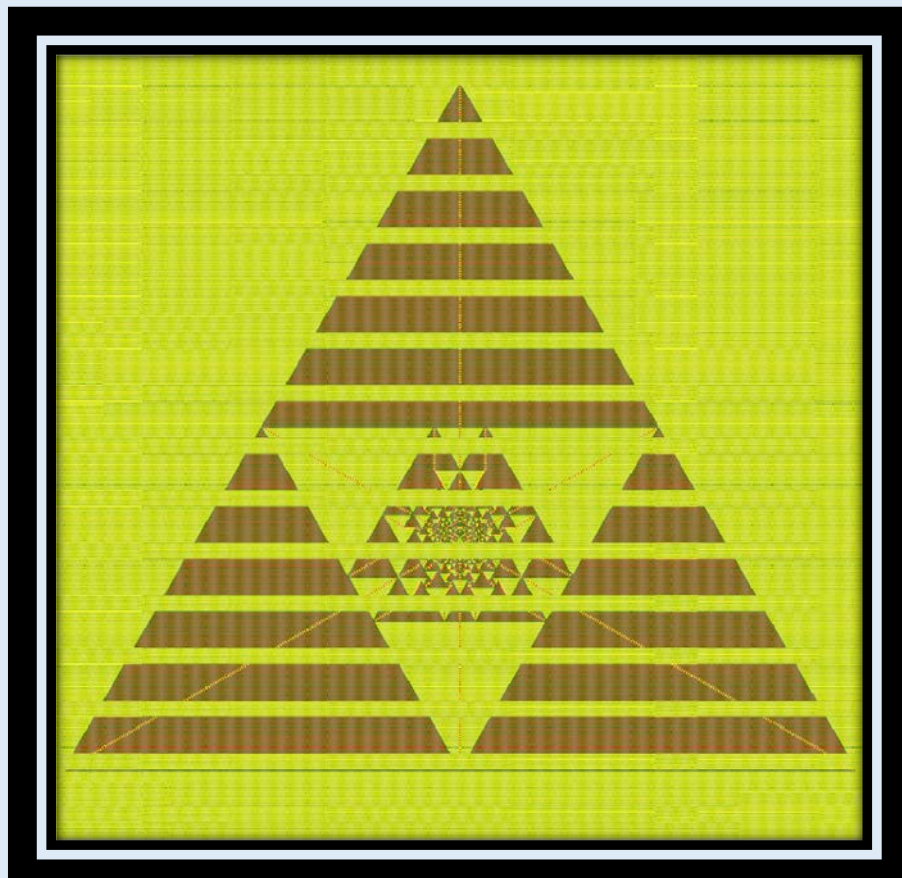


B3-VIII
Department of
Theoretical Physics
(DTP)



Department of Theoretical Physics

1. Name of the Department : Department of Theoretical Physics (DTP)
2. Year of establishment : 1945
TIFR was divided into Research Groups in the period 1945 – 1997.
The present Departments were formed on December 12, 1997.
3. Is the Department part of a School/Faculty of the university?
The DTP is a part of the Faculty of Natural Sciences.
4. Names of programmes offered (UG, PG, M.Phil., Ph.D., Integrated Masters; Integrated Ph.D., D.Sc., D.Litt., etc.)
 1. Ph.D.
 2. Integrated M.Sc.-Ph.D.
 3. M. Phil

No students are admitted purely for an M.Phil programme. However, sometimes students in the Ph.D. and Integrated Ph.D. programmes are permitted to leave with an M.Phil. degree provided they have successfully completed the Course Work and an M.Phil. dissertation.
5. Interdisciplinary programmes and departments involved
The DTP does not offer interdisciplinary programmes. However, there is a lot of research collaboration among Departments and the graduate school has Instructors drawn from all the five Physics Departments in Colaba.
6. Courses in collaboration with other universities, industries, foreign institutions, etc.
A list of courses taught by DTP faculty outside TIFR in the period **2011 – 2015** follows.

	Institution	Course Name	Faculty member	Year
1.	CBS, Mumbai	Quantum Field Theory	S. Raychaudhuri	2015
2.	CBS, Mumbai	Quantum Field Theory	S. Raychaudhuri	2014
3.	CBS, Mumbai	Advanced Condensed Matter Physics	R. Sensarma	2013
4.	CBS, Mumbai	Introductory Particle Physics	S. Raychaudhuri	2013
5.	U. of Mumbai	Quantum Field Theory	K. Sridhar	2012
6.	CBS, Mumbai	Advanced Quantum Mechanics	S. Raychaudhuri	2012
7.	IIT Mumbai	Statistical Physics	K. Damle	2011

8.	CBS, Mumbai	Quantum Mechanics II	S. Raychaudhuri	2011
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7. Details of programmes discontinued, if any, with reasons

No programmes have been discontinued since the inception of the TIFR University.

8. Examination System: Annual/Semester/Trimester/Choice Based Credit System

Students of the DTP are offered a Course Work programme based on a mixture of compulsory Core Courses, choice-based Elective Courses and compulsory Project Work, on topics of their own choice. The detailed structure is given in the table below.

Programme	Duration (years)		Basic & Core Credits	Elective Credits	Project Credits	Total Credits
	Overall	Coursework				
Ph.D.	5	1.5	28	16	16	60
Int. M.Sc.-Ph.D.	6	2.5	56	28	16	100

N.B. Integrated M.Sc.-Ph.D. students who join after 4 years B.Sc. or equivalent are required to do only 36 Core Credits, i.e. 80 Credits in total.

The Academic Session is divided into two semesters: the Autumn Semester (August – November) and the Spring Semester (February – May). In addition, there may be courses run during the Winter break (December – January) and Summer break (May – July). Students who are not doing courses during the breaks are encouraged to participate in research projects with faculty members of their choice.

In each one-semester semester, students are evaluated by a Continuous Evaluation process consisting of

1. Assignments
2. Quizzes
3. Mid-semester Examination
4. End-semester Examination
5. Term paper (optional)

All students are required to do 16 Credits of Project work in their allotted Departments as a part of the Coursework. In Departmental Project I (8 Credits), they are required to study a topic of current interest outside of the textbooks and write a report on the state of art in that subject. In Departmental Project II (8 Credits), they are required to do a small original work, preferably (but not compulsorily) in the same area, or review some highly technical work which is

known to be very difficult. Both these Projects are evaluated by a Committee of Faculty Members drawn from the different Departments.

9. Participation of the department in the courses offered by other departments

TIFR Physics Courses are divided into four levels, as per the table below.

Level	Course Content	Participation
I	Basic Subjects	All 5 Physics Departments jointly
II	Core Subjects	All 5 Physics Departments jointly
III	Review Courses (Basic Elective)	Relevant Department
IV	Topical Courses (Advanced Elective)	Relevant Department

Thus, DTP faculty are extensively involved in teaching the Level I and II courses in sharing with faculty from other Physics departments, and exclusively involved in teaching all Level III and IV courses in Advanced Quantum Mechanics, Quantum Field Theory, General Relativity and Cosmology, String Theory, Particle Physics, Advanced Condensed Matter Theory, Advanced Statistical Mechanics, and Many-Body Theory.

DTP students are free to choose Electives in other Departments, even outside Physics, in consultation with the Subject Board of Physics.

10. Number of faculty positions:

	Faculty Designation with DAE Grade	Abbreviation (Item 11)	Number
1.	Distinguished Professor (J)	Dist. Professor (J)	1
2.	Senior Professor (I)	Sr. Professor (I)	4
3.	Professor (H)	—	6
4.	Associate Professor (G)	Assoc. Professor (G)	3
5.	Reader (F)	—	6
6.	Fellow (E)	—	—
Total			20

11. Faculty profile with name, qualification, designation, area of specialization, experience and research under guidance

	Name of Faculty	Designation	Deg*	Specialisation	Exp [†]	Stu [‡]
1.	Deepak Dhar	Dist. Professor (J)	Ph.D.	Condensed Matter Physics	36	3
2.	Rajiv V. Gavai	Sr. Professor (I)	Ph.D.	High Energy Physics	30	2
3.	Gupta, Sourendu	Sr. Professor (I)	Ph.D.	High Energy Physics	23	1
4.	Sandip P.Trivedi	Sr. Professor (I)	Ph.D.	String Theory,	17	5

	Name of Faculty	Designation	Deg*	Specialisation	Exp [†]	Stu [‡]
		Director, TIFR		Cosmology		
5.	Gautam Mandal	Sr. Professor (I)	Ph.D.	String Theory	27	3
6.	Rajeev S. Bhalerao	Professor (H)	Ph.D.	High Energy Physics	31	0
7.	Shiraz Minwalla	Professor (H)	Ph.D.	String Theory	14	5
8.	K. Sridhar	Professor (H)	Ph.D.	High Energy Physics	21	0
9.	Amol Dighe	Professor (H)	Ph.D.	High Energy Physics	13	3
10.	Kedar Damle	Professor (H)	Ph.D.	Condensed Matter Physics	14	3
11.	Sreerup Raychaudhuri	Professor (H)	Ph.D.	High Energy Physics	17	3
12.	Vikram Tripathi	Assoc. Professor (G)	Ph.D.	Condensed Matter Physics	10	4
13.	Saumen Datta	Assoc. Professor (G)	Ph.D.	High Energy Physics	10	0
14.	Nilmani Mathur	Assoc. Professor (G)	Ph.D.	High Energy Physics	9	1
15.	Subhabrata Majumdar	Reader (F)	Ph.D.	Cosmology	9	2
16.	Rajdeep Sensarma	Reader (F)	Ph.D.	Condensed Matter Physics	4	2
17.	Rishi Sharma	Reader (F)	Ph.D.	High Energy Physics	3	0
18.	Tuhin S. Roy	Reader (F)	Ph.D.	High Energy Physics	2	0
19.	Basudeb Dasgupta	Reader (F)	Ph.D.	Astroparticle Physics	2	1
20.	Rishi Khatri	Reader (F)	Ph.D.	Cosmology	1	0

* Highest degree obtained

† Years of Experience as a regular Faculty Member (TIFR and elsewhere)

‡ Ph.D. students guided within the last 4 years (including those joined and those graduated)

12. List of senior Visiting Fellows, adjunct faculty, emeritus professors

	Adjunct Faculty	Home Institution	Country	Tenure	Specialisation
1.	Ribhu Kaul	U. of Kentucky	USA	2012-15	Cond. Matter Physics
2.	Frederic Deneff	Leuven U.	Belgium	2013-16	String Theory
3.	Jean-Yves Ollitrault	CNRS	France	2014-17	High Energy Physics
4.	Alexander Refregier	ETH, Zurich	Switzerland	2015-17	Cosmology
5.	Gautam Bhattacharyya	SINP, Kolkata	India	2015-17	High Energy Physics
6.	Gunnar Bali	U. of Regensburg	Germany	2015-18	High Energy Physics
7.	Satya N. Majumdar	CNRS, U. of Paris	France	2015-17	Cond. Matter Physics
8.	Sumit R. Das	U. of Kentucky	USA	2015-17	String Theory

13. Percentage of classes taken by temporary faculty – programme-wise information
DTP does not employ temporary faculty.
14. Programme-wise Student Teacher Ratio

	Programme	Students (S)	Faculty (F)	Ratio S/F
1.	Ph.D.	21	20	1.03
2.	Integrated M.Sc.-Ph.D.	15	20	0.75
3.	M.Sc.	–	–	–

15. Number of academic support staff (technical) and administrative staff:

	Scientific & Technical Staff	Administrative & Auxiliary Staff	Total
DTP	3	3	6

16. Research thrust areas as recognized by major funding agencies
- String Theory and Mathematical Physics
 - High Energy Physics, including Lattice Gauge Theory
 - Cosmology and Astroparticle Physics
 - Statistical and Condensed Matter Physics
17. Number of faculty with ongoing projects from a) national b) international funding agencies and c) Total grants received. Give the names of the funding agencies, project title and grants received project-wise.

