

# **ANNUAL REPORT 2014-15**



**Indian Institute of Science Education and Research  
Thiruvananthapuram  
CET Campus, Thiruvananthapuram-695 016**

## Publication Committee

Dr. M. P. Rajan

Dr. Ramesh Chandra Nath

Dr. Ullasa Kodandaramaiah

Dr. R. S. Swathi

Shri. Siva Dutt. V. K

Shri. B. V. Ramesh

Shri. Hariharakrishnan. S

Shri. Manoj Kumar. S

Ms. Divya V. J.

Ms. Nimi Joseph Chaly

Contact: 0471-2597459, Fax: 0471 2597427

Email : registrar@iisertvm.ac.in

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# PREFACE

**Prof. V. Ramakrishnan**  
**Director**

05-10-2015

With pleasure I present this Annual Report, which gives an account of what has been accomplished at Indian Institute and Research Thiruvananthapuram (IISER-TVM) during the Financial Year 2014-2015.

Indian Institutes of Science Education and Research (IISERs) were established by Government of India, to provide high quality education in modern science, and integrating education with outstanding research at the undergraduate level. IISER-TVM started functioning in 2008. In the presence of academic leaders, with great pride, IISER-TVM community held the 2nd convocation this year on May 3rd, 2014, awarding BS-MS dual degrees to second batch of (45 BS-MS & 2 PhD) students. Many of these students are continuing their higher education in renowned institutions in India and abroad. Dr. Viswa Mohan Katoch, Chairman, Board of Governors declared the convocation open and Professor Roddam Narasimha FRS graced the occasion as chief guest.

Like previous years, this year also, we have been able to attract talented young faculty members and increased number of students to our academic programs. At the end of financial year 2014-2015 the institute has faculty strength of 42: (Professor: 3, Associate Professor: 8, and Assistant Professor: 31) and 42 administrative staff. In addition to regular faculty, we have several guest faculty helping with teaching. The total strength of students is 665 with 497 in BS-MS Programme, 26 in Integrated Ph.D. Programme and 142 in Ph.D Programme.

Moreover, during the last year four Honorary Professors, four Visiting Professors and an Emeritus Professor have joined the institute. These are all distinguished academicians. Their outstanding academic credentials earned them not only Fellowships of National Academies, and recognitions like Shanti Swarup Bhatnagar and J. C. Bose Fellowship, but also national awards like Padma Shri and Padma Bhushan. As members of the Senate of the Institute all these wise men/woman guide academic activities.

The faculty members of our institute are continuing to conducting research in the frontier areas of science and research. Research and computing laboratories were set up in the temporary campus. In addition to 31 ongoing sponsored projects worth more than Rs. 22 crore from various funding agencies, the faculty members have acquired 9 new projects worth 8.28 crore, funded by government agencies this year. Institute also bagged a project worth Rs. 4 crore from MHRD to start a Centre for Computation Modelling and Simulation. IISER-TVM has published 75 papers in highly reputed journals and 6 papers in conference proceedings during the period 2014-15. During the last year many recognitions conferred on our faculty members including the Ramanujan Fellowship, DuPont Young Professor, INSA Young Scientist Award, Kerala State Young Scientist Award (three members), the distinguished lectureship award, and N R Sen Young Researcher Award. I am pleased to inform you more than 70% of BS-MS students that have graduated from IISER TVM thus far are continuing in research/ higher studies in reputed academic/research institutions in India and world-wide including Brown University, University of California, University of Edinburgh, University of Illinois, Pennsylvania State University, Tata Institute of Fundamental Research, Tufts University and University of Wisconsin, Arizona State University among others. Continuing with the standard set by the alumni, from the graduating batch also, students were selected for the German Academic Student Exchange Programme (DAAD-WISE), the HarGobind Khorana and the S.N. Bose Fellows Programmes.

We have expanded the infrastructure facility in and around the transit campus at the College of Engineering, Trivandrum to 19 Hostels, 7 class rooms, and several teaching and research laboratories to cater the needs of nearly 800 BS-MS, integrated Ph.D. and Ph.D. students. Notwithstanding the space constraints students are now provided with a state of the art gymnasium. A swimming pool and place for sports is also made available daily to the students and staff. Despite the setbacks faced by IISER Thiruvananthapuram in the latter half of 2013 and first half of 2014, with the main contractor engaged for the construction of the institute's permanent campus being beset with financial troubles leading to the termination of the contract with them, the infrastructure development works in the campus have been restarted in full earnest and is proceeding well. The campus water supply network, the sewage collection and treatment networks, organic waste management system etc are complete and are awaiting commissioning on occupation of the campus. Construction of a large hostel block with 1000 beds, Completion of the remaining academic buildings (Physical Science, Biological Science and Animal House) has been entrusted to CPWD. The permanent campus is expected to be fully operational and the original master plan in its entirety is expected to be realized fully by the end of 2017.

Last year, IISER TVM also organized several international conferences/workshops, including 8th Asian Photochemistry Conference, The 2nd conference on Chromosome Stability, Advanced Level Training Programme on Differential Equations, and GW@ASI2014: Satellite workshop on Gravitational Wave Astronomy at the ASI Meeting. In addition, many renowned national and international scientists visited IISER TVM enlightening us with deep insights into their fields of expertise. IISER-TVM also offers ample opportunities for the overall personality development of our students. The cultural festival "Ishya" and the student-run magazine "Sopanam" provide avenues for students to display and develop their artistic and literary talents. IISER-TVM students exhibited admirable performance in inter IISER sports events and won many medals on the cultural front too, our institute students have won laurels in essay writing competition, and cultural performances. In addition, faculty and students take an active interest in science outreach activities as well. On the occasion of National Science Day, we conducted a science quiz competition for high school students, and our undergraduate students organised a "Science Show" which captivated the interest of all participants. During the last year, many faculty members have visited numerous colleges in Tamilnadu and Kerala and popularized science among young minds.

The large number of academic visitors of eminence who pass through the campus of IISER TVM each year, present talks, teach the students and moreover enable formal and informal settings in which IISER TVM faculty and students can be part of vibrant academic debates and discussions. To enrich the academic environment and facilitate faculty and student exchanges, IISER TVM has entered into Memorandum of Understanding (MoUs) with many academic and research institutions worldwide. These include ÅboAkademi University and University of Turku in Finland, and SINTEF Materials and Chemistry and Institute for energy technology (IFE) in Norway, NARA Institute of Science and Technology (NAIST), Japan and National University of Singapore (NUS), Singapore. MoUs with Stockholm and Lund Universities in Sweden will also be signed soon. These MoUs will open up opportunities for collaborations including academic exchange, faculty and students visits, R and D collaborations, collaboration in the organization of national and international symposia and conferences, exchange of information regarding business ideas, product innovation and commercialization.

On behalf of IISER-TVM, I would like to express our gratitude to the Ministry of Human Resource Development, Government of India for their unstinted support and Government of Kerala for their unwavering assistance. I am indebted to chairman and members of the Board of Governors and other statutory bodies for their effective advice and guidance.

## Preamble

### 1. Introduction

The Indian Institutes of Science Education & Research were established by Government of India between 2006, 2008 and 2015 at Kolkata, Pune, Mohali, Bhopal, Thiruvananthapuram and Tirupathi with the objectives mainly related to capacity enhancement for producing high calibre scientific manpower and the commensurate necessary reforms in the institutional framework for that purpose in the field of higher education and research in basic sciences.

The creation of Indian Institute of Science Education and Research Thiruvananthapuram (IISER-TVM) was notified by Government of India vide no. 22-6/2007-TS.I dated 28th February, 2008 of Department of Higher Education, Ministry of Human Resource Development as an autonomous organization.

