2012	Characteristic classes
379	J. Oesterle Paris VI	IMSc	27/10/2012	On a problem sent by Ramanujan to the journal of the Indian mathematical society
380	Sudarshan Gurjar IMSc	IMSc	29/10/2012	Finite generation of the ring of invariants and the problem of quotients
381	J. Oesterle University of Paris VI	IMSc	01/11/2012	Panoram lectures on Multiple zeta values
382	Safdar Quddus Washington University, St. Louis	IMSc	01/11/2012	On the cohomology of non-commutative toric orbifolds.
383	Mathew Francis	IMSc	01/11/2012	The boxicity and cubicity of graphs
384	Joseph Oesterle University of Paris VI	IMSc	03/11/2012	On equations of degree three
385	Satyajit Guin IMSc	IMSc	05/11/2012	Universal central extensions and Milnor's K ₂
386	J. Oesterle University of Paris VI	IMSc	06/11/2012	Panorama lectures on multiple zeta values
387	P. Sankaran IMSc	IMSc	06/11/2012	Characteristic classes
388	Jeanne Scott IMSc	IMSc	07/11/2012	Promotion, Sieving, and Mixing (RT Seminar)
389	Chandan Dasgupta Physics Department,	IMSc	07/11/2012	Structure and dynamics of water molecules con_ned in carbon



	Indian Institute of Science, Bangalore			nanotubes
390	J. Oesterle University of Paris VI	IMSc	08/11/2012	Panorama lectures on Multiple zeta values
391	Nicolas de Rugy-Altherre University of Paris-Diderot	IMSc	08/11/2012	Generating functions : a hard case
392	J. Oesterle University of Paris VI	IMSc	10/11/2012	On continued radicals
393	J. Oesterle University of Paris VI	IMSc	12/11/2012	Panorama lectures on Multiple zeta values
394	B. Ravinder IMSc	IMSc	12/11/2012	Gelfand-Tsetlin basis for the irreducible representation of $sl(n+1)$
395	J. Oesterle University of Paris VI	IMSc	15/11/2012	Panorama lectures on Multiple zeta values
396	S. Ramakrishna North Western University	IMSc	15/11/2012	Rotational wave packet imaging of molecules
397	M. Farooq Azam IRD-LTHE-LGGE, Grenoble, France	IMSc	16/11/2012	Status of Himalayan Glaciers in India, A case Study of Chhota Shigri glacier, HP
398	J. Oesterle University of Paris VI	IMSc	17/11/2012	On dynamical system
399	Dhriti Ranjan Dolai IMSc	IMSc	19/11/2012	The density of states
400	J. Oesterle University of Paris VI	IMSc	20/11/2012	Panorama lectures on Multiple zeta values
401	Si Si Aichi Prefectural University	IMSc	20/11/2012	Some recent topics in white noise theory
402	J. Oesterle University of Paris VI	IMSc	21/11/2012	Panorama lectures on Multiple zeta values
403	Sumedha NISER, Bhubaneswar	IMSc	21/11/2012	Some results on random K-Satisfiability problem on trees
404	S Viswanath IMSc	IMSc	21/11/2012	RT Seminar: Gelfand-Tsetlin Patterns
405	P. Sankaran IMSc	IMSc	21/11/2012	Characteristic classes
406	Saket Saurabh, Manu Basavaraju, Fahad Panolan & Pranabendu Misra, IMSc	IMSc	24/11/2012	Matroids and Algorithms: Golden Jubilee Thematic Lectures in TCS
407	Shailesh Lal ICTS	IMSc	27/11/2012	Partition Functions for Higher Spin Fields in AdS
408	Akhilesh Nautiyal IMSc	IMSc	28/11/2012	Non-standard models of inflation