National

	Agency	Project Title	Total Grant (Rs. lakhs)	Duration (years)	Faculty member
1.	DST	Ramanujan Fellowship	28.10	6	Saumen Datta
2.	DST	Ramanujan Fellowship	26.10	7	Kedar Damle
3.	DST	Swarnajayanti Fellowship.	20.30	8	Shiraz Minwalla
4.	UGC	Field Theories with High-Spin Symmetries and High-Spin Gravities	15.49	3	Shiraz Minwalla
5.	DST	Holography and Its Applications	15.31	3	Sandip P. Trivedi
6.	DST	Spin Dependent Phenomena In Quasi Two Dimensional Structures & Films with Magnetic Impurities	4.16	3	Vikram Tripathi

7.	DST	Using Conformal Field Theory Description Of Hawking Radiation	2.48	3	Gautam Mandal
8.	DST	MONAMI : Modeling of Nano-Scaled Advanced Materials Intelligently	1.52	8	Vikram Tripathi
9.	DST	Effect of Disorder and Inclusions on Transport and Magnetic Properties of Dilute Magnetic Semiconductors	2.66	5	Vikram Tripathi
10.	DST	Statistical Mechanics Of Polymers & Systems Far From Equilibrium	1.62	5	Deepak Dhar
11.	DST	Ramanujan Fellowship	7.60	5	Basudeb Dasgupta
12.	DST	J. C. Bose Fellowship	48.10	6	Rajiv V. Gavai
13.	DST	J.C.Bose Fellowship	18.60	10	Deepak Dhar
14.	DST	Ramanujam Fellowship	35.83	8	Nilmani Mathur
15.	DST	Swarnajayanti Fellowship	25.00	6	Amol Dighe
16.	DST	J.C. Bose Fellowship	34.20	5	Sourendu Gupta
17.	DST	J.C. Bose Fellowship	23.60	5	Sandip P. Trivedi
18.	DST	Swarnajayanti Fellowship	50.00	5	Vikram Tripathi

International

	Agency	Project Title	Total Grant (Rs. lakhs)	Duration (years)	Faculty member
1.	IFCPAR	Computational Studies Of Frustrated Quantum Magnets	2.61	4	K.S. Damle
2.	IFCPAR	Extreme QCD In The LHC Era	1.88	4	R.S.Bhalerao
3.	ICTP	Siemen Fellowship	9.00	5	Subhabrata Majumder

18. Inter-institutional collaborative projects and associated grants received

(a) National

	Collaborating Institutions	Project Title	Total Grant (Rs. lakhs)	Duration (years)	Faculty member
1.	TIFR U. of Calcutta	Glimpsing New Physics through the LHC (BRNS)	15.00	3	Sreerup Raychaudhuri

(b) International

	Collaborating Institutions	Project Title	Total Grant (Rs. lakhs)	Duration (years)	Faculty member
2.	TIFR, CERN	CERN School (DST)	33.60	5	Rajiv V. Gavai

19. Departmental projects funded by DST-FIST; UGC-SAP/CAS, DPE; DBT, ICSSR, AICTE, etc.; total grants received.

	Agency	Project Title	Total Grant (Rs. lakhs)	Duration	Faculty
1.	DAE	XII Plan Project -- DTP	448	5 years	All DTP faculty
2.	DAE	XII Plan Project – Indian Lattice Gauge Theory Initiative	5326	5 years	Lattice gauge theory group

20. Research facility / centre with
- state recognition :
 - national recognition :
 - international recognition :

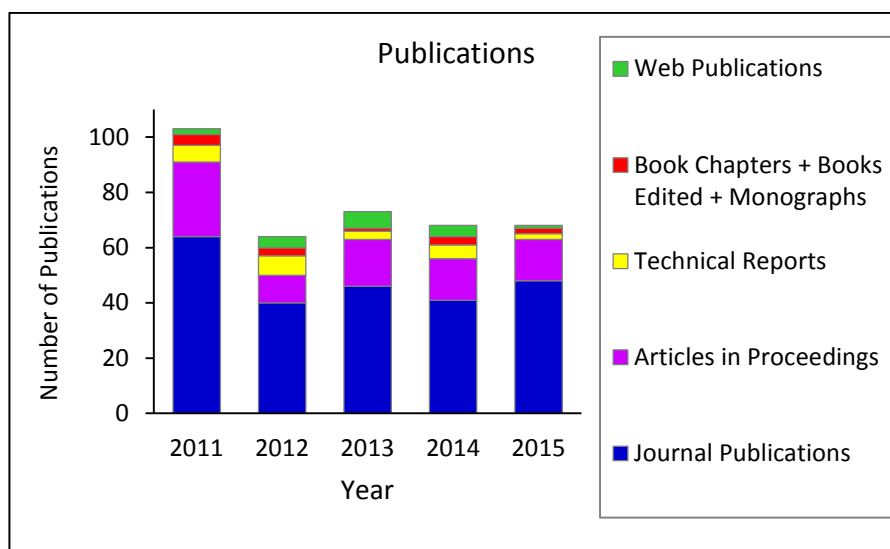
At present, there are none such in the DTP.

21. Special research laboratories sponsored by / created by industry or corporate bodies

At present, there are none such in the DTP.

22. Publications:

DTP	Journal Publications	Articles in Proceedings	Technical Reports	Web Publications	Book Chapters	Books Edited	Mono-graphs
2010-11	64	27	6	2	3	1	—
2011-12	40	10	7	4	2	1	—
2012-13	46	17	3	6	—	—	1
2013-14	41	15	5	4	1	—	2
2014-15	48	15	2	1	1	1	—
Total	239	84	23	17	7	3	3



* Books with ISBN with details of publishers

1. *Particle Physics of Brane Worlds and Extra Dimensions*

S. Raychaudhuri and K. Sridhar, Cambridge Monographs on Mathematical Physics, Cambridge University Press (2016), ISBN: 9780521768566.

* Citation Index :

Total number of citations : 53800

Number of citations per faculty: 2690

* h-index : 9 – 46

23. Details of patents and income generated

DTP has none in the period 2011-15.

24. Areas of consultancy and income generated

DTP has none in the period 2011-15.

25. Faculty selected nationally / internationally to visit other laboratories / institutions / industries in India and abroad

National Visits :

	Faculty member	Place Visited and Occasion	Date
1.	Deepak Dhar	Workshop on Soft, driven and biological matter, Department of Physics, Univ. of Pune.	03/2015
2.	Basudeb Dasgupta	LHC-DM workshop, Indian Association for Cultivation of Science, Kolkata.	02/2015
3.	Deepak Dhar	Indian Statistical Physics Community Meeting, ICTS, Bengaluru.	02/2015
4.	Deepak Dhar	Golden Jubilee lecture; Chennai Mathematical Institute Chennai.	02/2015
5.	K. Sridhar	IIT, Guwahati	02/2015
6.	K. Sridhar	Workshop on LHC and Dark Matter; Indian Association for the Cultivation of Science (IACS), Kolkata.	02/2015
7.	Kedar Damle	ICTP-JNU Workshop on Frustrated Magnetism, New Delhi.	02/2015
8.	Rajeev S. Bhalerao	International Conference on Physics & Astrophysics of Quark-Gluon Plasma (ICPAQGP), Kolkata	02/2015
9.	Rishi Sharma	Workshop on QCD at high density, TIFR.	02/2015
10.	Sourendu Gupta	Conference on Perspectives and Challenges in Lattice Gauge Theory, TIFR.	02/2015
11.	Sreerup Raychaudhuri	Workshop on LHC and Dark Matter, Indian Association for the Cultivation of Sciences.	02/2015
12.	Subhabrata Majumdar	StatCosmo2015, ISI, Kolkata,	02/2015
13.	Subhabrata Majumdar	ISI, Kolkata.	02/2015
14.	Tuhin S. Roy	Indian Association for the Cultivation of Science Kolkata from February.	02/2015
15.	Tuhin S. Roy	LHCDM-2015 Workshop, Indian Association for the Cultivation of Science, Kolkata.	02/2015
16.	Rajdeep Sensarma	IISER Kolkata	01/2015
17.	Rajeev S. Bhalerao	Workshop on QCD at High Density, TIFR, Mumbai.	01/2015
18.	Amol Dighe	XXI DAEBRNS HEP Symposium.	12/2014
19.	Shiraz Minwalla	21st BNRS DAE symposium on High Energy Physics, IIT Guwahati, India	12/2014
20.	Amol Dighe	Symposium on Neutrinos and INO, Indian Academy of Sciences Annual meeting.	11/2014

	Faculty member	Place Visited and Occasion	Date
21.	K. Sridhar	CHEP, IISc, Bengaluru	11/2014
22.	Deepak Dhar	3rd S. Datta Majumdar Memorial Lecture; IIT, Kharagpur.	10/2014
23.	Rajiv V. Gavai	Physical Research Laboratory, Ahmedabad.	10/2014
24.	Rajdeep Sensarma	SN Bose National Center for Basic Sciences .	09/2014
25.	Amol Dighe	Vision meeting in nuclear, particle and high energy physics; HBCSE, Mumbai.	08/2014
26.	Deepak Dhar	Dynamic Days Asia-Pacific 08; IMSc Chennai.	07/2014
27.	Sreerup Raychaudhuri	SERC-THEP Preparatory School, BITS Pilani, Hyderabad Campus.	07/2014
28.	Amol Dighe	Physics Symposium (SYMPHY 2014), IIT Bombay.	04/2014
29.	Subhabrata Majumdar	Aspects of Cosmology Conference IIA, Bengaluru.	04/2014
30.	Subhabrata Majumdar	ICTS Cosmology Day.	04/2014
31.	Rishi Sharma	International Seminar on Current Trends in Quantum Gases, BEC and Solitons, Punjab University, Chandigarh.	03/2014
32.	Deepak Dhar	National Seminar on Nonequilibrium Complex Systems, Hindique Girls' College, Guwahati.	02/2014
33.	Deepak Dhar	National Seminar on Non-equilibrium Complex Systems, Hindique Girls' College, Guwahati.	02/2014
34.	Gautam Mandal	HRI, Allahabad.	02/2014
35.	Gautam Mandal	IACS, Kolkata.	02/2014
36.	Rajdeep Sensarma	Workshop on Cold Atoms, HRI Allahabad.	02/2014
37.	Rajdeep Sensarma	HRI Allahabad.	02/2014
38.	Rajeev S. Bhalerao	6th Asian Nuclear Physics Association Symposium (ANPhAS-2014), VECC, Kolkata,.	02/2014
39.	Nilmani Mathur	International Conference on Matter at Extreme Conditions : Then & Now, Bose Institute, Kolkata.	01/2014
40.	Rajdeep Sensarma	INDIA UK GATI Conference, Kolkata,	01/2014
41.	Sourendu Gupta	Matter in Extreme Conditions: Then and Now, Bose Institute, Kolkata.	01/2014
42.	Sourendu Gupta	STAR Regional Meeting, IOP, Bhubaneswar.	01/2014
43.	Subhabrata Majumdar	Symposium on Astroparticle & Nuclear Physics, Jamia Milia Islamia.	01/2014
44.	Deepak Dhar	NISER Foundation day Lecture; N.I.S.E.R., Bhubaneswar.	12/2013
45.	Deepak Dhar	Conference on Non-linear Systems and Dynamics 2013,	12/2013