The institute came into being on 20th February, 2008 when it was registered as a society under the Travancore – Cochin Literary Scientific and Charitable Society Registration Act (12 of 1955) vide no. T.342/08 dated 20th February, 2008.

The statute for the existence and functioning of the institute has been approved by the parliament and governed by the National Institute of Technology (Amendment) Act 2012.

The institute's setting up is also owed to the support of Government of Kerala that has provided 200 acres of land in Vithura Panchayat in Thiruvananthapuram district for its permanent campus and also handed over premises in the College of Engineering Trivandrum for transit campus to start functioning in June 2008.

### Board of Governors

The composition of the Board of Governors according to NITSER Act 2012 is as follows:-

#### Chairman

Dr. V. M. Katoch, Director General, ICMR & Secretary to Govt. of India, Department of Health Research, Ministry H&FW

#### Members

Secretary, Department of Higher Education, MHRD, Govt. of India

Director, Indian Institute of Science Education & Research Thiruvananthapuram

Director, Indian Institute of Science, Bangalore

Director, Indian institute of Technology (Madras), Chennai

Chief Secretary, Govt. of Kerala

Joint Secretary & Financial Advisor, MHRD, Govt. of India

Registrar, Indian Institute of Science Education & Research Thiruvananthapuram – Secretary

The board met on 02.04.2014, 25.04.2014, 31.07.2014 and 17.02.2015 during the period of report.

## Finance Committee

### Chairman

Chairman, Board of Governors, IISER Thiruvananthapuram (ex-officio)

### Members

Director, Indian Institute of Science Education and Research Thiruvananthapuram (ex-officio)

Joint Secretary & Financial Advisor, MHRD, Govt. of India,

Dr. Suresh Das, Former Director, NIIST, Thiruvananthapuram

Prof. Srinivasa Murty Srinivasula, School of Biology, IISER Thiruvananthapuram

Registrar, IISER Thiruvananthapuram (ex-officio)-Secretary

The finance committee met on 02.04.2014, 25.04.2014, 31.07.2014 and 17.02.2015 during the period of report.

## Building and Works Committee

### Chairman

Director, Indian Institute of Science Education and Research Thiruvananthapuram (ex-officio)

### Members

Shri. V. R. Rengasamy, Head, EM&C, NCBS-TIFR, Bangalore

Shri. P. Raveendran, Dy Head, CMD (E), CMG, VSSC

Smt. Poornima U. B, Head Architect, NCBS-TIFR, Bangalore

Shri. M. Radhakrishnan, Registrar, IISER Thiruvananthapuram

Project Engineer-cum-Estate Officer, IISER Thiruvananthapuram - Member Secretary

The committee met on 22.04.2014, 22.05.2014, 18.07.2014, 01.09.2014, 14.11.2014 and 28.01.2015 during the period of report.

## Senate

### Chairman

Director, Indian Institute of Science Education and Research Thiruvananthapuram (ex-officio)

### Members

Prof. K. George Thomas, School of Chemistry, IISER Thiruvananthapuram

Prof. Srinivasa Murty Srinivasula, School of Biology, IISER Thiruvananthapuram

Prof. R. Balasubramanian, Honorary Professor, School of Mathematics, IISER Thiruvananthapuram

Prof. M. S. Raghunathan, Honorary Professor, School of Mathematics, IISER Thiruvananthapuram

Prof. N. Mukunda, Honorary Professor, School of Physics, IISER Thiruvananthapuram

Prof. Vijayalekshmi Ravindranath, Honorary Professor, School of Biology, IISER Thiruvananthapuram

Prof. M. S. Gopinathan, Emeritus Professor, School of Chemistry, IISER Thiruvananthapuram

Prof. K. Veluthambi, Visiting Professor, School of Biology, IISER Thiruvananthapuram

Prof. M. K. Mathew, Visiting Professor, School of Biology, IISER Thiruvananthapuram



Prof. M. S. Ramachandra Rao, Visiting Professor, School of Physics, IISER Thiruvananthapuram

Prof. M. L. Munjal, Mechanical Engineering Department, IISc, Bangalore

Prof. Amitabha Das Gupta, Dean, School of Humanities, University of Hyderabad

Dr. M. P. Rajan, Associate Dean (R&D), IISER Thiruvananthapuram

Dr. Anil Shaji, Associate Dean (P&D), IISER Thiruvananthapuram

Dr. Utpal Manna, Head, School of Mathematics, IISER Thiruvananthapuram

Dr. Tapas Kumar Manna, Head, School of Biology, IISER Thiruvananthapuram

Dr. S Shankaranarayanan, Head, School of Physics, IISER Thiruvananthapuram

Dr. K M Sureshan, Head, School of Chemistry, IISER Thiruvananthapuram

Dr. Ramesh Chandra Nath, Warden, HORs, IISER Thiruvananthapuram

Registrar, IISER Thiruvananthapuram (ex-officio) - Secretary

The senate met on 27.04.2014, 26.07.2014, 24.10.2014 and 31.01.2015 during the period of report.

## 2. Human Resource

Human resources of the institute in 2014-15 comprised the following:

Faculty	Regular Faculty		42
	Visiting Faculty		25
Technical and Non-Teaching Personnel	Officers	Regular	12
		Consultants & Others	02
	Subordinate	Regular	30
		Temporary & Contract	54
Students	BS-MS		497
	Ph.D.		142
	Int. Ph.D.		26

### Faculty

School-wise lists of faculties and their names and research areas are given below.

Assistant Professor	School of Biology	8
	School of Chemistry	7
	School of Physics	12
	School of Mathematics	4
Associate Professor	School of Biology	1
	School of Chemistry	2
	School of Physics	2
	School of Mathematics	3
Professor	School of Biology	1
	School of Chemistry	1
	School of Physics	1

## School of Biology

The School of Biology has been engaged in carrying out cutting-edge research in the areas spanning from single molecules to ecosystems. At present the School comprises of 10 faculty members, Ph.D. students, Post-Doctoral fellows, Technical Assistants and Project Assistants. Research programmes in the School are funded by IISER, Wellcome Trust/DBT India Alliance, The Royal Society UK, CSIR, DST, DAE and DBT. Our state-of-art research laboratories are well equipped for imaging, molecular biology, animal tissue culture, biochemical and biophysical work. The IISER campus under construction at Vithura located in the Western Ghats is also ideal for field biology. Our teaching curriculum aims to provide students an exposure to a broad range of subjects in biology and gain experience in research in the frontier areas along with faculties and PhD students.

Name	Position	Area of Research
Dr. Srinivasa Murty Srinivasula	Professor	Apoptosis, Autophagy, NF-kB activation Genome stability.
Dr. Tapas Kumar Manna	Associate Professor	Cell cycle regulation in eukaryotic cells: structure-function of microtubule, Centrosome and kinetochore proteins.
Dr. Hema Somanathan	Assistant Professor	Sensory ecology and Plant-animal interactions.
Dr. Jishy Varghese	Assistant Professor	Nutrient and Energy Homeostasis.
Dr. Kalika Prasad	Assistant Professor	Evolution of regulatory logic controlling organ positioning in plants.
Dr. K. T. Nishant	Assistant Professor	Mechanisms for maintenance of genome stability in <i>Saccharomyces cerevisiae</i> .
Dr. Ramanathan Natesh	Assistant Professor	Molecular Structural Biology, Crystallography and CryoEM structural studies of complexes of signal cardiovascular disease, Proteins involved in <i>Mycobacterium Tuberculosis</i> .
Dr. Ravi Maruthachalam	Assistant Professor	Centromere biology, Haploid genetics, Minichromosomes.
Dr. Sunish Radhakrishnan	Assistant Professor	Cellular asymmetry and cell division in bacteria.
Dr. Ullasa Kodandaramaiah	Assistant Professor	Butterfly host-plant co-evolution, Butterfly phylogenetics, Biogeography, Phylogeography, wing-pattern evolution in butterflies.