409	Amritanshu Prasad IMSc	IMSc	28/11/2012	The hook-length formula
410	Sarbeshwar and Vaibhav CMI and IMSc	IMSc	29/11/2012	Algebraic geometry
411	Sreejith	IMSc	29/11/2012	Non-de_nability of languages by generalized _rst-order formulas over $(N,+)$
412	Sutapa Roy JNCASR, Bangalore	IMSc	30/11/2012	Dynamics of uid-uid criticality
413	Ronnie Sebastian IMSc	IMSc	03/12/2012	Smash nilpotent cycles on varieties dominated by products of curves
414	Christian Thaulow Department of Engineering Design and Materials, Norwegian University of Science and Technology, Trondheim, Norway	IMSc	05/12/2012	Learn Engineering from Nature
415	Gaurav Narain IMSc	IMSc	07/12/2012	Charge Renormalization due to Graviton Loops
416	Rahul Cherian Inclusive Planet Centre for Disability Law and Policy	IMSc	07/12/2012	Copyright Exceptions for Persons with Disabilities and opportunities for libraries
417	Saptarshi Mandal IACS, Kolkata	IMSc	10/12/2012	Superuid-insulator transition of two-species bosons with spin-orbit coupling
418	Tom Kibble Imperial College, UK	IMSc	10/12/2012	What is the Higgs? What is it for?
419	Harald Fritzsch Ludwig-Maximilians- Universitt, Germany	IMSc	11/12/2012	Quantum Chromodynamics
420	J. Oesterle University of Paris VI	IMSc	12/12/2012	Multiple zeta values
421	M. Ram Murty Queen's University, Canada	IMSc	12/12/2012	Automorphy and the Sato-Tate Conjecture
422	Sanming Zhou The University of Melbourne, Australia	IMSc	13/12/2012	Distance labellings of graphs
423	Hai-Yang Cheng Institute of Physics, Academia Sinica, Taipei	IMSc	14/12/2012	Direct CP violation in D decays



424	Harald Fritzsch Ludwig Maximilian University	IMSc	14/12/2012	Escape from Leipzig
425	Andr de Gouvea Northwestern University	IMSc	14/12/2012	Muon physics, relation to neutrinos and other physics beyond the standard model
426	Boris J Kayser Fermilab	IMSc	14/12/2012	Leptogenesis as the Origin of the Cosmic Matter-Antimatter Asymmetry
427	Stephen Olsen Seoul National University	IMSc	19/12/2012	The XYZ mesons, recent results & current status
428	E. Prabhu Raman Computer Aided Drug Design Center Univ. of Maryland School of Pharmacy	IMSc	20/12/2012	Computational Methods for Structure Based Drug Design
429	GSMoni & Sitabhra IMSc	IMSc	20/12/2012	Faculty Development Programe. Dhanalakshmi College of Engineering
430	Uday Bhaskar Sharma IMSc	IMSc	21/12/2012	The Okounkov-Vershik Approach to Representation Theory
431	V. Arvind, C.R. Subramanian, IMSc V. Sunitha, DAIICT, Gandhinagar & N.S. Narayanaswamy, IIT Madras	IMSc	22/12/2012	Network Flows: Golden jubilee thematic lectures in TCS
432	Chandler Davis Univ. of Toronto, Canada	IMSc	24/12/2012	A representation theorem for operators
433	Manoj Gopalkrishnan STCS, TIFR Mumbai	IMSc	24/12/2012	Physics of the bit
434	J. Oesterle University of Paris VI	IMSc	25/12/2012	Multiple zeta values
435	Sameer Murthy Nikhef theory group, Amsterdam	IMSc	26/12/2012	Mock theta functions and their appearance in physics
436	Janu Verma Kansas State Univ	IMSc	27/12/2012	Geometry of quiver representations, Kac Conjecture and Donaldson - Thomas Invariants
437	Arnab Chatterjee Department of Biomedical Engineering and Computational Science (BECS), Aalto University School of	IMSc	28/12/2012	Universality in collective opinion: the voting case