	Faculty member	Place Visited and Occasion	Date
		Indian Institute of Technology, Indore.	
46.	Kedar Damle	International Conference on Computational Physics sponsored by Indian Academy of Sciences, Coorg.	12/2013
47.	Rishi Sharma	WHEPP 2013, Puri.	12/2013
48.	Amol Dighe	INO-LBNE Meeting, TIFR Mumbai.	11/2013
49.	Deepak Dhar	NIUS seminar, HBCSE.	11/2013
50.	Sourendu Gupta	79th Annual Meeting of the Indian Academy of Sciences, Chandigarh.	11/2013
51.	Sreerup Raychaudhuri	SINP, Kolkata	11/2013
52.	Rajiv V. Gavai	Physics Department, IISER, Bhopal.	10/2013
53.	Gautam Mandal	String theory Workshop, ICTS,	09/2013
54.	Gautam Mandal	ICTS TIFR, Bengaluru.	09/2013
55.	Rajiv V. Gavai	School of Physical Sciences, NISER, Bhubaneshwar.	09/2013
56.	Sourendu Gupta	International conference on Triggering Discoveries; 1) Univ of Jammu, Jammu.	09/2013
57.	Sourendu Gupta	Indo- Belgian Meeting on Double Parton Scattering, Panjab University, Chandigarh.	09/2013
58.	Subhabrata Majumdar	Field Theoretic Aspects of Gravity, IIT-Gandhinagar, Ahmedabad.	09/2013
59.	Subhabrata Majumdar	India-UChicago @ TIFR Bilateral Meeting, TIFR, Mumbai.	09/2013
60.	Rajdeep Sensarma	IISER Pune .	08/2013
61.	Amol Dighe	Mid-year Meeting of Indian Academy of Sciences, IISc Bengaluru.	07/2013
62.	Rajeev S. Bhalerao	STAR Regional Meeting and Discussion on Phases of QCD, NISER/IoP, Bhubaneshwar.	07/2013
63.	Sourendu Gupta	STAR Regional Meeting, IOP, Bhubaneshwar.	07/2013
64.	Rajeev S. Bhalerao	National Initiative on Undergraduate Science (NIUS) Camp, HBCSE, Mumbai.	06/2013
65.	Subhabrata Majumdar	Advances in Astro-particle Physics & Cosmology, IAS, Shimla.	06/2013
66.	Deepak Dhar	Workshop on Applications of Game Theory, TIFR.	05/2013
67.	Amol Dighe	National meeting on Heavy Flavour (HFmeet 2013), IIT Bombay.	04/2013
68.	Rajdeep Sensarma	IISER Bhopal.	04/2013
69.	Sourendu Gupta	Heavy Flavour QCD Meeting, IIT Bombay, Mumbai.	04/2013
70.	Subhabrata Majumdar	Indo-USA Frontiers of Science, Agra.	04/2013

	Faculty member	Place Visited and Occasion	Date
71.	Subhabrata Majumdar	ICTS Planck Day, ICTS, Bengaluru.	04/2013
72.	Subhabrata Majumdar	ICTS, Bengaluru.	04/2013
73.	Gautam Mandal	27 th IAGRG meeting, Srinagar, UP.	03/2013
74.	Amol Dighe	NC-HEPC 2013 (National Conference on High Energy Physics and Cosmology), Guwahati University.	02/2013
75.	Nilmani Mathur	6th Asian Nuclear Physics Association Symposium, VECC, Kolkata.	02/2013
76.	Rajeev S. Bhalerao	National Conference on Theoretical Physics, Tezpur University.	02/2013
77.	Deepak Dhar	Conference on Condensed Matter and Biology, Banaras Hindu University, Varanasi.	01/2013
78.	Deepak Dhar	Diversity and Complexity: Realm of Today's Statistical Physics, Saha Institute of Nuclear Physics, Kolkata.	01/2013
79.	Rajdeep Sensarma	Indian Association for the Cultivation of Science, Kolkata.	01/2013
80.	Saumen Datta	Workshop on Nonperturbative gauge theories, holography and all that, Indian Institute of Science, Bengaluru.	01/2013
81.	Sourendu Gupta	Non-perturbative gauge theories, holography and all that, Bengaluru.	01/2013
82.	Sreerup Raychaudhuri	XX DAE-BRNS High Energy Physics Symposium, Visva-Bharati, Santiniketan	01/2013
83.	Sreerup Raychaudhuri	CMS Data Analysis School	01/2013
84.	Subhabrata Majumdar	Jamia Milia Islamia	01/2013
85.	Rajdeep Sensarma	Indian Institute of Science Bengaluru.	12/2012
86.	Rajdeep Sensarma	Discussion Meeting, Indian Institute of Science, Bengaluru.	12/2012
87.	Rajeev S. Bhalerao	DAE Symposium on Nuclear Physics -- orientation program, Delhi University.	12/2012
88.	Sandip P.Trivedi	Indian Strings Meeting, Puri.	12/2012
89.	Shiraz Minwalla	Indian String Meeting 2012, Puri.	12/2012
90.	Subhabrata Majumdar	Astronomical Surveys Symposium, TIFR, Mumbai.	12/2012
91.	Deepak Dhar	Anual meeting of Computer Society of India, ISI, Kolkata.	11/2012
92.	Saumen Datta	India Institute of Science, Bengaluru.	11/2012
93.	Sreerup Raychaudhuri	Workshop on Frontiers in Physics, University of Hyderabad	11/2012
94.	Subhabrata Majumdar	Dark Energy Workshop, HRI, Allahabad.	11/2012

	Faculty member	Place Visited and Occasion	Date
95.	Gautam Mandal	ICTS Discussion meeting on Spacetime without Scattering ICTS, Bengaluru.	09/2012
96.	Saumen Datta	Harish Chandra Research Institute, Allahabad.	09/2012
97.	Sourendu Gupta	20th CBM Collaboration Meeting, Kolkata.	09/2012
98.	K. Sridhar	Top-Higgs Meeting, Centre for High Energy Physics, IISc, Bengaluru	08/2012
99.	Sreerup Raychaudhuri	Top-Higgs Meeting, Centre for High Energy Physics, IISc, Bengaluru .	08/2012
100.	Sreerup Raychaudhuri	Workshop on Higgs and New Physics at the Energy Frontiers Saha Institute of Nuclear Physics, Kolkata.	08/2012
101.	Rajeev S. Bhalerao	5th Workshop on Ultra-relativistic Heavy-Ion Collisions – QGP Meet 2012, VECC, Kolkata.	07/2012
102.	Rajiv V. Gavai	QGP Meet 2012, VECC, Kolkata.	07/2012
103.	Gautam Mandal	IACS (Kolkata)	06/2012
104.	Gautam Mandal	ICTS Discussion meeting in String theory, ICTS, Bengaluru.	06/2012
105.	Amol Dighe	Conference on B Physics at the LHC, Kolkata.	03/2012
106.	Rajeev S. Bhalerao	Workshop on the Frontiers of Nuclear and Particle Physics, AMU, Aligarh.	03/2012
107.	Sreerup Raychaudhuri	Workshop on Recent Developments in Particle Physics Phenomenology, University of Calcutta,.	03/2012
108.	Deepak Dhar	Current trends in Condensed Matter Physics, Indian Inst. Science, Bengaluru.	02/2012
109.	Nilmani Mathur	B Physics at the LHC, Kolkata.	02/2012
110.	Sreerup Raychaudhuri	University of Calcutta	02/2012
111.	Vikram Tripathi	International Conference on Physics and Chemistry of Spintronics Material, Coorg.	02/2012
112.	Deepak Dhar	Young Investigators Meeting, Lonavala,	01/2012.
113.	Deepak Dhar	International Nonequilibrium Winter School, IISER, Kolkata.	01/2012
114.	Deepak Dhar	Network Science in Electrical Engineering and Computer Science, Indian Inst. Science, Bengaluru.	01/2012
115.	Gautam Mandal	ICTS Program on Random matrix theory and applications, IISc, Bengaluru	01/2012
116.	Kedar Damle	ICTS Random Matrix Theory workshop, Bengaluru.	01/2012
117.	Rajiv V. Gavai	Workshop on High Energy Physics Phenomenology XII, Mahabaleswar.	01/2012
118.	Sourendu Gupta	VECC, Kolkata.	01/2012
119.	Gautam Mandal	CTS Discussion Meeting on String Theory and applications Strongly Correlated Systems and AdS/CFT,	12/2011

	Faculty member	Place Visited and Occasion	Date
		International workshop, IISc, Bengaluru.	
120.	Gautam Mandal	International Conference on Theoretical & Applied Physics, Department of Physics and Meteorology, IIT Kharagpur	12/2011
121.	Sandip P.Trivedi	National String Meeting, Delhi.	12/2011
122.	Shiraz Minwalla	National Strings Meeting, New Delhi.	12/2011
123.	Sourendu Gupta	IIT Kharagpur.	12/2011
124.	Sourendu Gupta	International Conference on Theoretical and Applied Physics, IIT Kharagpur.	12/2011
125.	Subhabrata Majumdar	COSGRAV 12, ISI Kolkata.	12/2011
126.	Vikram Tripathi	ICTS Condensed Matter Programme 2011, Bengaluru.	12/2011
127.	Kedar Damle	Indian Academy of Sciences sponsored Indo-Swedish meeting on Magnetism, Coorg.	11/2011
128.	Rajeev S. Bhalerao	Indo-French Theme Meeting on Physics with Radioactive Ion Beam, BARC, Mumbai.	11/2011
129.	Sourendu Gupta	IISc Bengaluru.	11/2011
130.	Subhabrata Majumdar	IISER, Mohali.	11/2011
131.	Subhabrata Majumdar	Jamia Milia Islamia University, New Delhi.	11/2011
132.	Deepak Dhar	Econophysics of systemic risk and network analysis, Saha Inst. Nucl. Phys., Kolkata.	10/2011
133.	Kedar Damle	HRI Workshop on Condensed Matter Physics, Allahabad.	10/2011
134.	Kedar Damle	Fifth Indo-Israeli Condensed Matter Physics Meeting, Kochi.	10/2011
135.	Shiraz Minwalla	Workshop on Higher Spin Theories, HRI, Allahabad.	10/2011
136.	Vikram Tripathi	Indo-Israeli Meeting on Condensed Matter Physics, Ramada Inn, Kochi	10/2011
137.	K. Sridhar	10th International Symposium on Radiative Corrections – RADCOR 2011, Mahabalipuram	09/2011
138.	Amol Dighe	Lepton-Photon 2011 Symposium, TIFR, Mumbai.	08/2011
139.	Nilmani Mathur	Quarks, Hadrons and LHC, IIT Bombay, Mumbai.	08/2011
140.	Shiraz Minwalla	Lepton Photon 2011, TIFR, Mumbai.	08/2011
141.	Sourendu Gupta	NISER, Bhubaneshwar.	08/2011
142.	Sourendu Gupta	A Scale for the phase diagram of QCD, XXV International Symposium on Lepton Photon Interactions at High Energies, TIFR, Mumbai.	08/2011
143.	Sreerup Raychaudhuri	Workshop on Confronting Particle-Cosmology with Data from Planck and the LHC, IUCAA, Pune.	08/2011

	Faculty member	Place Visited and Occasion	Date
144.	Subhabrata Majumdar	Indo-UK Scientific Seminar, IUCAA.	08/2011
145.	Subhabrata Majumdar	IUCAA, Pune.	08/2011
146.	Subhabrata Majumdar	Indian Conference on Cosmology and Galaxy Formation, IISER-Mohali.	08/2011
147.	Gautam Mandal	TIFR-ICTS Summer Workshop, ICTS, Bengaluru	06/2011
148.	Sourendu Gupta	IoP, Bhubaneswar.	06/2011
149.	Rajeev S. Bhalerao	CBM + STAR collaboration meeting, VECC, Kolkata.	04/2011
150.	Vikram Tripathi	International Conference on Functional Materials, Harish-Chandra Research Institute, Allahabad,	04/2011
151.	Amol Dighe	International Workshop on Neutrino-Nucleus Interactions (NuInt11), Dehradun.	03/2011
152.	Deepak Dhar	SPS @ 25', Jawaharlal Nehru Univ, New Delhi.	03/2011.
153.	Gautam Mandal	ICTS Discussion Meeting on String Theory and applications to Condensed Matter Physics and QCD, TIFR.	03/ 2011
154.	Gautam Mandal	ICTS Discussion Meeting on String Theory and applications to Condensed Matter Physics and QCD, TIFR.	03/ 2011
155.	Rajeev S. Bhalerao	Recent Trends in Nuclear and Particle Physics, under the UGC Networking Programme, BHU, Varanasi.	03/2011
156.	Sourendu Gupta	ICTS Discussion Meeting on Applied String Theory, TIFR, Mumbai,	03/2011
157.	Sreerup Raychaudhuri	Workshop on New Trends in Nuclear and Particle Physics, BHU Varanasi	03/2011
158.	Sreerup Raychaudhuri	National Conference on Particle Physics and Cosmology, Burdwan University	03/2011
159.	Subhabrata Majumdar	National Conference on Particle Physics and Cosmology, University of Burdwan	03/2011.
160.	Subhabrata Majumdar	Advances in Astroparticle Physics and Cosmology, Darjeeling	03/2011
161.	Gautam Mandal	QFT 2011, IISER, Pune	02/2011
162.	Sreerup Raychaudhuri	High Energy Physics Conference in memory of Prof. S.D. Joglekar, IIT Kanpur	02/2011
163.	Subhabrata Majumdar	29th Meeting of the Astronomical Society of India, Raipur	02/2011
164.	Subhabrata Majumdar	Indian Statistical Institute, Kolkata.	02/2011
165.	Amol Dighe	Project-X meeting, TIFR Mumbai	01/2011