## School of Chemistry

The School of Chemistry at IISER-TVM provides high quality chemistry education integrated with research at the undergraduate and graduate levels. The activities of the School span from fundamental aspects of chemistry to interdisciplinary and applied areas of research. Current research activities of the school include theoretical and physical chemistry, synthetic organic and inorganic chemistry, physical organic and biophysical chemistry, NMR and ultrafast spectroscopy, photochemistry, chemical biology, DNA nanotechnology, non-linear dynamics, smart materials and clean energy. The School has established state-of-the-art laboratory and instrumentation facilities for conducting teaching and research in various branches of chemical sciences. The vision of the School is to nurture high quality scientific manpower who will contribute to the progress of the nation and become future leaders in science.

Name	Position	Area of Research
Dr. K. George Thomas	Professor	Photosciences, nanomaterials and surface properties.
Dr. K. M Sureshan	Associate Professor	Organic synthesis, Medicinal Chemistry, Supramolecular Chemistry.
Dr. Mahesh Hariharan	Associate Professor	Biophysical Chemistry, Photophysics of Biomolecules (Effect of Light on DNA and Proteins).
Dr. Adithya Lakshmana	Assistant Professor	Non-linear Optical Spectroscopy, Understanding ultrafast dynamics involved in various chemical and biological systems.
Dr. Ajay Venugopal	Assistant Professor	Inorganic and Organometallic Chemistry.
Dr. Reji Varghese	Assistant Professor	Supramolecular Chemistry with DNA, DNA Nanotechnology, Functional Nanomaterials.
Dr. Sukhendu Mandal	Assistant Professor	Cluster-Assembled materials, Surface Plasmon of Nanoclusters, Hydrocarbon Cracking and Alkane metathesis.
Dr. R. S. Swathi	Assistant Professor	Theoretical Chemistry.
Dr. A. Thirumurugan	Assistant Professor	Hybrid organic-inorganic Framework materials, Photoluminescence, Gas storage—separation and conducting materials.
Dr. Vinesh Vijayan	Assistant Professor	NMR Investigation of structure and dynamics of biomolecules.

## School of Mathematics

The School of Mathematics, IISER Thiruvananthapuram had three Associate Professors (Dr. Utpal Manna, Dr. M. P. Rajan and Dr. Shrihari Sridharan), four Assistant Professors (Dr. K. R. Arun, Dr. Sheetal Dharmatti, Dr. Sachindranath Jayaraman and Dr. Viji Z. Thomas) and two Post-Doctoral Fellows (Dr. Arnab Jyoti Das Gupta and Dr. Manil Mohan) during the financial year 2014-2015. Professors M. S. Raghunathan (Head, National Centre for Mathematics, IIT Mumbai) and R. Balasubramanian (Director, Institute of Mathematical Sciences, Chennai) were (and are) Honorary Professors of the School.

The research areas represented include Commutative Algebra, Group Theory, Homological Algebra, Linear Algebra, Control Theory, Ergodic Theory, Complex Dynamics, Stochastic Analysis, Numerical Functional Analysis, Mathematical Finance, Partial Differential Equations and Scientific Computing.

Name	Position	Area of Research
Dr. M. P. Rajan	Associate Professor	Numerical Functional Analysis/ Functional Analysis Financial Engineering/Mathematical Finance.
Dr. Utpal Manna	Associate Professor	Stochastic Partial Differential Equations, Stochastic Processes, Stochastic and Harmonic Analytic Approaches to Fluid Dynamics Models.
Dr. Shrihari Sridharan	Associate Professor	Complex Dynamics and Ergodic Theory.
Dr. K. R. Arun	Assistant Professor	Hyperbolic Systems of Conservation Laws, Finite Volume Schemes, Asymptotic Preserving Schemes, Nonlinear Waves.
Dr. Sachindranath Jayaraman	Assistant Professor	Linear Algebra –Non negative Matrices, Generalized Inverses and Applications.
Dr. Sheetal Dharmatti	Assistant Professor	Differential equations, control and game theory, Navier Stokes' equations and image processing.
Dr. Viji .Z. Thomas	Assistant Professor	Group theory, Commutative Algebra and Homological Algebra.

## School of Physics

Our second batch of BS-MS students has brought us more laurels. Jishnu Nampoothiri has been awarded the prestigious Shyama Prasad Mukherjee Fellowship of CSIR. Outgoing students have brought another significant honor five of our students were placed in the top 50 of JEST-2014 in Physics. This includes the national topper, Krishnanand Mallayya. These results are a testimony of the training which we offer to our students.

All of them have now taken up Ph.D. positions in India and abroad. Including the first batch, all the 17 School alumni have now taken up research as their career. This reiterates the initiative of the formation of

IISERs in the country; courses are designed to equip the students to work on challenging research problems right from the undergraduate years.

Our faculty members, individually and collectively, have been developing different research laboratories and computational facility. Good amount of extramural research funding has started flowing in augmenting the research support by the institute. With the sight of moving to Vithura, faculty members will be able to enhance the research facilities to the full potential.

Name	Position	Area of Research
Dr. V. Ramakrishnan	Professor	Optical spectroscopy, nanomaterials, semiconductor heterostructures.
Dr. Anil Shaji	Associate Professor	Quantum Information and quantum limited measurements.
Dr. S. Shankaranarayanan	Associate Professor	Black-holes, Cosmology and Quantum Gravity.
Dr. Amal Medhi	Assistant Professor	Topological insulators, Fractional quantum Hall state, Strongly correlated electron systems.
Dr. Archana Pai	Assistant Professor	Gravitational Wave Physics, Statistical Signal Processing.
Dr. Bindusar Sahoo	Assistant Professor	Black hole entropy in supergravity and string theory, Supergravity, AdS-CFT correspondence, Higher-Spin holography.
Dr. Deepshikha Jaiswal Nagar	Assistant Professor	Quantum criticality, magnetocaloric effect in quantum spin chains, Vortex state of superconductors and Multiferroics.
Dr. Joy Mitra	Assistant Professor	STM Tunnelling induced light emission and Plasmonics.
Dr. Madhu Thalakulam	Assistant Professor	Low temperature transport in nanoscale devices, Quantum measurement of superconductors and Multiferroics.
Dr. Manoj .A. G Namboothiry	Assistant Professor	Optoelectronics Laboratory.
Dr. Rajeev. N. Kini	Assistant Professor	Ultrafast and Tetrahertz spectroscopy of semiconductors.
Dr. Ramesh Chandra Nath	Assistant Professor	Quantum Phase Transition in Frustrated Low-dimensional Spin Systems and Unconventional Superconductivity.
Dr. Ravi Pant	Assistant Professor	Nanophononics, Stimulated Brillouin/Raman scattering, Opto-mechanical interactions, Slow-light, Nonlinear optical phenomena.
Dr. M. M. Shaijumon	Assistant Professor	Multifunctional Nanostructured Materials and Energy Storage.
Dr. Sreedhar. B. Dutta	Assistant Professor	Statistical Physics and Quantum Field Theory

## Visiting Faculty

The following visiting faculty in addition to guest faculty for special topics rendered their services to meet the requirements of academic works.