	Science, Espoo, Finland			
438	Aditya Date IIT Kharagpur	IMSc	01/01/2013	Coherent Back Scattering of Ultra Cold Atoms
439	J. Oesterle University of Paris VI	IMSc	01/01/2013	Multiple zeta values
440	George Sterman Yang Institute for Theoretical Physics, Stony Brook	IMSc	04/01/2013	Aspects of Resummation
441	J. Oesterle University of Paris VI	IMSc	05/01/2013	Multiple zeta values
442	Leonid Pastur Department of Low Temperature Physics, Kharkov, Ukrain	IMSc	07/01/2013	On Links Between the Random Operator and Random Matrix Theories
443	Amitabha Nandi Department of Molecular, Cellular and Developmental Biology, Yale University,	IMSc	07/01/2013	Regulated tissue uidity steers zebrafish body elongation
444	P. Sankaran IMSc	IMSc	07/01/2013	Characteristic classes
445	Leonid Pastur Department of Low Temperature Physics, Kharkov, Ukrain	IMSc	08/01/2013	On Links Between the Random Operator and Random Matrix Theories
446	V.Parameswaran Nair City College of the CUNY, New York, USA	IMSc	08/01/2013	A matrix model for Yang-Mills amplitudes and color-kinematic duality
447	J. Oesterle University of Paris VI	IMSc	08/01/2013	Multiple zeta values
448	Smitha Vishveshwara University of Illinois at Urbana-Champaign	IMSc	09/01/2013	Fractionalization in Mesoscopic Rings
449	Prashanth Jaikumar California State University, Long Beach	IMSc	09/01/2013	A numerical investigation of the quark-hadron phase transition in neutron stars
450	J. Oesterle University of Paris VI	IMSc	09/01/2013	Multiple zeta values
451	Henning Krause University of Bielefeld	IMSc	09/01/2013	Quiver representations, exceptional sequences, and noncrossing partitions
452	Ganesh Ramachandran Institute for Theoretical Solid	IMSc	10/01/2013	Frustrated magnetism on the honeycomb lattice



	State Physics, Dresden			
453	Kamalakshya Mahatab IMSc	IMSc	10/01/2013	Counting Primes in Semirings
454	Sridhara Dasu University of Wisconsin	IMSc	10/01/2013	Search for Neutral Higgs bosons that Decay to tau-pairs
455	J. Oesterle University of Paris VI	IMSc	10/01/2013	Multiple zeta values
456	Pinaki Chaudhuri Institute for Theoretical Physics II (Soft Matter), University of Dusseldorf, Germany	IMSc	11/01/2013	Yielding and ow of confined jammed materials
457	Balaji Rajagopalan University of Colarado	IMSc	11/01/2013	The Tibetan Plateau, Sun and, the Indian Monsoon Rainfall
458	P. Sankaran IMSc	IMSc	11/01/2013	Representations of real semisimple Lie groups
459	Sheerazuddin IMSc	IMSc	15/01/2013	Automata and logic for systems with unboundedly many agents
460	P. Sankaran IMSc	IMSc	15/01/2013	Characteristic classes
461	Sridhar Mahadevan University of Massachusetts, Amherst	IMSc	16/01/2013	Nonlinear Transfer Learning Across High-Dimensional Datasets
462	Amritanshu Prasad IMSc	IMSc	16/01/2013	Counting quiver representations over finite fields
463	P. Sankaran IMSc	IMSc	16/01/2013	Representations of real semisimple Lie groups
464	Paritosh Pandya TIFR	IMSc	16/01/2013	From Unary to Deterministic Logics for UL
465	Kamalakshya Mahatab IMSc	IMSc	17/01/2013	The Multiplication Table Problem
466	V K Madan School of Electrical and Communication Sciences , Kalasalingam University , Krishnankoil, Virudhunagar	IMSc	17/01/2013	Digital Signal Processing (DSP): From Plato to Looking Forward.
467	P. Sankaran IMSc	IMSc	21/01/2013	Characteristic classes
468	Issan Patri IMSc	IMSc	22/01/2013	From compact groups to compact quantum groups
469	Amritanshu Prasad IMSc	IMSc	23/01/2013	The cycle index for groups of matrices
470	P. Sankaran	IMSc	25/01/2013	Lie groups seminar