	Faculty member	Place Visited and Occasion	Date
166.	Gautam Mandal	Indian Strings Meeting 2011, Puri	01/2011.
167.	Shiraz Minwalla	Indian Strings Meeting 2011, Puri	01/2011
168.	Sreerup Raychaudhuri	International Workshop on Dark Matter in the LHC Era: Direct and Indirect Searches, SINP Kolkata.	01/2011
169.	Sreerup Raychaudhuri	Workshop on Synergy between High Energy and High Luminosity Frontiers, TIFR Mumbai	01/2011
170.	Subhabrata Majumdar	Centre for Astro Particle Physics, Saha Institute of Nuclear Physics. Kolkata	01/2011
171.	Subhabrata Majumdar	Dark Matter in the LHC Era: Direct and Indirect Searches, SINP, Kolkata	01/2011
172.	Gautam Mandal	Indian Institute of Science, Bengaluru, in	12/2010
173.	Sandip P.Trivedi	Chandrasekhar Discussion meeting, Bengaluru.	12/2010
174.	Sandip P.Trivedi	DAE Symposium, String Theory and Phenomenology.	12/2010
175.	Sandip P.Trivedi	Conference on Primordial Features and Non-Gaussianity, HRI, Allahabad.	12/2010
176.	Vikram Tripathi	Indian Institute of Science, Bengaluru	12/2010
177.	Gautam Mandal	Indian Institute of Science, Bengaluru	05/2010

International Visits :

	Faculty member	Place visited and Occasion	Date
1.	Shiraz Minwalla	Eurostrings 2015, Cambridge, UK.	03/2015
2.	Shiraz Minwalla	Holography, Strings and Higher Spins, Swansea, UK.	03/2015
3.	Basudeb Dasgupta	DARK-MALT Workshop, Munich Institute for Astro-Particle Physics, Munich.	02/2015
4.	Rajdeep Sensarma	University of Pittsburgh, Pittsburgh, USA.	02/2015
5.	Shiraz Minwalla	2nd Workshop on Developments in M Theory, Gangwon-do, Korea.	01/2015
6.	Vikram Tripathi	Sabbatical visit to Argonne National Laboratory and University of Chicago.	01/2015
7.	Deepak Dhar	6th Indo- Israeli meeting on Frontiers of Condensed Matter Physics, Jerusalem.	12/ 2014
8.	Shiraz Minwalla	Jo'burg workshop on Matrices, Holography and QCD, Johannesburg, South Africa.	12/2014
9.	Vikram Tripathi	IACS-APCTP Conference on Novel Oxide Materials and Low-Dimensional Systems, Seoul National University, Seoul, Korea.	12/2014
10.	Gupta, Sourendu	2014 CPOD Meeting, University of Bielefeld, Germany	11/2014
11.	Nilmani Mathur	CERN, Switzerland.	11/2014

	Faculty member	Place visited and Occasion	Date
12.	Nilmani Mathur	University of Regensburg, Germany.	11/2014
13.	Nilmani Mathur	Quarkonium 2014, CERN, Switzerland.	11/2014
14.	Rajiv V. Gavai	University of Regensburg, Germany	11/2014
15.	Shiraz Minwalla	2014 CPOD Meeting, University of Bielefeld, Germany.	11/2014
16.	Shiraz Minwalla	Seventh Taiwan String Workshop, Taipei.	11/2014
17.	Nilmani Mathur	University of St. Petersburg, Russia.	09/2014
18.	Nilmani Mathur	Confinement XI, St. Petersburg, Russia.	09/2014
19.	Rajiv V. Gavai	Institute of Theoretical Physics, Peking University, China.	09/2014
20.	Rajiv V. Gavai	Central China Normal University, Wuhan, China	09/2014
21.	Subhabrata Majumdar	Saclay, Paris .	09/2014
22.	Subhabrata Majumdar	Dark Matter@ETH Workshop.	09/2014
23.	Gupta, Sourendu	5th Asian Triangle Meeting on Heavy Ion Collisions, Univ of Osaka, Japan.	08/2014
24.	Nilmani Mathur	Mainz, Germany and Bern Switzerland.	08/2014
25.	Shiraz Minwalla	5th Asian Triangle Meeting on Heavy Ion Collisions, Univ of Osaka, Japan.	08/2014
26.	Subhabrata Majumdar	MIAPP Munich.	08/2014
27.	Subhabrata Majumdar	MIAPP Workshop, Cosmology after Planck, Munich.	08/2014
28.	Subhabrata Majumdar	ETH, Zurich.	07/2014
29.	Vikram Tripathi	Moscow International Symposium on Magnetism, Moscow State University, Moscow, Russia.	07/2014
30.	Deepak Dhar	Non-equilibrium problems in Physics and Mathematics, Ascona, Switzerland.	06/2014
31.	Kedar Damle	Nordita Workshop on Frustrated Magnetism; Stockholm.	06/2014
32.	Nilmani Mathur	TRIUMF, University of British Columbia, Canada.	06/2014
33.	Rajeev S. Bhalerao	SPhT, Saclay, France.	06/2014
34.	Rajiv V. Gavai	University of Bielefeld, Germany.	06/2014
35.	Rajiv V. Gavai	Lawrence Livermore National Laboratory, USA .	06/2014
36.	Shiraz Minwalla	Sabbatical visit to the Institute of advanced Study Princeton.	06/2014
37.	Shiraz Minwalla	Exotic Structures of Spacetime, Kyoto.	03/2014
38.	Shiraz Minwalla	Sabbatical at the Institute for Advanced Study.	03/2014
39.	Kedar Damle	LPT IRSAMC (Univ. Paul Sabatier Toulouse).	02/2014

	Faculty member	Place visited and Occasion	Date
40.	Subhabrata Majumdar	CITA, Toronto and Argonne National Laboratory, Chicago.	12/2013
41.	Subhabrata Majumdar	Texas Conference on relativistic Dark Matter, Dallas, USA.	12/2013
42.	Rajdeep Sensarma	University of Maryland, College Park	11/2013
43.	Rajdeep Sensarma	Ohio State University USA.	11/2013
44.	K. Sridhar	Small Systems far from Equilibrium Workshop, Max Planck Inst. for Physics of Complex Systems, Dresden.	10/2013
45.	Rajiv V. Gavai	Institut de Physique Theorique Saclay, France.	09/2013
46.	Gupta, Sourendu	Extreme QCD meeting, Bern, Switzerland.	08/2013
47.	Rajiv V. Gavai	University of Mainz, Germany .	08/2013
48.	Rajiv V. Gavai	University of Bern, Switzerland .	08/2013
49.	Rajiv V. Gavai	Brookhaven National Laboratory USA.	07/2013
50.	Shiraz Minwalla	String Theory, Black Holes and Holography, Kyoto.	07/2013
51.	Gautam Mandal	Sogang University, Seoul, Korea,	06/2013
52.	Gautam Mandal	7th Crete Regional Meeting in String Theory, Crete.	06/2013
53.	Rajeev S. Bhalerao	SPHT, Saclay, France.	06/2013
54.	Shiraz Minwalla	Strings 2013, Seoul, Korea.	06/2013
55.	Shiraz Minwalla	Utrecht FOM String Meeting.	06/2013
56.	Amol Dighe	Exploring the universe with neutrinos; Lepton- Photon Symposium (LP13), San Francisco, USA.	05/2013
57.	Subhabrata Majumdar	ICTP Trieste.	05/2013
58.	Gupta, Sourendu	Conference on Critical Point and the Onset of Deconfinement, Napa, USA,	03/2013
59.	Rajdeep Sensarma	University of Maryland, College Park, USA and University of Virginia, Charlottesville, USA and Baltimore, USA.	03/2013
60.	Shiraz Minwalla	Solvay Meeting on higher spins, Brussels.	02/2013
61.	Subhabrata Majumdar	ASIAA, Taipei, Taiwan.	02/2013
62.	Shiraz Minwalla	Joint London Triangle Seminar, ty College London, UK.	01/2013
63.	Amol Dighe	KIAS Phenomenology Workshop, Seoul, South Korea.	11/2012
64.	Kedar Damle	KITP Santa Barbara	10/2012
65.	Kedar Damle	SCGO, FRAGNETS12, KITP Santa Barbara.	10/2012
66.	Rajeev S. Bhalerao	The First Asia-Europe-Pacific School of High-Energy Physics, Fukuoka, Japan.	10/2012

	Faculty member	Place visited and Occasion	Date
67.	Rajiv V. Gavai	National Taiwan University, Taipei, Taiwan,	10/2012
68.	Rajiv V. Gavai	QCD Structure I Workshop, Central China Normal University, Wuhan, China,.	10/2012
69.	Gupta, Sourendu	Workshop on New Frontiers in Lattice Gauge Theory, Galileo Galilei Institute, Florence, Italy,	09/2012
70.	Kedar Damle	Conference on Innovations in Strongly correlated electronic systems, ICTP Trieste.	08/2012
71.	Rajeev S. Bhalerao	Lawrence Berkeley National Laboratory, USA.	08/2012
72.	Rajiv V. Gavai	Galileo Galilei Institute, Florence, Italy.	08/2012
73.	Rajiv V. Gavai	Workshop on New Frontiers in Lattice Gauge Theory, Galileo Galilei Institute, Florence, Italy,	08/2012
74.	Subhabrata Majumdar	Chinese Astronomical Society, Beijing, China.	08/2012
75.	Subhabrata Majumdar	University of Tokyo, Tokyo, Japan.	08/2012
76.	Subhabrata Majumdar	IAU 26th General Assembly, Beijing.	08/2012
77.	Vikram Tripathi	Moscow International Symposium on Magnetism (MISM-2011), Moscow State University.	08/2012
78.	Vikram Tripathi	LT26 conference on low temperature physics, Beijing.	08/2012
79.	Amol Dighe	NuFact12 (International Workshop On Neutrino Factories, Superbeams and Betabeams), USA, (Given remotely via video-link)	07/2012
80.	Gupta, Sourendu	International Conference on Heavy-ion collisions in the LHC era, in Qui Nhon, Vietnam.	07/2012
81.	Gupta, Sourendu	Workshop on Strong and Electro-Weak Matter, University of Swansea, Swansea, UK,.	07/2012
82.	K. Sridhar	DAMTP, Cambridge, U.K.	07/2012
83.	Rajeev S. Bhalerao	International Conference on Heavy-Ion Collisions in the LHC Era, Quy Nhon, Vietnam.	07/2012
84.	Subhabrata Majumdar	ETH, Zurich and ICTP, Trieste.	07/2012
85.	Subhabrata Majumdar	Workshop on LSS, ICTP-Trieste.	07/2012
86.	Amol Dighe	Invisibles conference, Florence, Italy.	06/2012
87.	K. Sridhar	String Phenomenology Meeting, Cambridge, UK.	06/2012
88.	Vikram Tripathi	P.N. Lebedev Physical Institute, Moscow Russia .	06/2012
89.	Rajeev S. Bhalerao	SPHT, Saclay, France .	05/2012
90.	Rajiv V. Gavai	Lawrence Berkeley National Laboratory, USA.	05/2012
91.	Rajiv V. Gavai	Los Alamos National Laboratory, USA	05/2012