Prof. Mathew Oomen	Biology
Prof. M. K. Mathew, NCBS, Bangalore	Biology
Dr. Muniyandi Sivaram, NDRI, Bangalore	Biology
Prof. Vijayalakshmi	Biology
Prof. Veluthambi, Madurai Kamaraj University, Madurai	Biology
Dr. T. Ganga Devi, Ex-Principal, Government College for Women, Thiruvananthapuram.	Lab Coordinator, Biology
Dr. J. Chugh	Chemistry
Dr. K. Sandeep, TIFR Mumbai	Chemistry
Prof. M. S. Gopinathan, Ph.D (IIT Kanpur) FASc, FNA, Ex-Professor, IIT-M, Chennai	Chemistry
Prof. M. Padmanabhan, Ph.D (IIT Madras), Ex-Professor, MG University, Kottayam	Chemistry
Dr. S. G. Srivatsan	Chemistry
Prof. S. Subramanian, IIT Madras	Chemistry
Shri. O. Thomas, Ex-Lecturer, Government College for Women, Thiruvananthapuram.	Lab Coordinator, Chemistry
Prof. P. Vijayakumar	Humanities
Prof. Adrian Vasiu, Binghamton University, USA	Mathematics
Dr. Guram Donatze	Mathematics
Prof. M. S. Reghunathan, Honorary Professor, IISER TVM	Mathematics
Dr. Nicholas Sabu, Associate Professor, IIST, Valiamala	Mathematics
Dr. K. S. S. Moosath, Associate Professor, IIST Valiamala	Mathematics
Prof. R. Balasubramaniam, Institute of Mathematical Science, Chennai	Mathematics
Dr. Sarvesh Kumar, IIST Trivandrum	Mathematics
Dr. Tony Thomas, IITMK	Mathematics
Prof. M. S. Ramachandra Rao	Physics
Prof. N. Mukunda	Physics
Prof. V. Unnikrishnan Nayar, Ph.D(Kerala University) Ex-Dean, Cochin University of Science & Technology	Physics

## Administrative & Support Personnel

The institute has been operating with 42 regular staff, 2 Consultants and contractual experienced professionals. Recruitment of 14 personnel was done during the year and regular strength in position became 42 against a sanctioned strength of 66. The administrative personnel are enlisted as under

### Administration

1. Shri. M. Radhakrishnan, Registrar
2. Shri. G. R. Giridharan, Deputy Registrar (Finance & Accounts)
3. Shri. Bhaskara Rao, Deputy Registrar (Purchase & Stores)
4. Shri. Anil. J, Project Engineer-cum-Estate Officer
5. Dr. Sainul Abideen. P, Assistant Librarian
6. Shri. B. V. Ramesh, Assistant Registrar (Finance & Accounts)
7. Shri. Hariharakrishnan, Assistant Registrar (Administration & Academics)
8. Shri. P. Y. Sreekumar, Scientific Officer (IT)
9. Shri. Priji. E. Moses, Assistant Executive Engineer (Civil)
10. Shri. Sreehari. S, Assistant Executive Engineer (Electrical)
11. Dr. Goldwin Hemalatha. M, Medical Officer
12. Dr. Thiraviam. P, Medical Officer
13. Shri. Ajith Prabha, Office Assistant (Multi Skill)
14. Smt. Navya Paul, Technical Assistant
15. Smt. Divya V. J, Technical Assistant
16. Shri. Krishna Kumar, Junior Engineer (Civil)
17. Smt. Nimi Joseph Chaly, Accountant
18. Smt. Nafeesa C. K, Library Information Assistant
19. Shri. Jayaraj J. R, Library Information Assistant
20. Shri. Alex Andrews. P, Technical Assistant
21. Shri. Vijesh. K, Technical Assistant
22. Smt. Darli K. G, Private Secretary to Director
23. Shri. Manoj M. T, Office Assistant (Multi Skill)
24. Smt. Suja V. R, Office Assistant (Multi Skill)
25. Smt. Vidya Senan. I, Office Assistant (Multi Skill)
26. Smt. Archana P. R, Office Assistant (Multi Skill)
27. Smt. Beena N. K, Office Assistant (Multi Skill)
28. Shri. Muruganandam. A, Office Assistant (Multi Skill)
29. Shri. Rajesh A. P, Office Assistant (Multi Skill)
30. Shri. Satheesh. R, Office Assistant (Multi Skill)
31. Shri. Sudeep. S, Junior Engineer (HVAC)
32. Shri. Satya Srinivas Narahariseti, Superintendent (Hostel & Hospitality)
33. Shri. Praveen Peter, Junior Engineer (Civil)

34. Smt. Mini Philip, Personal Assistant
35. Shri. Hariharan. S, Superintendent (Facilities & Services)
36. Shri. Manoj Kumar. S, Superintendent (Office)
37. Smt. Veena P. P, Office Assistant (Multi Skill)
38. Shri. Sangeeth. M, Junior Engineer (Electrical)
39. Shri. Jins Joseph, Nurse
40. Smt. Divya A. T, Nurse
41. Shri. Adarsh. B, Technical Assistant
42. Shri. Anilkumar. P.R, Technical Assistan

### Consultants and Contractual Officers

1. Shri. Karthikeyan. V, Security Officer
2. Shri. Gopakumaran Nair. V, Asst.Security Officer

## 3. Academic Programmes & Students

### Students BS-MS Dual Degree Programme

The Second Convocation of IISER-TVM was held on 3 May 2014, in the transit campus of IISER Thiruvananthapuram. The function was presided by Prof. Roddam Narasimha FRS, DST Year-of-Science Professor, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore. The second batch of Five Year BS-MS Dual Degree Programme consisting of 45 students and 2 Ph.D. students were graduated on the occasion.

149 students joined the seventh batch of Five Year BS-MS Dual Degree Programme in August 2014 at the Transit Campus in the College of Engineering Trivandrum, who were selected through three channels respectively KVPY, IIT-JEE merit list and the Aptitude Test for the top 1% students of XII exams of all the State Boards, CBSE and ICSE.

The category distribution is as follows

SC	ST	OBC	GEN	TOTAL	MALE	FEMALE	Admission Source		
							KVPY	IIT-JEE	DIRECT
21	10	39	79	149	80	69	07	30	112

### Ph.D. Programme

34 students were admitted to Ph.D. Programme during the academic year 2014-15. Students admitted to the doctoral program are those qualified in one of the National Eligibility Tests such as UGC-CSIR JRF/DBT-JRF/GATE/INSPIRE-Ph.D./NBHM/ICMR/JEST etc.

### Int. Ph.D. Programme

6 students were admitted to the programme during the academic year 2014-15 through written exam/ JEST and interview.



Total student strength in 2014-15 is given below.

Programme	2009-10 admissions	2010-11 admissions	2011-12 admissions	2012-13 admissions	2013-14 admissions	2014-15 admissions	Total
5Yr Integrated BS-MS	-	57	74	102	122	142	497
Ph. D	13	17	28	22	28	34	142
Int. Ph.D		-	-	8	12	6	26
Total	13	74	102	132	162	182	665

## 4. Research and Development Activities

The institute has been active in frontier areas of research. The faculty members have set up research and computing laboratories in the temporary campus. Several scientific collaborations with researchers in premier institutions in India and abroad are in progress. The institute also has signed MoUs with many foreign institutions for academic collaboration. In addition to 31 ongoing sponsored projects from various funding agencies, the faculty members have started 9 new projects funded by government agencies. Out of 38 total projects, 6 projects were completed during 2014-15. The institute also filed 4 patents during the period and the details of all the above activities are given below. Many post-doctoral fellows have joined in various projects during this period.