	IMSc			
471	Arghya Mondal IMSc	IMSc	29/01/2013	Exotic sphere embedded in complex hypersurface
472	P. Corvaja University of Udine	IMSc	30/01/2013	Sharpening of Manin-Mumford
473	Jeanne Scott IMSc	IMSc	30/01/2013	Generalised ag varieties and their Poincare polynomials
474	Kashyap Rajeevsarathy IISER Bhopal	IMSc	31/01/2013	On the fractional powers of Dehn twists
475	Pushan Majumdar IACS, Kolkata	IMSc	31/01/2013	GPU computing : First Experiences
476	P. Corvaja University of Udine	IMSc	01/02/2013	Around Hilbert Irreducibility Theorem
477	P. Sankaran IMSc	IMSc	01/02/2013	Characteristic classes
478	Movie on Manin by Handwerk and Willems Free journalists, Hamburg and Amsterdam	IMSc	05/02/2013	Documentary film about Yuri Manin
479	Movie on Doeblin by Handwerk and Willems Free journalists, Hamburg and Amsterdam	IMSc	05/02/2013	Documentary film about Wolfgang Doeblin
480	Kamalakhya Mahatab IMSc	IMSc	05/02/2013	Number of prime factors in an integer
481	Steven G. Avery IMSc	IMSc	06/02/2013	Unitarity, Firewalls, and Fuzzballs
482	Jeanne Scott IMSc	IMSc	06/02/2013	Generalised ag varieties and their multivariate Poincare polynomials
483	Steven G. Avery IMSc	IMSc	08/02/2013	Unitarity, Firewalls, and Fuzzballs - Continued
484	Manjunath Krishnapur IISc, Bangalore	IMSc	13/02/2013	Random Matrices a crash course
485	G. Baskaran IMSc	IMSc	13/02/2013	Superradiant Superconductivity - a Novel Electronic State
486	S. Viswanath IMSc	IMSc	13/02/2013	Hall-Littlewood polynomials
487	Pascal Weil LaBRI, CNRS, and Universit_e de Bordeaux	IMSc	14/02/2013	The FO2 quantifier alternation hierarchy is decidable
488	W. Kohlen University of Heidelberg	IMSc	14/02/2013	Conic theta functions
489	Priyotosh	IMSc	14/02/2013	Higgs physics beyond standard model

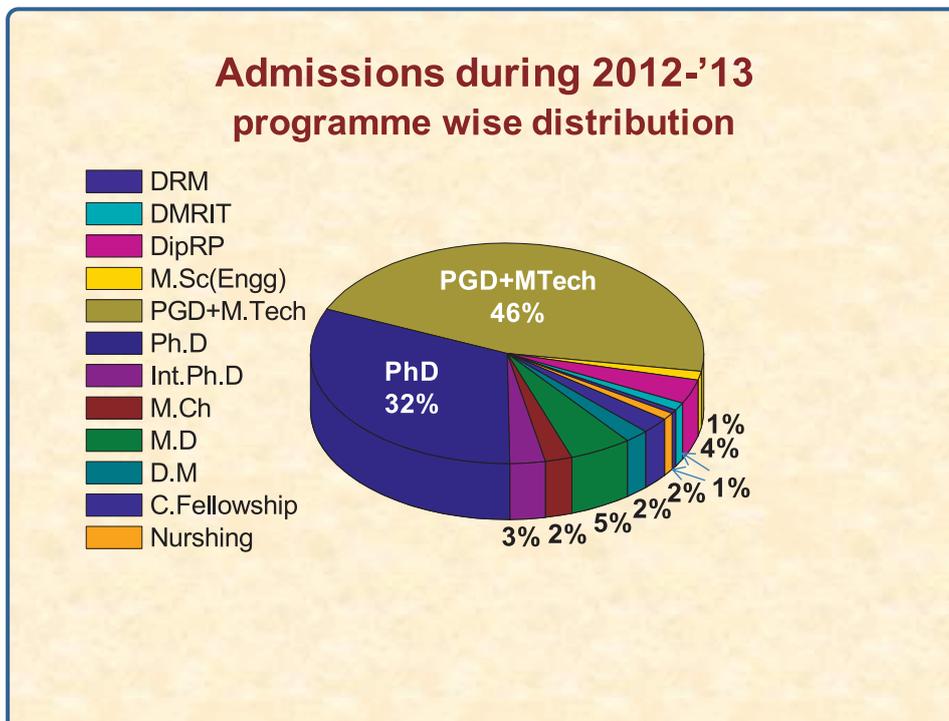
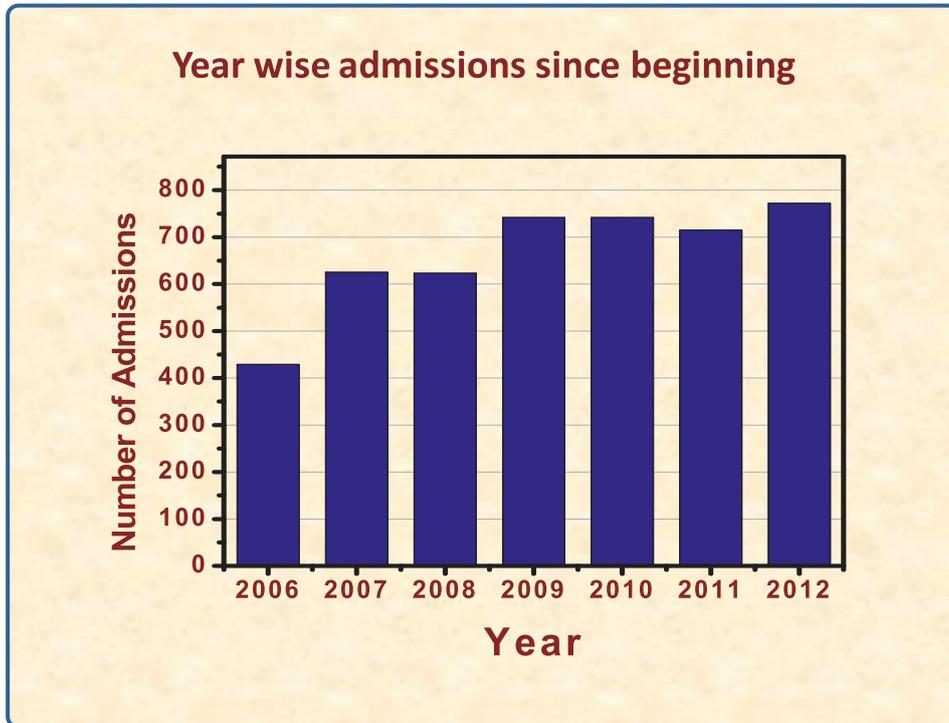