	Faculty member	Place visited and Occasion	Date
92.	Shiraz Minwalla	Bits Branes and Black Holes, KITP Santa Barbara.	05/2012
93.	Gautam Mandal	University of Kentucky, Lexington.	04/2012
94.	Gupta, Sourendu	Institute of Nuclear Theory, Seattle, USA during	03/2012
95.	Vikram Tripathi	Cavendish Laboratory, University of Cambridge.	03/2012
96.	Gupta, Sourendu	Workshop on Critical Point and the Onset of Deconfinement, Central China Normal University, Wuhan, China,.	11/2011
97.	Gupta, Sourendu	Quarks and Hadrons under Extreme Conditions, Keio University in Tokyo, Japan.	11/2011
98.	Gupta, Sourendu	Tsukuba University, Tsukuba, Japan	11/2011
99.	Gupta, Sourendu	Keio University, Tokyo, Japan,	11/2011
100.	Gupta, Sourendu	Riken-BNL Workshop on Fluctuations, Correlations and the RHIC Beam Energy Scan; Brookhaven National Lab, USA.	10/2011
101.	Gupta, Sourendu	Central China Normal University, Wuhan, India	10/2011
102.	Gupta, Sourendu	Brookhaven National Lab, Long Island, USA,	10/2011
103.	Nilmani Mathur	STRONGnet 2011 Workshop on Computational Hadron Physics, ECT in Trento, Italy.	10/2011
104.	Subhabrata Majumdar	First eROSITA International Conference, Garmisch-Partenkirchen.	10/2011
105.	Subhabrata Majumdar	MPA, Munich.	10/2011
106.	Gupta, Sourendu	XLI International Symposium on Multiparticle Dynamics, Miyajima Island, Hiroshima, Japan.	09/2011
107.	Rajiv V. Gavai	University of Bielefeld, Germany, (Alexander von Humboldt Re- invitation).	09/2011
108.	Rajiv V. Gavai	International Conference on Strangeness in Quark Matter 2011, Cracow, Poland.	09/2011
109.	Rajiv V. Gavai	ExtreMe Matter Institute Workshop on Quarkonia in Deconfined Matter, Acitrezza, Italy.	09/2011
110.	Shiraz Minwalla	KIAS String Workshop, Sept 2011, Seoul, Korea.	09/2011
111.	Kedar Damle	ICTP workshop on Synergies between Field Theory and Exact Computational Methods, Trieste, Italy.	07/2011
112.	Kedar Damle	Toulouse Workshop of Quantum Magnetism and Strongly Correlated Systems, Toulouse, France.	07/2011
113.	Subhabrata Majumdar	A New Generation of Galaxy Cluster Surveys, Sesto.	07/2011
114.	Subhabrata Majumdar	IFCA, Santander and ICTP, Trieste	07/2011
115.	Gautam Mandal	6th Regional Meeting in String Theory, Milos, Greece.	06/2011

	Faculty member	Place visited and Occasion	Date
116.	Gupta, Sourendu	CEA Saclay, Gif sur Yvette, France,	06/2011
117.	Kedar Damle	University Paul Sabatier, Toulouse, as Visiting Faculty.	06/2011
118.	Nilmani Mathur	Jefferson Lab and University of Kentucky.	06/2011
119.	Rajiv V. Gavai	Physics Department, Brookhaven National Laboratory.	06/2011
120.	Shiraz Minwalla	Strings 2011, Upsalla	06/2011
121.	Subhabrata Majumdar	A New Era for SZ Science, Santander,	06/2011
122.	Amol Dighe	Hamburg Neutrinos from Supernova Explosions (HANSE 2011) Workshop DESY, Hamburg, Germany.	05/2011
123.	Rajeev S. Bhalerao	SPhT, Saclay, France .	05/2011
124.	Sandip P.Trivedi	SITP Seminar, Stanford University.	05/2011
125.	Shiraz Minwalla	Solvay Meeting, Brussels.	05/2011
126.	Shiraz Minwalla	KITP Santa Barbara.	05/2011
127.	Kedar Damle	Indo-US Forum organized symposium Frontiers of Science 2011, Irvine, USA.	04/2011
128.	Sandip P.Trivedi	ASICTP, Workshop on Applied AdS/CFT.	04/2011
129.	Shiraz Minwalla	Great Lakes String Meeting, Chicago.	04/2011
130.	Shiraz Minwalla	Royal Society Meeting on Condensed Matter Physics and String theory, Chicheley Hall, UK.	04/2011
131.	Rajeev S. Bhalerao	SPhT, Saclay, France.	01/2011

26. Faculty serving in

(a) National Committees :

	Faculty Member	Name of the Committee	Role on the Committee	Term of Service
1.	Amol Dighe	Physical Sciences Research Committee, CSIR	Member	2015 --
2.	Amol Dighe	Faculty Selection Committee, IIT Bombay	Member	2015
3.	Amol Dighe	National Organising Committee, NSPDI 2015 (National Symposium on Particles, Detectors and Instrumentation), Madurai	Member	2015
4.	Amol Dighe	National Organising Committee, Workshop on High Energy Physics Phenomenology (WHEPP 2016), IIT Kanpur	Member	2015
5.	Rajeev S. Bhalerao	Advisory Committee, 60th DAE-BRNS Symposium on Nuclear Physics	Member	2015

	Faculty Member	Name of the Committee	Role on the Committee	Term of Service
6.	Gupta, Sourendu	INSA Sectional Committee	Member	2014-
7.	Rajeev S. Bhalerao	Advisory Committee, DAE Symposium on Nuclear Physics, BHU, Varanasi	Member	2014
8.	Rajeev S. Bhalerao	Advisory Committee, Training Workshop on Detector and Physics Simulations for PANDA@Fair, Sardar Patel University	Member	2014
9.	Subhabrata Majumdar	Faculty Selection Committee, NISER, Bhubhaneswar	Member	2014
10.	Deepak Dhar	Governing Council, IACS	Member	2013-16
11.	Amol Dighe	Scientific Management Board, India-based Neutrino Observatory (INO)	Member Secretary	2013 -
12.	Gupta, Sourendu	First court of Central University of Gujarat	Member	2013-
13.	Amol Dighe	Organising Committee, Program on CP Violation in elementary particles and composite systems, Mahabaleshwar	Member	2013
14.	Amol Dighe	Academic Core Committee, International Junior Science Olympiad (IJSO 2013), Pune	Member	2013
15.	Basudeb Dasgupta	Scientific Advisory Committee, ICTS Workshop on Interface of Numerical Relativity with Gravitational-Wave Astronomy, Neutrino Physics and High-Energy Astrophysics	Member	2013
16.	Nilmani Mathur	National organizing committee, DAE Symposium on High Energy Physics	Member	2013
17.	Rajeev S. Bhalerao	National Advisory Committee National Conference on Nuclear Physics (NCNP-2013), Sambalpur University	Member	2013
18.	Rajiv V. Gavai	National Organizing Committee, 13 th Workshop on High Energy Physics Phenomenology, Puri	Co-convener	2013
19.	Subhabrata Majumdar	Faculty Selection Committee, ICTS-TIFR, Bengaluru	Member	2012,13
20.	Rajiv V. Gavai	PAC, International Cooperation, DST	Member	2012-
21.	Amol Dighe	Organising Committee, National Symposium on Particles, Detectors and Instrumentation (NSPDI), TIFR Mumbai	Member	2012
22.	Rajeev S. Bhalerao	Advisory Committee, DAE Symposium on Nuclear Physics, Delhi University	Member	2012

	Faculty Member	Name of the Committee	Role on the Committee	Term of Service
23.	Amol Dighe	National Organising Committee, Workshop in High Energy Physics Phenomenology (WHEPP-XII), Mahabaleshwar	Co-convener	2012
24.	Amol Dighe	National Organising Committee, ``Workshop on Synergy between High Energy and High Luminosity Frontiers'', TIFR Mumbai	Member	2011
25.	Amol Dighe	National Organising Committee, Lepton-Photon 2011, TIFR Mumbai, Aug 2011	Member	2011
26.	Rajeev S. Bhalerao	Organizing Committee, DAE Symposium on Nuclear Physics, Andhra University, Vishakhapatnam	Member	2011
27.	Rajeev S. Bhalerao	Advisory Committee, 5th DAE-BRNS Workshop on Hadron Physics, BARC, Mumbai	Member	2011
28.	Rajeev S. Bhalerao	Organizing Committee, International Workshop - Quarks, Hadrons, and LHC, IITB, Mumbai; Satellite workshop of XXV International Symposium on Lepton-Photon Interactions at High Energies (Lepton-Photon 11), TIFR, Mumbai 2011	Member	2011
29.	Subhabrata Majumdar	LOC, 7 th Internal Conference on Gravitation and Cosmology	Member	2011
30.	Subhabrata Majumdar	ICTS Public lecture committee for 'Universe Unravalled'	Member	2011
31.	Amol Dighe	Local Organising Committee, ``12th International Workshop on Neutrino Factories, Superbeams and beta beams'' (NuFact10), TIFR Mumbai	Member	2010
32.	Amol Dighe	National Organising Committee, ``XIX DAE-BRNS High Energy Physics Symposium'', LNMIIT Jaipur	Member	2010
33.	Rajiv V. Gavai	DAE-DST Task Force for CMS and ALICE	Member	2008-

(b) International Committees :

	Name of the Faculty Member	Name of the Committee	Role in the Committee	Term of Service
1.	Gupta, Sourendu	International Advisory Committee for Quark Matter 2017	Member	2017
2.	Amol Dighe	International Advisory Committee, International Conference on High Energy Physics (ICHEP 2016), Chicago	Member	2016
3.	Gupta, Sourendu	International Advisory Committee for ATHIC 2016	Member	2016
4.	Amol Dighe	International Advisory Committee, Lepton Photon 2015, Ljubljana, Slovenia	Member	2015
5.	Gupta, Sourendu	International Advisory Committee for Lattice 2015	Member	2015
6.	Gupta, Sourendu	International Advisory Committee for Lattice 2014	Member	2014
7.	Gupta, Sourendu	International Advisory Committee for ATHIC 2014	Member	2014
8.	Gupta, Sourendu	International Advisory Committee for NDQCD 2014	Member	2014
9.	Rajiv V. Gavai	International Advisory Committee, XXIV International Conference on Ultra-relativistic Nucleus-Nucleus Collisions, Germany	Member	2014
10.	Subhabrata Majumdar	SOC, Cosmology Day Workshop, ICTS	Member	2014
11.	Amol Dighe	International Advisory Committee, Topics in Astroparticle and Underground Physics (TAUP 2013), Asilomar, USA	Member	2013
12.	Rajeev S. Bhalerao	International Advisory Committee, International Symposium on Nuclear Physics, BARC, Mumbai	Member	2013
13.	Basudeb Dasgupta	ICTP Workshop on Future of Dark Matter and Astroparticle Physics	Scientific Secretary	2012
14.	Gupta, Sourendu	International Advisory Committee for ATHIC 2012	Member	2012
15.	Subhabrata Majumdar	SOC & LOC, Astronomical Surveys, ICTS	Member	2012
16.	Subhabrata Majumdar	SOC, 7 th Internal Conference on Gravitation and Cosmology	Member	2011
17.	Nilmani Mathur	International Advisory Committee, International Symposium on Lattice Field Theory	Member	2012-2014

	Name of the Faculty Member	Name of the Committee	Role in the Committee	Term of Service
18.	Amol Dighe	C11 Commission (Particles and Fields) of IUPAP (International Union of Pure and Applied Physics)	Member	2015 --

(c) Editorial Boards :

	Faculty Member	Name of the Journal	Impact Factor	Term of Service
1.	Gautam Mandal	European Journal of Physics C	5.084	Indefinite
2.	Rajiv V. Gavai	Nuclear Physics A	2.202	2010-
3.	Deepak Dhar	Physical Review E	1.779	2012-2015
4.	Deepak Dhar	J. Phys. A: Math. Gen	1.583	2015-
5.	Gautam Mandal	Modern Physics Letters A	1.338	Indefinite
6.	Deepak Dhar	J. Statistical Physics	1.202	2012-
7.	Deepak Dhar	Pramana	0.649	2012-2015
8.	Rajiv V. Gavai	Pramana	0.649	2007-14
9.	Gupta, Sourendu	Pramana	0.649	Indefinite

27. Faculty recharging strategies (UGC, ASC, Refresher / orientation programs, workshops, training programs and similar programs).

As all TIFR faculty members regularly participate in national and international research-oriented symposia, conferences, workshops and schools, often as the organizers or principal lecturers, they are always in touch with the state of the art in their areas of expertise. Therefore, no separate recharging/refresher programmes are needed, nor are any conducted. In fact, TIFR faculty are in great demand as lecturers in such programmes in other institutions, both inside and outside India.

28. Student projects

- percentage of students who have done in-house projects including inter- departmental projects

ALL (100%) TIFR students are required to do two Departmental Projects, viz. Departmental Project I and Departmental Project II (see Item 8 above).