### Collaboration with Foreign Institutions

IISER-TVM has signed five Memorandum of Understanding (MoU) with foreign universities during the period 2014-15 for academic research and development activities. Four of these MoUs were signed during the President's visit to the respective countries and the Director, IISER-TVM was a part of the delegation. The details are listed below:

Sl.No.	Foreign University	Date of MoU	Remark
1	Åbo Akademi University, Finland	October 15, 2014	During President's Visit
2	SINTEF Materials and Chemistry	October 15, 2014	During President's Visit
3	University of Turku, Finland	October 15, 2014	During President's Visit
4	Institute for Energy Technology ("IFE"), Norway	October 15, 2014	During President's Visit
5	Nara Institute of Science and Technology, Japan	May 15, 2014	

## New Sponsored Projects

Sl.No.	Name of Project	Principal Investigator	Co-investigator	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
1.	Cationic Bismuth Complexes in Hydroamination	Dr. Ajay Venugopal	None	CSIR	14 Lakhs	2014-2017
2.	Centre for Computation Modeling and Simulations	Dr. Amal Medhi	Dr. Anil Shaji, Dr. Archana Pai, Dr. K. R. Arun, Dr. Nishant.K.T, Dr. R. S. Swathi, Dr. S. Sankaran aranarayanan	MHRD	400 Lakhs	2014-2018
3.	Comparative sensory ecology of honey bees	Dr. Hema Somanathan	Natalie Hempel de barra	UKIERI,	19.68 Lakhs	2014-2016
4.	Nanoscale Schottky junctions for sub ppm hydrogen detection	Dr. Joy Mitra	None	SERB, DST	40 lakhs	2014-2017
5.	Physics and applications of high aspect ratio Schottky Junction Devices	Dr. Joy Mitra,	Dr. Madhu Thalakulam	UKIERI, UGC	16 Lakhs	2014-2016
6.	Quantum point contact double quantum system: Lab on chip for quantum measurement and back action	Dr. Madhu Thalakulam	None	DST-SERB	50 Lakhs	2014-2016
7.	Identification and characterization of kinetochore proteins with special emphasis on in vivo haploid induction in plants	Dr. Ravi Maruthachalam	None	Dupont Inc. USA	15 Lakhs	2014-2017
8.	Chemical Biological Intervention in cell signaling	Dr. K. M. Sureshan	None	DST	240 Lakhs	2015-2020
9.	Morphometry and Phylogeography of Honey Bees and Stingless Bees in India Phase-II	Dr. Ullasa Kodandaramaiah	Shashidhar Viraktamat (UAS, Dharwad)	DBT	33.73 Lakhs	2015-2018

## Non-Funded Projects

The following projects are received by the faculty members towards travel expenses and other personal contingencies

Sl.No.	Name of Project	Principal Investigator	Co-investigator	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
1.	Structural studies on transcription regulators (MX rapid access proposal)	Dr. Ramanathan Natesh	None	Diamond Light Source, In the form of travel support, boarding and 4 shifts of beam time	-	2014-2015
2.	Stochastic Landau-Lifshitz-Gilbert Equation with Levy Noise and Ferromagnetism	Dr. Utpal Manna	Zdzislaw Brzezniak (University of York, UK)	Royal Society, UK	12 lakhs	2014-2016

## Ongoing Sponsored Projects

SL. NO.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
1.	Lewis Acidic Molecular Bismuth Alkyls and Hydrides	Dr. Ajay Venugopal	None	SERB, DST	25.8 Lakhs	2013-2016
2.	Molecular Magnesium Hydrides: Hydrogen Storage	Dr. Ajay Venugopal	None	INSPIRE, DST	35 Lakhs	2013-2018
3.	Max Planck Partner group (of Albert Einstein Institute, Germany)	Dr. Archana Pai	German PI-Prof. Bernard Schutz, Director, Albert Einstein Institute	DST India and Max Planck Society, Germany	125 Lakhs	Got extension After the review till 2016, (2011-2016)
4.	Development of Enhanced CPL-active Materials for Potential Application in Future Security Technology	Dr. K. George Thomas	None	DST (funded under DST-JSPS Indo-Japan Cooperative Science Programme)	5.30 Lakhs	2013-2015

5.	Organic and Organic-Inorganic Hybrid Solar cells	Dr. K. George Thomas	None	DST (funded under the framework of India-European Union Science and Technology Cooperation Agreement)	56 Lakhs	2011-2015 (initial duration 2011-2014; extended one more year)
6.	microRNA functions	Dr. Jishy Varghese	None	DST-SERB	82 Lakhs	2013-2018
7.	Regulation of Floral organ positioning in rice Interplay between polar auxin transport and patterning regulators to control the organ polarity	Dr. Kalika Prasad	None	DBT	80 Lakhs	2013-2018
8.	Synthesis, Structure and Electronic Properties of Natural and Non-Natural Nucleic Acid Sequences	Dr. Mahesh Hariharan	None	DST	26.08 Lakhs	2012-2015
9.	Mechanistic Investigations on Light Induced Crosslinking of DNA Protein Nanostructures	Dr. Mahesh Hariharan	None	DBT	53.76 Lakhs	2013-2016
10.	Incorporation of plasmonic structures to improve organic photovoltaics	Dr. Manoj. A. G. Namboothiry	M.M.Shaijumon	DST SERI	184 Lakhs	2012-2015
11.	Design, Synthesis and characterization of self-assembled molecular materials: Applications in Drug delivery and Nanoscale Energy storage devices	Dr. M. M. Shaijumon	Dr. Vibin Ramakrishnan, (IIT Guwahati)	DBT	104.44 Lakhs	2013-2016
12.	3-D Engineered Electrodes for Electrochemical Energy Storage	Dr. M. M. Shaijumon	Dr.Vijayamohan Pillai (CSIR-CECRI) Dr. A. K. Singh (IISc Bangalore) Prof. P. M. Ajayan (Rice University, USA) Prof. S. Talapatra (SIUC, USA) Prof. P. Sharma (U. o. H, USA)	Indo-US Science & Technology Forum (IUSSTF)- DST	67.81 Lakhs	2013-2015

13.	Genetic analysis of crossover assurance mechanisms facilitating meiotic chromosome segregation	Dr. Nishant K. T	None	Wellcome Trust-DBT India Alliance	330.3 lakhs	2012-2017
14.	Ultrafast optical and terahertz studies of the dilute bismide alloys, GaN:Bi and GaAs:Bi”	Dr. Rajeev. N. Kini	None	SERB	27 Lakhs	2013-2016
15.	“Ultrafast Optical and Terahertz studies of the dilute Bismide alloys, GaN:Bi and GaAs:Bi”	Dr. Rajeev. N. Kini	Prof A J Kent, University of Nottingham	DST-UKIERI	6.45 Lakhs	2013-2015
16.	Structural Analysis Of proteins and Its interacting partners	Dr. Ramanathan Natesh	None	DBT (Ramalingaswami Fellowship)	75.7 Lakhs	2010-2015
17.	Synthesis and Physical Properties of frustrated $S=1/2$ square lattice compounds	Dr. Ramesh Chandra Nath	None	DST	52.84 Lakhs	2012-2015
18.	Generation and characterization of minichromosomes and neocentromere formation in plants	Dr. Ravi Maruthachalam	None	DBT (Ramalingaswami Fellowship)	82.5 lakhs	2013-2018
19.	Nucleic acid- $\pi$ amphiphiles: Self-assembled nanocarriers and nanosensors	Dr. Reji Varghese	Dr. Srinivasa Murty Srinivasula	DBT	102 Lakhs	2014-2017
20.	DNA Based Addressable Functional Nanomaterials: Design, Synthesis and Self-assembly of Novel DNA-Rigid Rod Block Copolymers	Dr. Reji Varghese	None	DST	75 Lakhs	2012-2017
21.	Ramanujan Fellowship	Dr. S. Shankaranarayanan	None	DST, India	73 Lakhs	2010-2015