	Bandyopadhyay University of Helsinki			in the light of LHC results.
490	Navinder Singh Physical Research Laboratory, Ahmedabad	IMSc	14/02/2013	Yang-Rice-Zhang theory of Normal State of cuprate superconductors
491	K Balagopal IIT Madras	IMSc	15/02/2013	Pebbling, Entropy and Branching program size lower bounds
492	John Ellis (Live video stream) King's College, London and CERN	IMSc	15/02/2013	Answering Gauguin's Question with the LHC
493	Dibyakrupa Sahoo IMSc	IMSc	19/02/2013	Measuring the Spin, Parity & Couplings of The 125-126 GeV Boson
494	A P Balachandran IMSc and Syracuse University	IMSc	20/02/2013	QED: Spontaneous Lorentz Breaking
495	S. Viswanath IMSc	IMSc	20/02/2013	Hall-Littlewood polynomials
496	P. Sankaran IMSc	IMSc	25/02/2013	Characteristic classes
497	Kamalakshya Mahatab IMSc	IMSc	26/02/2013	Ford's lower bound on $H(x, y, 2y)$ and Multiplication Table
498	Arnab Rai Choudhuri Physics Department, IISc, Bangalore	IMSc	27/02/2013	Can we predict sunspot cycles?
499	P. K. Mohanty SINP, Kolkata	IMSc	28/02/2013	Does an independent Manna universality class exist?
500	Ankit Sharma Carnegie Mellon University	IMSc	28/02/2013	Welfare and Profit maximization with Procurement costs
501	J.M. Deshouillers Universit_e de Bordeaux	IMSc	28/02/2013	Sums of digits
502	Maury Goodman ANL, USA	IMSc	01/03/2013	Status of NoVa and LBNE neutrino experiment
503	Pierre Matsumi IMSc	IMSc	04/03/2013	Mordell-conjecture, Fermat's last theorem, abc-conjecture
504	P. Sankaran IMSc	IMSc	04/03/2013	Characteristic classes
505	Jyotipratim Ray Chaudhuri Department of Physics, Katwa College, Katwa, Burdwan, West Bengal, India	IMSc	05/03/2013	Stochastic dynamics of high-frequency modulated quantum particle