- percentage of students doing projects in collaboration with other universities / industry / institute

Almost all TIFR faculty and laboratories have collaborations with scientists in India and abroad. Students of these faculty members and laboratories participate in these projects. Thus the percentage of students involved in such projects may be 95% or more.

29. Awards / recognitions received at the national and international level

National

	Awardee	Name of the Award/Honour	Year
1.	Kedar Damle	Fellow, IASc	2016
2.	Basudeb Dasgupta	Ramanujan Fellow	2015
3.	Shiraz Minwalla	Distinguished Alumnus, IIT Kanpur	2015
4.	Shiraz Minwalla	IIM Lucknow Young Leader Award	2014
5.	Gautam Mandal	Fellow, IASc	2014
6.	Vikram Tripathi	Swarnajayanti Fellow	2013
7.	Shiraz Minwalla	Infosys Prize	2013
8.	Amol Dighe	Fellow, INSA	2013
9.	Amol Dighe	Bhatnagar Prize	2013
10.	Sandip P.Trivedi	J.C.Bose Fellow	2012
11.	Sandip P.Trivedi	Fellow, INSA	2011
12.	Sourendu Gupta	Fellow, INSA	2011
13.	Shiraz Minwalla	Fellow, IASc	2011
14.	Sourendu Gupta	Fellow, IASc	2011
15.	Shiraz Minwalla	Bhatnagar Prize	2011
16.	Rajiv V. Gavai	J.C.Bose Fellow	2010
17.	Sourendu Gupta	J.C.Bose Fellow	2010
18.	Sandip P.Trivedi	Infosys Prize	2010
19.	Sandip Trivedi	Distinguished Alumnus, IIT Kanpur	2010
20.	Amol Dighe	Swarnajayanti Fellow	2009
21.	Kedar Damle	Birla Prize	2009
22.	Shiraz Minwalla	Swarnajayanti Fellow	2007
23.	Kedar Damle	Ramanujan Fellow	2007
24.	Nilmani Mathur	Ramanujan Fellow	2007
25.	Saumen Datta	Ramanujan Fellow	2007
26.	Vikram Tripathi	Ramanujan Fellow	2007
27.	Deepak Dhar	J.C.Bose Fellow	2007
28.	Rajiv V. Gavai	Fellow, INSA	2006
29.	Sandip Trivedi	Bhatnagar Prize	2005
30.	Rajeev Bhalerao	Fellow, Maharashtra Academy of Sciences	2005

	Awardee	Name of the Award/Honour	Year
31.	Rajiv Gavai	Fellow, IASc	2003
32.	Sandip Trivedi	Swarnajayanti Fellow	2002
33.	Deepak Dhar	Fellow, NASc	1999
34.	Deepak Dhar	Fellow, INSA	1995
35.	Deepak Dhar	Bhatnagar Prize	1991
36.	Deepak Dhar	Fellow, IASc	1990

International

	Awardee	Name of the Award/Honour	Year
1.	Sandip P.Trivedi	TWAS Prize in Physics	2016
2.	Subhabrata Majumdar	Simon Fellow, ICTP	2015
3.	Basudeb Dasgupta	Kavli Fellow, US National Academy of Sciences	2015
4.	Shiraz Minwalla	Nishina Asia Award	2013
5.	Shiraz Minwalla	New Horizons Physics Prize (Milner)	2013
6.	Subhabrata Majumdar	Kavli Fellow, US National Academy of Sciences	2013
7.	Shiraz Minwalla	ICTP Prize	2010
8.	Deepak Dhar	Fellow, TWAS	2006
9.	Deepak Dhar	TWAS Prize	2002
10.	Deepak Dhar	J.R. Schrieffer Prize, ICTP	1993

- **Students, Postdocs, Scientific Staff and Others:**

National Awards (in the period 2011- 15)

	Awardee	Name of the Award/Honour	Year
1.	Basudeb Dasgupta	INSA Young Scientist Medal	2011
2.	Diptimoy Ghosh	Rahul Basu Memorial award for best thesis, HEP	2012
3.	Nikhil Karthik	Rahul Basu Memorial award for best thesis, HEP	2014

International Awards : None in the period 2011- 15

30. Seminars/Conferences/Workshops organized and the source of funding (national / international) with details of outstanding participants, if any.

	Dates	Name	Main Funding	Faculty member(s)
1.	February 16-20, 2015	Perspectives and Challenges in Lattice Gauge Theory, TIFR	TIFR	Rajiv V. Gavai Sourendu Gupta Nilmani Mathur
2.	January 27-30, 2015	Workshop on QCD at High Density, TIFR	TIFR	Soumen Datta Sourendu Gupta Rishi Sharma
3.	November 6 – 17, 2014	2 nd Asia-Europe Pacific School in High Energy Physics, Puri	CERN, KEK, DAE	Sreerup Raychaudhuri
4.	January 9-18, 2014	8th Asian Winter School on Strings, Particles and Cosmology Puri.	TIFR, HRI, IMSc	Sandip P. Trivedi Gautam Mandal Shiraz Minwalla
5.	December 12-21, 2013	Workshop on High Energy Physics and Phenomenology (WHEPP13), Puri.	BRNS	Rajiv V. Gavai Sreerup Raychaudhuri
6.	September 21, 2013	Cosmology & Astrophysics (part of the India-UChicago@TIFR Meeting), TIFR	TIFR, U.Chicago	Subhabrata Majumdar
7.	December 8-14, 2012.	From Strings to LHC III, Puri	TIFR, HRI, Registration	K. Sridhar Sreerup Raychaudhuri
8.	January 10-11, 2012	ICTS Discussion Meeting on the Phase Diagram of QCD Variable Energy Cyclotron Center, Kolkata.	ICTS/TIFR	Rajiv V. Gavai Sourendu Gupta
9.	February 8-9, 2011	Cray-TIFR Workshop on High Performance Computing in Physics, TIFR.	TIFR	Rajiv V. Gavai Sourendu Gupta
10.	January 4-10, 2011	Indian Strings Meeting (2011), Puri.	TIFR, HRI, IMSc	Sandip P. Trivedi Gautam Mandal Shiraz Minwalla
11.	December 10-21, 2011	Astronomical Surveys (an ICTS TIFR Program) , TIFR.	ICTS/TIFR	Subhabrata Majumdar
12.	December 9-22, 2011	ICTS Condensed Matter Programme 2011, Indian Institute of Science, Bengaluru.	ICTS/TIFR	Kedar Damle
13.	December 1-23, 2011	Frontiers of Cosmology and Gravitation (an ICTS TIFR	ICTS/TIFR	Sandip P. Trivedi Subhabrata

	Dates	Name	Main Funding	Faculty member(s)
		Program) Goa and IUCAA, Pune.		Majumdar
14.	March 14-25, 2011	Asian Lattice School on Lattice Field Theory (ICTS programme), TIFR.	ICTS/TIFR	Rajiv V. Gavai Sourendu Gupta Nilmani Mathur Soumen Datta

31. Code of ethics for research followed by the departments

See **Annexure B2-B** for a detailed document which is applicable across TIFR Departments and Centres.

32. Student profile programme-wise:

Numbers are **summed over 2011 – 2015** batches.

Name of the Programme	Applications Received	Selected		Joined		Pass percentage*	
		Male	Female	Male	Female	Male	Female
Ph.D.	21370#	47	2	20	2	90	100
Int.-M.Sc.-Ph.D.		15	3	11	1	100	100
Total		65	5	31	3		

Applications include numbers for of All 5 departments

33. Diversity of students

a) **Geographical:**

Students	Ph.D.		Integrated M.Sc.-Ph.D.		Total
	Male	Female	Male	Female	
From the state where the university is located	—	—	2	—	2
From other states of India	11	2	18	1	32
Total	11	2	20	1	34

b) Undergraduate Institution :

Students	Ph.D.		Integrated M.Sc.-Ph.D.		Total
	Male	Female	Male	Female	
From Universities	3	1	12	1	17
From premier science institutions †	1	—	2	—	3
From premier professional institutions #	7	1	6	—	14
From others*	—	—	—	—	—
Foreign Universities	—	—	—	—	—
Total	11	2	20	1	34

† Science institutions, e.g. CBS, NISER, etc.

IITs, NITs, etc.

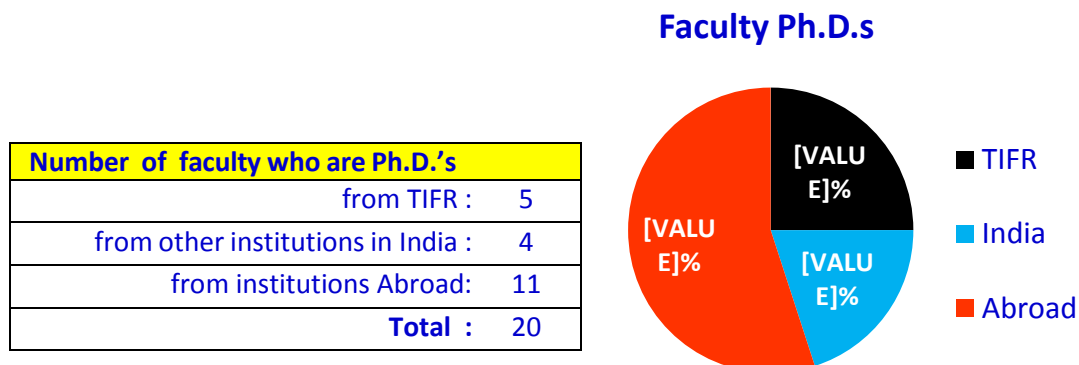
34. How many students have cleared Civil Services and Defense Services examinations, NET, SET, GATE and other competitive examinations? Give details category-wise.

	Examination	Students cleared
1.	NET	10
2.	GATE	8
3.	JEST	12
4.	Others	9

35. Student progression

- Ph.D. programme : Most of the students admitted to the DTP go on to complete the course work and get their Ph.D.s. Once in a while (less than one per year), a student may opt out of the programme, for various reasons. Normally, after completing their Ph.D., students have to leave TIFR. The vast majority go elsewhere for postdoctoral research. A small number (< 10%) go for other employment, such as teaching positions or industry.
- Integrated M.Sc.-Ph.D. programme : Most of the students admitted to the DTP go on to complete the course work and get their M.Sc.'s and Ph.D.s. Once in a while (less than one per year), a student may opt out of the programme, for various reasons. Normally, after completing their Ph.D., students have to leave TIFR. The vast majority go elsewhere for postdoctoral research. A small number (< 10%) go for other employment, such as teaching positions or industry

36. Diversity of staff



37. Number of faculty who were awarded M.Phil., Ph.D., D.Sc. and D.Litt. during the assessment period

The minimum eligibility criterion for selection as a member of the TIFR faculty is a Ph.D. degree. Thus, this question is not relevant.