22.	DST-Max Planck Partner group	Dr. S. Shankaranarayanan	None	DST India and Max Planck Society, Germany	120 Lakhs	2011-2016
23.	Derivatives of Lyapunov Exponents, Structural Stability of systems and the Pressure function	Dr. Shrihari Sridharan	None	DST, India	12.36 Lakhs	2013-2016
24.	Synthesis, Structural Evolution and Physical Properties Tuning of Cluster-Assembled Materials	Dr. Sukhendu Mandal	None	SERB	50 lakhs	2014-2017
25.	Metathesis of Alkanes Using Transition Metal Catalysts	Dr. Sukhendu Mandal	None	CSIR	11 lakhs	2014-2017
26.	A multilayered approach to decipher uncharted mechanisms of asymmetric cell division	Dr. Sunish Kumar Radhakrishnan	None	Wellcome Trust/ DBT India Alliance	267.62 Lakhs	2011-2016
27.	Ramanujan Fellowship	Dr. K. M. Sureshan	None	SERB	35 lakhs	2010-2015
28.	Determining the role of centrosome protein TACC3 in regulation of microtubule nucleation and elucidating its molecular mechanism.	Dr. Tapas. K. Manna	Vinesh Vijayan	DAE	24.87 lakhs	2014-2017
29.	Unravelling higher-level phylogenetic relationships of skipper butterflies (Lepidoptera: Hesperidae), times of divergences and evolution of hostplant associations	Dr. Ullasa Kodandaramaiah	Vladimir Lukhtanov	DST (India), RFBR (Russia)	35 Lakhs	2013-2015
30.	Understanding diversification of butterflies using a multi-disciplinary approach	Dr. Ullasa Kodandaramaiah	None	DST-SERB	35 Lakhs	2013-2018
31.	Study of Stochastic Analysis and Control of Certain Hydrodynamic Models	Dr. Utpal Manna	None	National Board of Higher Mathematics (NBHM)	2 lakhs	2014-2017

## Completed Sponsored Project

Sl. No.	Principal Investigator	Name of Project	Co-Investigator	Sponsoring Agency	Amount Sanctioned (Rs.in Lakh)	Duration
1.	Dr. Archana Pai	Gravitational Waves: Emerging window of the Universe	DST India	SERC Fast Track Scheme for Young Scientists	12.24 Lakhs	2011-2013
2.	Dr. Ramesh Chandra Nath	MPG-DST Fellowship	None	MPG-DST Fellowship	12 lakhs	2011-2014
3.	Dr. M. M. Shaijumon	Design and development of 3-dimensional Li-ion microbatteries	None	DST- Fast track	18.00 Lakhs	2011-2014
4.	Dr. M.M.Shaijumon	Development of Silicon-graphene hybrid anodes for Li-ion battery	None	Renault-Nissan India Pvt. Ltd (Industry project)	25.00 Lakhs	2013-2014
5.	Dr. M. M. Shaijumon	Nanoarchitected TiO <sub>2</sub> -based hybrid structures for Li-ion battery applications	None	BRNS-DAE	14.80 Lakhs	2012-2015
6.	Dr. Tapas. K. Manna	To determine the molecular mechanisms involved in centrosomal transforming acidic coiled-coil 3(TACC3) mediated cell cycle progression	None	None	27.14 Lakhs	2012-2015

### 1. Gravitational Waves: Emerging window of the Universe:

The project undertook issues of multi-detector observation of gravitational waves with advanced gravitational waves detectors such as LIGO-Virgo. Higher Harmonics and Gravitational Wave (GW) Astronomy (2 publications) As a first part, the effects of full waveform over the restricted waveform of the inspiral signal from a coalescing compact binary system in extracting the parameters of the source, was studied. This study is with a population of neutron star–black hole binaries (uniformly distributed and oriented in the sky) by employing the full post-Newtonian waveforms. The implications were drawn for the joint observation of short Gamma Ray Burst in EM and GW observational window. Synthetic streams and Multi-detector approach in GW astronomy (2 publications) - The project formulates the multi-detector GW detection problem into two effective synthetic detectors which optimally captures the optimal SNR from the binary system with neutron stars and black holes.

### 2. DST-MPG Project:

Dilution effect of Ti<sup>4+</sup> in the antiferromagnetic square lattice compound Zn<sub>2</sub>VO (PO<sub>4</sub>)<sub>2</sub> is investigated by means of magnetization, heat capacity, and NMR measurements.

Quasi-two-dimensional spin-1/2 magnetism of  $\text{Cu} [\text{C}_6\text{H}_2(\text{COO})_4][\text{C}_2\text{H}_5\text{NH}_3]_2$  is studied.

Strong lattice softening on cooling is observed in frustrated spin-5/2 ladder compound  $\text{BiMn}_2\text{PO}_6$  and its non-magnetic analogue  $\text{BiZn}_2\text{PO}_6$ .  $\text{BiMn}_2\text{PO}_6$  undergoes two successive magnetic transitions at low temperatures; one is incommensurate and another is commensurate in nature.

We have synthesized polycrystalline sample of a new spin-1/2 ladder compound  $\text{Cu}_4\text{P}_2\text{O}_9$  and investigated its physical properties. Single crystals are also grown using the Bridgman technique.

Static, dynamic, and ground state properties of spin-1/2 antiferromagnetic triangular lattice compound  $\text{Li}_2\text{CuW}_2\text{O}_8$  are investigated. The effect of non-magnetic impurity substitution reveals strong 1D anisotropy.

### 3. Design and development of 3-dimensional Li-ion microbatteries:

The project entitled “Design and development of 3-dimensional Lithium ion microbatteries” was aimed at the design and fabrication of 3-dimensional Lithium ion microbattery using novel nanoarchitected battery materials and components. Different 3D-microbattery configurations have been addressed from the start of the project (3D-vertical, concentric). Based on the experimental characterization, a suitable configuration and an ideal set of battery parameters/specifications have been established for typical microbattery application.

### 4. Development of Silicon-graphene hybrid anodes for Li-ion battery:

The objective of the work was to synthesize silicon-based high performance anode materials for Li ion battery applications, taking into account of the vehicular needs. In this work, hybrid composites of thermally reduced Graphene Oxide–Carbon coated Silicon nanoparticles have been synthesized and studied as efficient anodes for Li-ion battery for vehicular applications. The carbon coating alleviate the aggregation of Si nanoparticles, and enhance the electrical connection between Si nanoparticles and graphene sheets, while the graphene frameworks accommodate large volume changes of Si nanoparticles. The project was very successful and further collaborative efforts are in progress with this Industry.

### 5. Nanoarchitected $\text{TiO}_2$ -based hybrid structures for Li-ion battery applications:

The project was aimed at developing a simple and economically viable method to synthesize hybrid nanostructured materials and use the multifunctional capability of such materials in the design and fabrication of Li-ion batteries. This project mainly dealt with the preparation of nanostructured  $\text{TiO}_2$ -based hybrid materials and their electrochemical performance studies as anodes in Li-ion batteries.

### 6. To determine the molecular mechanisms involved in centrosomal transforming acidic coiled-coil 3(TACC3) mediated cell cycle progression:

Centrosome-mediated microtubule nucleation is essential for spindle assembly during mitosis and it requires proper regulation of gamma-tubulin ring complex assembly. Several studies implicated a number of pericentriolar proteins in the integration of the  $\gamma$ -tubulin complex to the centrosome but were unable to clearly define the mechanisms of microtubule nucleation at the centrosome. Our results have demonstrated that member of the human transforming acidic coiled-coil (TACC) protein family, TACC3, plays critical role in microtubule nucleation at the centrosome. In mitotic cells, TACC3 knock-down substantially affected the assembly of microtubules in the astral region and impaired microtubule nucleation. Detailed analyses



revealed that TACC3 functions in the stabilization of the  $\gamma$ -tubulin ring complexes in cells. Since TACC3 is involved in centrosome integrity and centrosome-mediated microtubule assembly, we investigated whether this protein is linked with the signaling pathways associated with centrosome-mediated cell cycle progression. The results have demonstrated that TACC3 depletion induces G1 arrest via a stress signaling involving accumulation of activated p53 and p38 at the centrosome.