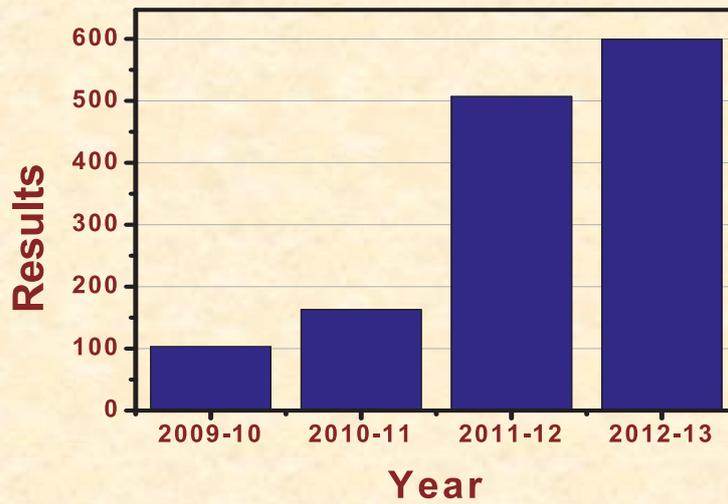


506	Biswambhar Pahi ICPR National Fellow	IMSc	05/03/2013	Making constructive use of history: Groundwork for a Nyaya-Vaisesika philosophy of mathematics
507	P. K. Manoharan Radio Astronomy Centre (TIFR), Ooty	IMSc	06/03/2013	Evolution of 3-D Solar Wind During Solar Cycles: Are we heading for a Little Ice Age ?
508	T. Geetha IMSc	IMSc	06/03/2013	Schur-Weyl duality for Symplectic and orthogonal group.
509	Kamalakshya Mahatab IMSc	IMSc	07/03/2013	Diluted Multiplication Table Problem
510	Samir Nath Mallik SINP	IMSc	07/03/2013	Effective field theory of strong interactions
511	Pierre Matsumi IMSc	IMSc	11/03/2013	From Shafarevich conjecture to Mordell conjecture
512	Samir Nath Mallik SINP Kolkata	IMSc	11/03/2013	Chiral perturbation theory I
513	Samir Nath Mallik SINP Kolkata	IMSc	12/03/2013	Chiral perturbation theory II
514	Pierre Matsumi IMSc	IMSc	18/03/2013	From Tate conjecture to Shafarevich conjecture
515	Pablo Solis UC Berkeley	IMSc	20/03/2013	A Wonderful Embedding of the Loop Group
516	Abhiram Soori Physics Department, IISc, Bangalore	IMSc	21/03/2013	Transport across a junction of topological insulators and a superconductor
517	Pierre Matsumi IMSc	IMSc	25/03/2013	Proof of Tate conjecture
518	M.C. Kumar Institut fuer Theoretische Physik, Universitaet Hamburg, Germany	IMSc	26/03/2013	Threshold corrections to inclusive jet production at hadron colliders.
519	Rajat Mittal University of Waterloo	IMSc	26/03/2013	Helping quantum computers classically
520	N. D. Hari Dass CMI	IMSc	27/03/2013	Some Surprises from Particle Physics
521	T. Geetha IMSc	IMSc	27/03/2013	Schur-Weyl duality for Symplectic and orthogonal group.
522	Pragya Srivastava Raman Research Institute	IMSc	28/03/2013	Patterning of polar active filaments on curved membrane surfaces and active deformation of the cell membrane.

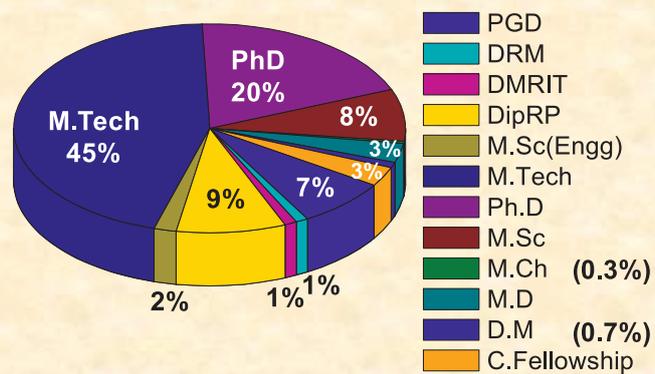
The Institute at a Glance



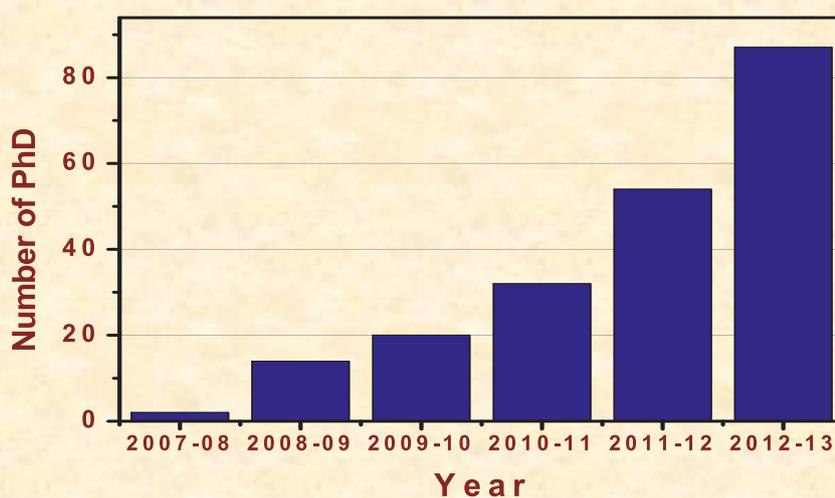
Year wise results declared since beginning