38. Present details of departmental infrastructural facilities with regard to

a. Library

DTP, like other Departments of TIFR in the Colaba campus, makes use of the TIFR Library and Scientific Information Resource Centre (SIRC) (see Section B2, Item no 4.2)

b. Internet facilities for staff and students

DTP, like other Departments of TIFR in the Colaba campus, makes use of the TIFR Computer Centre and Communication Facility (see Section B2, Item no 4.3)

c. Total number of class rooms

DTP, like other Departments of TIFR in the Colaba campus, makes use of the common class rooms and lecture theatres of TIFR (see Section B1, Item no 12)

d. Class rooms with ICT facility

All the classrooms above have ICT facilities like overhead projectors, Wi-Fi, etc. Video-conferencing possibilities are also available in most of the lecture rooms.

e. Students' laboratories

- For the compulsory Experimental Physics courses and for all the Projects, students have access to the well-equipped laboratories of DTP (see Item f) below)
- In addition students of both Ph.D. and Integrated-Ph.D. have one Teaching Laboratory which has specific experimental setups which are used during the coursework period.

f. Research laboratories

	Name of Laboratory	Fac*	PDF [†]	Stu [‡]	Brief description of research activity
1.	ILGTI Blue Gene	4	2	0	Lattice gauge theory
2.	ILGTI Hyderabad Facility	4	2	0	Lattice QCD

* no of faculty members using the laboratory

† no of postdoctoral fellows using the laboratory

‡ no of graduate students using the laboratory

39. List of doctoral, post-doctoral students and Research Associates

Doctoral students			
1.	Acharya, Sandeep Kumar	19.	Kundu, Sarbajaya
2.	Bala, Dibyendu	20.	Vishal, M.V.
3.	Bardhan, Debjyoti	21.	Mandlik, Mangesh M.
4.	Bhatia, Disha	22.	Mazumdar, Subhajit
5.	Bhattacharyya, Soumya	23.	Nayak, Pranjal
6.	Biswas, Sounak	24.	Pal, Mainak
7.	Chakraborty, Ahana	25.	Sabir Ali, Mahammad
8.	Dandekar, Yogesh B	26.	Samanta, Abhisek
9.	Das, Anirban	27.	Samanta, Rickmoy
10.	Gaikwad, Adwait J	28.	Samui, Tousik
11.	Rakala, Geet Ghanshyam	29.	Sankar, Sarath
12.	Ghosh, Subhajit	30.	Sen, Manibrata
13.	Gorantla, Pranay	31.	Shukla, Ashish
14.	Guria, Abhijit	32.	Sinha, Ritam
15.	Halder, Indranil	33.	Soni, Ronak M
16.	Janagal, Lavneet	34.	Sorokhaibam, Nilakash
17.	Jani, Bhawik	35.	Tiwari, Anurag
18.	Kini, Amith Thukaram		

Post-doctoral fellows			
1.	Chakraborty, Amit	7.	Maitra, Ushoshi
2.	Chakraborty, Sabyasachi	8.	Mondal, Sourav
3.	Choudhury, Sayantan	9.	Poojary, Rohan Raghava
4.	Inbasekar, Karthik	10.	Saha, Arunabha
5.	Iyer, Abhishek M.	11.	Thakur, Soumyadip
6.	Lahiri, Anirban		

40. Number of post graduate students getting financial assistance from the university.

ALL the students of DTP (13) are in doctoral programmes, and hence they are all given TIFR fellowships.

41. Was any need assessment exercise undertaken before the development of new programme(s)? If so, highlight the methodology.

DTP, and TIFR as a whole, has been training students for Ph.D. since its inception in 1945. During the 1990's, a need was felt for a special programme to allow exceptionally bright students an early entry into research, i.e. directly after their B.Sc.'s. This was felt on the basis of the Institute's well-established VSRP programme (see Item 48 below), where it was seen that many of the best students were already prepared for graduate school, even though they were only half-way through their M.Sc. programmes. It was therefore, decided to admit some exceptionally bright B.Sc. students directly to the Ph.D. programme, teach them the basic M.Sc. courses in a period of one year, and then permit them to do advanced electives and project work similar to M.Sc.'s. Based on the success of this move, the Integrated M.Sc.-Ph.D. programme, was formally started in 2012.

42. Does the department obtain feedback from

- a. faculty on curriculum as well as teaching-learning-evaluation? If yes, how does the department utilize the feedback?

The Subject Board of Physics includes a Course Coordinator, who is constantly in touch with the Instructors of different courses, and collects

their feedback at regular intervals. This is used to (a) advise the Instructors, (b) update the Syllabus, and (c) fine-tune the curriculum.

In 2012, an exercise was carried out, in which feedback was requested from all the Instructors of the previous 5 years. Based on their suggestions, the course curriculum was thoroughly revised and rejuvenated.

- b. students on staff, curriculum and teaching-learning-evaluation and how does the department utilize the feedback?

The Course Coordinator (see above) also collects anonymous feedback on every course from the students in a form specifically designed for this purpose. The relevant portions in this are communicated to the Instructors, for modification and rectification in their pedagogic styles. These feedback forms also form an important input in selecting a faculty for the Excellence in Teaching Award of the TIFR Alumni Association.

- c. alumni and employers on the programmes offered and how does the department utilize the feedback?

Currently no such feedback is collected on a formal basis.

43. List the distinguished alumni of the department

	Name of the Alumnus	Reason for Distinction
1.	Udgaonkar, B. M.	Padma Bhushan(1985), Founder Reactor Division of BARC
2.	Majumdar, C. K.	Bhatnagar Award (1976), Founding Director, SNBNCBS
3.	Sudarshan, E.C.G.	Padma Vibhushan (2007), ICTP Dirac Prize (2010), Ex-Director, IMSc
4.	Mukunda, N.	Bhatnagar Award (1980), Ex-President, IASc
5.	Rajasekharan, G.	Ex-Director, IMSc
6.	Singh, Virendra	Bhatnagar Award (1973), Ex-Director, TIFR
7.	Jha, Sudhansu S.	Bhatnagar Award (1979), Ex-Director, TIFR
8.	Roy, Sashanka M.	Bhatnagar Award (1981)
9.	Roy, Probir	Bhatnagar Award (1987)
10.	Shastry, B. Sriram	TWAS Prize (1998), Onsager prize (2009), Distinguished Professor, UCSC
11.	Barma, Mustansir	Padma Shri (2013), Bhatnagar Award (1995), Ex-Director, TIFR

	Name of the Alumnus	Reason for Distinction
12.	Wadia, Spenta R.	ICT P Weinberg Prize (1995), Founding Centre-Director, ICTS/TIFR, TWAS Fellow (2006)
13.	Raychaudhuri, Amitava	Bhatnagar Award (1997), Ex-Director, HRI
14.	Godbole, Rohini M.	TWAS Fellow (2009), Ex-Member SAC-PM, D.Sc. (Honoris Causa), SNDT Women's University
15.	Sen, Ashoke	Padma Bhushan (2013), Bhatnagar Award (1994) , ICTP Dirac Prize (1989), Infosys Award (2009), FFP Prize (Milner, 2012) , FRS (1998)
16.	Das, Sumit R.	Bhatnagar Award (1998)
17.	Mukhi, Sunil	Bhatnagar Award (1999)
18.	Randeria, Mohit	Bhatnagar Award (2002)
19.	Dabholkar, Atish	Bhatnagar Award (2006)
20.	Majumdar, Satya N.	Langevin Medal (2005), Director of Research at Lab. For Stat. Phys, Univ. of Paris
21.	Dhar, Abhishek	Bhatnagar Award (2009)
22.	R. Ramachandran	Editor, <i>Frontline</i> magazine

44. Give details of student enrichment programmes (special lectures / workshops / seminar) involving external experts.

As Item No 30 shows, the DTP regularly conducts conferences etc. which are attended by all the doctoral students, and these provide the required introduction to the state of the art in the subjects of their research. In addition, TIFR has a vibrant programme of seminars, colloquia and public lectures which the students are encouraged to attend and absorb as much information as they can.

45. List the teaching methods adopted by the faculty for different programmes.

The DTP generally adopts the conventional blackboard teaching methods. Often slides are shown to illustrate experimental or numerical facts. For project work, students are required to work hands-on in a laboratory.

46. How does the department ensure that programme objectives are constantly

met and learning outcomes are monitored?

The DTP Chairperson and another member of the DTP faculty are members of the Subject Board of Physics, which constantly monitors the progress of the students and obtains feedback from faculty and students alike.

47. Highlight the participation of students and faculty in extension activities.

DTP faculty, postdocs and students regularly participate in the Outreach Activities of TIFR (see Sec. 3.6 in B2).

48. Give details of “beyond syllabus scholarly activities” of the department.

The DTP conducts and participates in the following activities on a regular basis.

- DTP Seminar
- NSF Colloquium
- VSRP Programme

In addition, the Department members are involved in teaching at many summer schools and winter schools for Ph.D. students, in India and abroad. These short but intense courses benefit not only the students of TIFR, but help teaching the next generation of physicists in the country.

	Faculty Member	Course Name, Programme and Place	Lectures	Date
1.	R.S. Bhalerao	Quark-Gluon Plasma, in XXX SERC-THEP Main School at BITS, Pilani	9	11/2015
2.	R.S. Bhalerao	Relativistic Theory of Reactions, in Modern Theories of Nuclear Reactions, at IIT Roorkee	8	09/2013
3.	S. Datta	Lattice Gauge Theory, in XXVII SERC-THEP Main School at SINP, Kolkata	9	09/2012
4.	S. Datta	Large N gauge theory from lattice and finite temperature correlation functions in Asian school on Lattice Field Theory at TIFR, Mumbai	3	03/2011
5.	D. Dhar	Directed percolation and sandpile models, in 6th Bangalore School on Statistical Physics at RRI,	4	07/2015

		Bengaluru		
6.	D. Dhar	Self-organized criticality, DST-SERC School on Non-linear dynamics, Punjab University, Chandigarh,	5	02/2014
7.	D. Dhar	Phase transitions and critical phenomena, Science Academies' Refresher Course for Coll. Teachers at HBCSE, Mumbai	5	11/2013
8.	D. Dhar	Non-linear partial differential equations in Physics in Advanced level training program in non-linear differential equations: Dynamics of complex systems at U. of Kolkata, Applied Mathematics Department	4	09/2013
9.	D. Dhar	Foundations of Stat. Physics, and numerical techniques in Science Academies' Refresher Course in Stat. Physics at Kanhangad	5	04/2012
10.	A. Dighe	Flavor physics in XXX SERC-THEP Main School at BITS, Pilani	9	12/2014
11.	R.V. Gavai	Lattice Quantum Chromodynamics In SERC School on Nucl. Matter under Extreme Conditions at VECC, Kolkata	7	01/2013
12.	S. Gupta	Wilsonian Renormalization and Effective Field Theory, in XXX SERC-THEP Main School at BITS, Pilani	9	12/2014
13.	S. Gupta	Introduction to Lattice Field Theory in School on FAIR Physics, Bose Institute at Darjeeling, India	3	01/2014
14.	S. Gupta	Back of the Envelope Calculations in Refresher Course in Statistical Mechanics at HBCSE, Mumbai	6	11/2013
15.	S. Majumdar	Cosmology Overview in NIUS camp at HBCSE, Mumbai	3	06/2011
16.	G. Mandal	Hawking Radiation and the Information Puzzle in 8th Asian Wint. School on Strings, Particles, Cosmology at Puri	3	11/2014
17.	G. Mandal	Large N Field theories in XXVII SERC-THEP Main School at SINP, Kolkata	9	12/2012
18.	G. Mandal	Emergent spacetime & Wilsonian Renormalization Group	3	05/2012

		at University of Kentucky, Lexington, USA		
19.	S. Minwalla	Fundamental CS matter theories and their bulk duals in ICTP Spring School at AS-ICTP, Trieste	4	03/2013
20.	S. Minwalla	Hydrodynamics and Gravity in Cargese Summer School on String theory & field theory Cargese, Corsica, France	4	06/2012
21.	S. Minwalla	Hydrodynamics and Gravity in Condensed Matter, Black Holes and Holography at Newton Institute, Cambridge, UK	4	04/2012
22.	S. Minwalla	Fluid Dynamics from Gravity in IPM String School at Isfahan, Iran	4	05/2011
23.	S. Raychaudhuri	Introduction to Particle Physics in ICTS Programme on CP-Violation at Mahabaleshwar	7	02/2013
24.	S. Raychaudhuri	Weak Interaction Physics at Department of Physics, University of Mumbai	16	01/2012
25.	S. Raychaudhuri	Collider Physics and the LHC in XXVI SERC-THEP Main School at Jamia Milia Islamia, New Delhi	8	02/2011
26.	R. Sensarma	Theory of Ultracold Fermions in Continuum in HRI School on Cold Atoms at HRI, Allahabad	4	02/2014
27.	V. Tripathi	The physics of Kondo systems in ICTS Condensed Matter Programme at Bengaluru	6	12/2011

49. State whether the programme/ department is accredited/ graded by other agencies? If yes, give details.

The doctoral programmes in the DTP are conducted under the TIFR University, which was recognized as a Deemed University by UGC in 2002.