The Following research publication has come out as part of the projects

Suhail TV, Singh P, Manna TK.\* (2015) Suppression of centrosome protein TACC3 induces G1 arrest and cell death through activation of P38-P53-P21 stress signaling pathway. *European Journal of Cell Biology*, 94, 90-100  
 Singh P, Thomas GE, KK Gireesh, Manna TK.\* (2014) TACC3 regulates microtubule nucleation by affecting gamma-tubulin ring complexes. *Journal of Biological Chemistry*, 289, 31719-31735

## Patents Filed

Sl. No.	Principal Investigator	Co-Investigator	Name of the Project	Date of Patent
1	K. George Thomas	Jatish Kumar, Reshmi Thomas, R. S. Swathi	A Method of Fabricating Gold Nanorod Plasmonic Platforms and Products Patent	2614/CHE/2014
2	K. M. Sureshan	R. Mohanrao	An improved method for the synthesis of cyclic polyols and derivatives thereof	1138/CHE/2014
3	M. M. Shaijumon	P. Manikandan and D. Ramasubramonian	A high voltage cathode material composition and a process thereof	2095/CHE/2015
4	M. M. Shaijumon	D. Gopalakrishnan and D. Damien	A Single step process for the synthesis of MoS <sub>2</sub> quantum dots	3309/CHE/2014

## 5. Research Publications

The institute has published 75 journal papers; 6 conference articles and one book chapter during 2014-2015. The details are given below:

### Journal Articles

1. Molecular rare-earth-metal hydrides in non-cyclopentadienyl environments W. Fegler, **Ajay Venugopal**, M. Kramer, J. Okuda, *Angew. Chem. Int. Ed.*, 54, 1724, 2015.
2. Y. Prasad, **Amal Medhi**, and Vijay B. Shenoy, Fermionic superfluid from a bilayer band insulator in an optical lattice, *Phys. Rev. A* 89, 043605, 2014.
3. Hideyuki Tagoshi, Chandra Kant Mishra, **Archana Pai**, K. G. Arun Parameter estimation of neutron star-black hole binaries using an advanced gravitational-wave detector network: Effects of the full post-Newtonian waveform *Phys. Rev. D* 90, 024053, 2014.

4. K. G. Arun, Hideyuki Tagoshi, **Archana Pai**, Chandra Kant Mishra, Synergy of short gamma ray burst and gravitational wave observations: Constraining the inclination angle of the binary and possible implications for off-axis GRBs Phys. Rev. D 90, 022003, 2014.
5. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Search for gravitational waves associated with gamma-ray bursts detected by the Inter Planetary Network, Phys.Rev.Lett. 113, 011102, 2014.
6. Haris K., **Archana Pai**, Synthetic streams in a Gravitational Wave inspiral search with a multi-detector network Phys. Rev D 90, 022003, 2014.
7. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Methods and results of a search for gravitational waves associated with gamma-ray bursts using the GEO600, Phys.Rev. D89, 12, 122004, 2014.
8. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) First all-sky search for continuous gravitational waves from unknown sources in binary systems, Phys.Rev. D90, 6, 062010, 2014.
9. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Directed search for gravitational waves from Scorpius X-1 with initial LIGO data, Phys.Rev. D91, 6, 062008, 2015.
10. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Advanced LIGO, Nov 17, 2014, Class.Quant.Grav. 32, 074001, 2015.
11. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Narrow-band search of continuous gravitational-wave signals from Crab and Vela pulsars in Virgo VSR4 data, Phys.Rev. D91, 2, 022004, 2015.
12. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Characterization of the LIGO detectors during their sixth science run, Class.Quant.Grav. 32, 11, 115012, 2015.
13. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Searching for stochastic gravitational waves using data from the two colocated LIGO Hanford detectors, Phys.Rev. D91, 2, 022003, 2015.
14. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Multimessenger search for sources of gravitational waves and high-energy neutrinos: Initial results for LIGO-Virgo and IceCube, Phys.Rev. D90, 10, 102002, 2014.
15. J. Aasi et al (The LIGO Scientific and the Virgo Collaborations, **Archana Pai**) Improved Upper Limits on the Stochastic Gravitational-Wave Background from 2009–2010 LIGO and Virgo Data, Phys.Rev.Lett. 113, 23, 231101, 2014.
16. Noelle, S., Bispin, G, **Arun K. R**, Lukáčová-Medvid'ová, M. Munz, C.-D. A weakly asymptotic preserving low Mach number scheme for the Euler equations of gas dynamics. SIAM J. Sci. Comput., 36, NO. 6, B989–B1024, 2014.
17. **Arun K. R**, Chen, G.-X, Noelle, S. A Finite Volume Evolution Galerkin Scheme for Acoustic Waves in Heterogeneous Media. In: Hyperbolic Problems: Theory, Numerics, Applications F.Ancona, A.Bressan, P.Marcati, A.Marson Eds (Proceedings of the International Conference HYP2012), AIMS Appl. Math. Vol. 8, 2014.
18. G. S. Balamurali, **Hema Somanathan**, N. H. de Ibarra. Motion cues improve colour learning in harnessed honey bees. Journal of Comparative Physiology A 201: 505-511. 2015.

19. B. Thejasvi, D. Bellus, **Hema Somanathan**, Long term behavioural consistency in prey capture but not in web maintenance in a social spider. *Behavioural Ecology and Sociobiology* 69: 1019-1028. 2015.
20. K. Bandopadhyay and **Joy Mitra**, Zn interstitials and O vacancies responsible for n-type ZnO: what do the emission spectra reveal? *RSC Adv.*, 5, 23540, 2015.
21. A. P. Mähönen, K. T. Tusscher, R. Siligato, O. Smetana, S. Díaz-Triviño, J. Salojärvi, G. Wachsman, **Kalika Prasad**, Heidstra R, Scheres B. PLETHORA gradient formation mechanism separates auxin responses *Nature*. 515:125-129. 2014.
22. H. Banda, D. Damien, K. Nagarajan, **Mahesh Hariharan** and **M. M. Shaijumon**, Polyimide based all-organic sodium ion battery, *J. Mater. Chem. A*, 3, 10453-10458, 2015.
23. K. Nagarajan, S. K. Rajagopal and **Mahesh Hariharan**, C-H...H-C and C-H... $\pi$  Contacts Aid Transformation of Dimeric to Monomeric Anthracene in the Solid State, *CrystEngComm*, 16, 8946-8949, 2014.
24. S. K. Rajagopal, A. M. Philip, K. Nagarajan and **Mahesh Hariharan**, Progressive Acylation of Pyrene Engineers Solid State Packing and Colour via C-H...H-C, C-H...O and  $\pi$ - $\pi$  Interactions, *Chem. Commun.* 50, 8644-8647, 2014.
25. R. T. Cheriya, A. R. Mallia and **Mahesh Hariharan**, Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination in the Presence of an Electron Donor, *Energy Environ. Sci.* 7, 1661-1669, 2014.
26. Sumanshu Agarwal, Madhu Seetharaman, Naresh K. Kumawat, Anand S. Subbiah, Shaibal K. Sarkar, Dinesh Kabra, **Manoj A. G. Namboothiry**, and Pradeep R. Nair, On the Uniqueness of Ideality Factor and Voltage Exponent of Perovskite-Based Solar Cells *J. Phys. Chem. Lett.*, 5 (23), pp 4115-4121, 2014.
27. Madhu Seetharaman S, Puvvala Nagarjuna, P. Naresh Kumar, Surya Prakash Singh, Melepurath Deepa and **Manoj A. G. Namboothiry**, Efficient organic-inorganic hybrid perovskite solar cells processed in air *Phys. Chem. Chem. Phys.*, 16, 24691-24696, 2014.
28. Pranav C. Khandelwal, Suchi S. Agrawal, **Manoj A. G. Namboothiry** and Namrata Gundiah, Fabrication of a novel biomaterial with enhanced mechanical and conducting properties, *J. Mater. Chem. B*, 2, 7327-7333, 2014.
29. **M.P. Rajan** and G.D. Reddy, A Variant of Tikhonov Regularization for Parabolic PDE with Space Derivative multiplied by a Small Parameter  $\epsilon$ , *Applied Mathematics and Computation*, 259, 412-426, 2015.
30. **M.P. Rajan** and G.D. Reddy, An iterative technique for solving singularly perturbed parabolic PDE, *Journal of Applied Mathematics and Computing*, Published online (18/1/2015), DOI.1.1007/S12190-015-0866-X, 2015.
31. G. N. Krishnaprasad, M.T. Anand, G. Lin, M. M. Tekkedil, L. M. Steinmetz and **Nishant.K.T**, Variation in crossover frequencies perturb crossover assurance without affecting meiotic chromosome segregation in *Saccharomyces cerevisiae*. *Genetics* 199: 399-412. 2015.
32. R S Joshya, A. J Ptak, R France, A Mascarenhas and **Rajeev N Kini**, Resonant state due to Bi in the dilute bismide alloy  $\text{GaAs}_{1-x}\text{Bi}_x$  *Phys Rev B*. 90, 165203, 2014.
33. **Ramesh Chandra Nath**, M. Padmanabhan, S. Baby, **A. Thirumurugan**, D. Ehlers, M. Hemmida, H.-A. Krug von Nidda, and A. A. Tsirlin, Quasi-two-dimensional  $S = 1/2$  magnetism of  $\text{Cu} [\text{C}_6\text{H}_2(\text{COO})_4] [\text{C}_2\text{H}_5\text{NH}_3]_2$ , *Phys. Rev. B* 91, 054409, 2015.