Results declared during 2012-'13 (programme wise distribution)

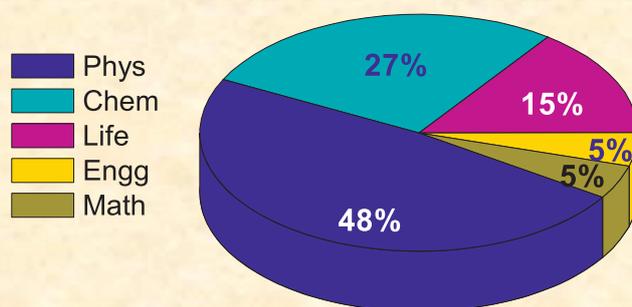


PhD results notified* during the period



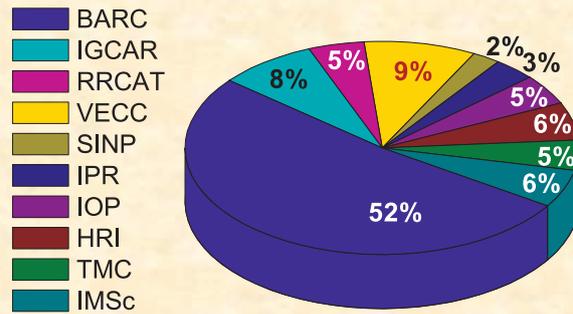
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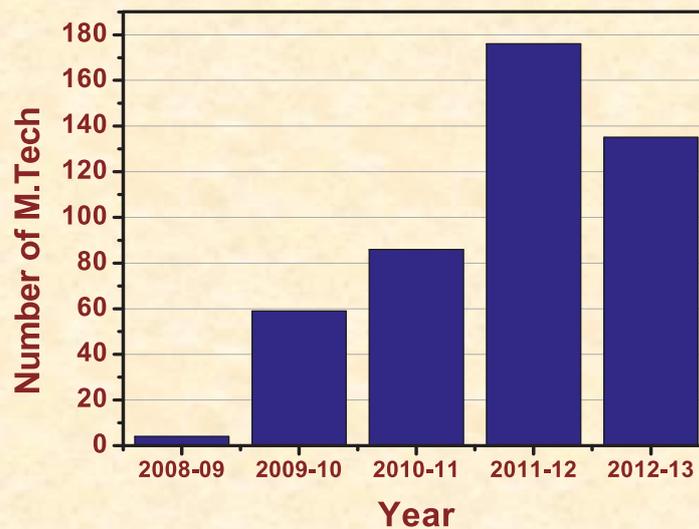
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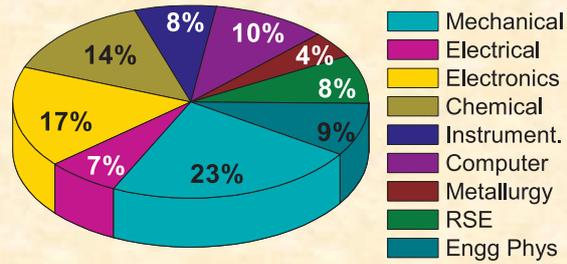
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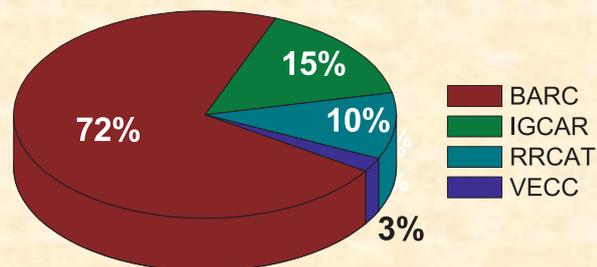
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**Provisional certificates issued*

M.Tech results notified* during 2012-'13 (CI wise distribution)



**Provisional certificates issued*



A view of the inner garden of Training School Complex

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