50. Briefly highlight the contributions of the department in generating new knowledge, basic or applied.

In the areas of **Condensed Matter theory and Statistical Physics**, the broad focus areas have been (a) frustrated magnets and quantum criticality (b) development of new Quantum Monte Carlo Algorithms (c) disordered and dissipative systems, (d) statistical physics problems like sandpile models, proportionate growth, etc. Some highlights from last 2-3 years are Interactions between vacancy-induced fractional spin textures in the frustrated magnet SCGO; Resonating valence-bond wavefunctions on the honeycomb lattice; Ashkin-Teller criticality of the hard-square lattice gas; Random Coulomb antiferromagnets: from diluted spin liquids to Euclidean random matrices; Proportionate growth in sandpile and rotor-router models; Strategy switches and co-action equilibria in a minority game; Fragmentation of a sheet by propagation of cracks; The nematic-disordered phase transition in systems of long rigid rods on two dimensional lattices; A class of exactly solved assisted hopping models of active-absorbing state transitions on a line; Vacancy disorder in graphene and SU(2) Majorana spin-liquid; Finite-temperature phase transitions of spin $S=1$ easy axis antiferromagnets on the triangular lattice; Algorithm for frustrated transverse field Ising antiferromagnets; Singular susceptibility of power-law ordered transverse field triangular lattice Ising antiferromagnets; Sign-free Quantum Monte Carlo simulations of frustrated quantum magnets admitting a cluster decomposition; Classical spin-liquid on the maximally frustrated honeycomb lattice; Magnetic impurity induced topological phase transition in the honeycomb Kitaev model; Dynamical mean-field theory (DMFT) studies of the Mott transition in multilayer Hubbard systems; PT-symmetry breaking mechanism of the dynamic Mott transition in dissipative systems; Incommensurate Spin-Density Wave States in Biased Bilayer Honeycomb Lattice; Realization of multicritical melting in frustrated triangular lattice Ising antiferromagnets; Melting of three-sublattice order in artificial kagome ice with tunable couplings; Phase transitions of resonating valence-bond wavefunctions in three-dimensions; Effect of Disorder on Superconductivity with strong Mott correlations.

The **High Energy Physics** (HEP) subgroup studied a wide variety of phenomena. Some of the interesting results obtained in the area of strong interaction and electroweak physics are Estimate of QCD critical point and phase diagram; Nonperturbative estimate of heavy quark momentum diffusion coefficient in plasma; Computation of lattice quark number susceptibilities; Predictions for

shapes of event distributions along the freezeout curve in heavy-ion collisions; Strange Freezeout; Lattice calculation of the quark and glue momenta and angular momenta in the proton; Spectroscopy of hadrons with heavy quarks; Understanding anisotropy generated by fluctuations in heavy-ion collisions; New flow observables in ultra-relativistic heavy ion collisions; Complete relativistic second-order dissipative hydrodynamics from the entropy principle; Particle production in relativistic heavy-ion collisions: A consistent hydrodynamic approach; Thermalization of quarkonia at the LHC; Optimization of a low energy neutrino factory; Reach of INO for measuring atmospheric neutrino mixing parameters; Conditions for the seeding of neutrino oscillation instabilities inside a supernova; Neutrino-pair bremsstrahlung from nucleon-alpha versus nucleon-nucleon scattering; Study of large mass splittings for fourth generation fermions allowed by LHC; Explaining anomalous data observed in B_s meson decays; Correlated study of low-energy processes and LHC signals in a supersymmetric model without R-parity; Kaluza-Klein gluon production in association with a $t\bar{t}$ pair at the LHC; Higgs signal in chargino-neutralino production at the LHC; Magic messengers in gauge mediation and signal for 125 GeV boosted Higgs boson; Branching ratio of $B_s \rightarrow \tau\tau$; Non-universality of indirect CP asymmetries in $D \rightarrow \pi\pi, KK$ decays; Kaon mixing beyond the Standard Model; Viability of the mu-tau symmetry after results on non-zero reactor mixing angle; Analysis of the experimental status of the constrained MSSM; Boosted jets as a probe of light Higgs bosons at the LHC; Compressed spectrum of minimal UED models in vacuum-stable scenarios; Invisible decays of low mass Higgs bosons in supersymmetric models; Generalized Supersoft Supersymmetry; Looking for LFV decays in Supersymmetry at the LHC; Distinguishing signatures of top-and bottom-type heavy vector like quarks at the LHC; Bulk RS models, Electroweak Precision Tests and 125 GeV Higgs; Radion Candidate for the LHC Diphoton Resonance ; Gravitational Rescue of Minimal Gauge Mediation; Statistical Aspects of Qjets; New Supersoft Supersymmetry Breaking Operators and a Solution to the μ -Problem; Status of MSSM Higgs sector using global analysis and direct search bounds, and future prospects at the HL-LHC; Probing $(g - 2)_\mu$ at the LHC in the paradigm of R-parity violating MSSM; Diphoton resonance at 750 GeV in the broken MRSSM; Kaluza-Klein gluon + jet associated production at the Large Hadron Collider; A Critical Appraisal of Flavour-changing Decays of Top Quarks as a Probe of New Physics; Constraints on dark matter annihilation to fermions and a photon.

Research in the area of **String Theory and Mathematical Physics (STMP)** has

covered a wide canvas of key areas. These include black hole entropy, gauge-gravity duality, the symmetries and dynamics of gauge theories, the relationship between fluid dynamics and gravity, membrane field theories in M-theory, the nature of cosmological singularities, low-dimensional string models, and areas of mathematical physics. The highlights are Chern Simons Bosonization along RG Flows; Unitarity, crossing symmetry and duality in the scattering of Chern-Simons theories; A membrane paradigm at large D; Poles in the S-Matrix of Relativistic Chern-Simons Matter theories from Quantum Mechanics; ABJ Triality: from Higher Spin Fields to Strings; Constraints on Fluid Dynamics from Equilibrium Partition Functions; Hairy black holes and solitons in global AdS₅; Chern-Simons Theory with Vector Matter; Dissipative Superfluid dynamics from gravity; Supersymmetric Chern-Simons Theories with Vector Matter; Aspects of Entanglement Entropy for Gauge Theories; Ward Identities for Scale and Special Conformal Transformations in Inflation ; The Shear Viscosity in Anisotropic Phases ; Constraints from Conformal Symmetry on the Three Point and four-point Scalar Correlator in Inflation ; AdS plane waves and entanglement entropy ; CMB from CFT ; Entangled Dilaton Dyons ; Bianchi Attractors: A Classification of Extremal Black Brane Geometries ; Holographic Fermi and Non-Fermi Liquids with Transitions in Dilaton Gravity ; Thermalization in 2D critical quench and UV/IR mixing ; Thermalization with chemical potentials, and higher spin black holes ; The inside outs of AdS₃/CFT₂: exact AdS wormholes with entangled CFT duals ; Dynamical entanglement entropy with angular momentum and U(1) charge; Double Trace Flows and Holographic RG in dS/CFT correspondence ; Quantum quench in matrix models ; Holographic Wilsonian flows and emergent fermions in extremal charged black holes ; Gregory-Laflamme as the confinement/ deconfinement transition in holographic QCD ; Phases of a two dimensional large N gauge theory on a torus.

The broad focus of the **Cosmology and Astroparticle Physics (CAP)** has been in cluster cosmology, especially related to probing dark energy, dark matter and inflation and the synergy between cluster physics and cosmology, as well as constraining dark energy properties from various observations, and neutrino astroparticle physics. The main highlights are Developing optimal strategy in combining wide and deep surveys for cluster probes of dark energy. This idea is now routinely used by all cluster surveys (like ACT/SPT etc); A novel method to use an ensemble of clusters as rulers in sky; Building fast and accurate phenomenological model of cluster ICM which can be used to construct scaling relations; The most comprehensive analysis of Fisher matrix versus Markov chains for cluster cosmology; A novel method of using intra cluster medium (ICM)

entropy to study ICM energetics has been developed.; The first estimate ever of feedback energy profile, from deep within cluster cores to outskirts, was obtained; The most direct connection between AGN heating and entropy excess in cluster cores was made; preheating ruled out; Use of supernovae data along with cluster data to constrain the cosmological distance-duality relation; The most comprehensive dark energy constraints using the latest Planck data; Probing the cosmological missing baryons in the circum-galactic medium; Probing the clumping structure of Giant Molecular Clouds through the spectrum, polarisation and morphology of X-ray Reflection Nebulae with future X-ray observatories; Role of time-dependent noise in supernovae and its impact on flavor conversions; Impact of hidden interactions of sterile neutrinos on structure formation.

51. Detail five major Strengths, Weaknesses, Opportunities and Challenges (SWOC) of the department.

Strengths

- Top level expertise at international level in major areas of Theoretical Physics
- High quality research environment with world class facilities, leading to consistently strong publication record.
- National and International recognition in form of roles in committees for conferences/workshops, selection boards etc., enabling the upholding of high standards for our inductions of new faculty.
- Vigorously active weekly seminar series in 4 different major areas.
- Strong contribution in teaching in National programs as well as TIFR Graduate schools.

Weaknesses

- Inadequate space for growing or starting new and upcoming areas.
- Inability to host strong long-term visitor programs due to infrastructural issues.

- Current level of interactions with experimentalists,

Opportunities

- Presence of academically strong institutions such as IIT, IISER etc in the nearby region can lead to strong networking-or virtual extension of all of them
- Upcoming new campus in Hyderabad can provide infrastructure to grow in new areas such as nano-science or interface with biology.
- Presence of DTP alumni in almost all major academic institutions in India, with whom networking, collaboration and a string visitor programme is possible.

Challenges

- Passing on the benefits of DTP expertise to a larger section of students and post-docs due to space constraints.
- Level of interaction with Indian universities.
- Participation in national programs for assisting university teachers in updating their knowledge base.

52. Future plans of the department

The DTP intends to remain in the forefront of *all* major areas of theoretical physics by high quality inductions of faculty in the both new as well as existing subareas. National and international collaborations have become essential in theoretical physics. DTP already has made a proposal to follow suit, and will actively look for other opportunities. High performance computers are now essential in some branches of theoretical physics. Interaction with computer industry to develop trained manpower as well as special purpose software will be attempted. More specific goals are stated below.

In the years to come, the Condensed Matter and Statistical Physics group expects to continue its multi-pronged research efforts, striking a balance between work aimed at clarifying the theoretical interpretation of specific experimental results

obtained both at TIFR and elsewhere, and work that uses the tractability of simpler model Hamiltonians to clarify conceptually interesting questions that have their origins in experimental systems, but are impossible to address satisfactorily while keeping track of the full complexity of the original system.

Cosmology and Astroparticle Physics (CAP) is the youngest and smallest subgroup in DTP, formed in 2010. Members of CAP are interested and work on a diverse set of problems in Physical Cosmology and Astroparticle Physics. The group has core strengths in theory and data-analysis of cosmic microwave background (CMB) and large scale structure (LSS), dark matter physics, and neutrino astroparticle physics, with healthy overlap between the interests of the different members. It is hoped that DTP and TIFR will consolidate its initiative to explore this area by providing suitable resources to the CAP subgroup. The CAP group has taken some initiatives in this regard – in collaboration with our colleagues in DAA and NCRA, we plan to apply for institutional membership of DESI (Dark Energy Spectroscopic Instrument) collaboration in the upcoming 5 year plan period. The main goal of DESI is to make precise measurements of the expansion history of the Universe and use the growth of cosmological structure to study the properties of gravity, neutrinos, and the inflationary epoch in the early Universe.

The High Energy Physics (HEP) group has been strong in the areas of collider and flavour physics, neutrinos, lattice gauge theory, and the quark gluon plasma. This reach has been extended recently by hiring people who work in model building and effective field theories. The HEP group feels that it is performing very well in these areas and has made significant contributions in these fields. Given the long time-line of the LHC experiments, and the large number of new facilities being planned (FAIR and NICA for heavy-ion physics, EIC for understanding the partonic structure of matter, the ILC, various dark matter searches, neutrino detectors etc), the group feels that it needs to keep up its strength in this field. In particular, the HEP group feels a lack of coverage in certain crucial areas. These are, in order of the group's common agreed importance: (1) soft and collinear effective theories with an emphasis on jet structure or initial state of heavy ions, (2) lepto- and baryo-genesis and flavour physics (3) numerical hydrodynamics and kinetic theory in the context of heavy-ion physics.

Over the next 10 years we envisage that the String Theory group will continue to explore and understand the framework of string theory, with the aim of better understanding the structures and phenomena of theoretical physics and their interrelations. A central long term goal of this investigation is the discovery of the basic laws of nature that govern the quantum fluctuations of gravity in our Universe.