34. M. O. Ajeesh, A. Yogi, M. Padmanabhan, and **Ramesh Chandra Nath**, Tuning of magnetic frustration in  $S=1/2$  Kagomé lattices  $\{[\text{Cu}_3(\text{CO}_3)_2(\text{bpe})_3](\text{ClO}_4)_2\}_n$  and  $\{[\text{Cu}_3(\text{CO}_3)_2(\text{bpy})_3](\text{ClO}_4)_2\}_n$  through rigid and flexible ligands., *Solid State Commun.* 207, 16, 2015.
35. A. Yogi, N. Ahmad, **Ramesh Chandra Nath**, A. A. Tsirlin, S. Kundu, A. V. Mahajan, J. Sichelschmidt, B. Roy, Y. Furukawa, Antiferromagnetic square lattice in  $\text{Zn}_2\text{VO}(\text{PO}_4)_2$  and its dilution with  $\text{Ti}^{4+}$ ., *Phys. Rev. B* 91, 024413, 2015.
36. **Ramesh Chandra Nath**, K. M. Ranjith, B. Roy, D. C. Johnston, Y. Furukawa, and A. A. Tsirlin, Magnetic transitions in the spin  $S=5/2$  frustrated magnet  $\text{BiMn}_2\text{PO}_6$  and strong lattice softening in  $\text{BiMn}_2\text{PO}_6$  and  $\text{BiZn}_2\text{PO}_6$  below 200 K., *Phys. Rev. B* 90, 024431, 2014.
37. Marpaung, David; Morrison, Blair; Pagani, Mattia; **Ravi Pant**, Choi, Duk-Yong; Luther-Davies, Barry; Madden, Steve J; Eggleton, Benjamin J, Low power, chip-based stimulated Brillouin scattering microwave photonic filter with ultrahigh selectivity, *Optica* 2, 76-83, 2015.
38. Thomas F. S. Büttner, Irina V. Kabakova, Darren D. Hudson, **Ravi Pant**, Christopher G. Poulton, Alexander C. Judge & Benjamin J. Eggleton, Phase-locking and Pulse Generation in Multi-Frequency Brillouin Oscillator via Four Wave Mixing, *Scientific Reports* 4, Article number: 5032 DOI: doi:10.1038/srep05032, 2014.
39. **Ravi Maruthachalam**, M. P. Marimuthu, E. H. Tan, S. Maheshwari, I. M. Henry, B. Marin-Rodriguez, G. Urtecho, J. Tan, K. Thornhill, F. Zhu, A. Panoli, V. Sundaresan, A. B. Britt, L. Comai, S. W. Chan. A haploid genetic toolbox for *Arabidopsis thaliana*. *Nat Commun.* Oct 31;5:5334. doi: 10.1038/ncomms6334, 2014.
40. Shine K. Albert, Hari Veera Prasad Thelu, Murali Golla, Nithiyanandan Krishnan, Soma Chaudhary, and **Reji Varghese**, *Angew. Chem. Int. Ed.* 53, 8352–8357, 2014.
41. Harish Banda, Dijo Damien, K. Nagarajan, **M. M. Shaijumon** and **Mahesh Hariharan**, Polyimide-based all-organic Sodium-ion battery', *J. Mater. Chem. A* 3, 10453-10458, 2015.
42. D. Gopalakrishnan, D. Damien, B. Li, H. Gullapalli, V. K. Pillai, P. M. Ajayan and **M. M. Shaijumon**, Electrochemical synthesis of Luminescent  $\text{MoS}_2$  quantum dot', *Chem. Commun.*, 51, 6293-6296, 2015.
43. T. P. Gujarati, A. G. Ashish, Maniratnam Rai and **M. M. Shaijumon**, Highly ordered vertical arrays of  $\text{TiO}_2/\text{ZnO}$  hybrid nanowires: Synthesis and Electrochemical characterization, *J. Nanosci. Nanotech*, 15, 5833-5839, 2015.
44. Aswathi Ganesan, R. Mukherjee, Jyotishraj and **M. M. Shaijumon**, Nanoporous rice husk derived carbon for gas storage and electrochemical energy storage, *J. Porous Mater.*, 21, 839-847, 2014.
45. Sreeganesh Balasubramani, Devendra Singh and **R. S. Swathi**, Noble gas encapsulation into carbon nanotubes: Predictions from analytical model and DFT studies, *J. Chem. Phys.* 141, 184304, 2014.
46. A. M. Vibhute, V. Konieczny, C. W. Taylor, **K. M. Sureshan**, Triazolophostins: A Library of Novel and Potent Agonists of  $\text{IP}_3$  Receptors. *Org. Biomol. Chem.* 2015, 13, DOI: 10.1039/C5OB00440C, 2015.
47. A. Vidyasagar, **K. M. Sureshan**, Total syntheses of five uvacalols: Structural validation of uvacalol A, uvacalol B and uvacalol C and disproval of the structures of uvacalol E and uvacalol G. *Org. Biomol. Chem.* 2015, 13, DOI: 10.1039/C4OB02663B, 2015.
48. B. P. Krishnan, **K. M. Sureshan**, A spontaneous single-crystal-to-single-crystal polymorphic transition involving major packing changes. *J. Am. Chem. Soc.* 2015, 137, 1692-1696, 2015.
49. T. Saha, S. Dasari, D. Tewari, A. Prathap, **K. M. Sureshan**, A. K. Bera, A. Mukherjee, P. Talukdar, Hopping Mediated Anion Transport through a Mannitol-Based Rosette Ion Channel. *J. Am. Chem. Soc.* 2014, 136, 14128- 14135, 2014.

50. S. Mondal, **K. M. Sureshan**, Total syntheses and structural validation of lincitol A, Lincitol B, Uvacalol I, Uvacalol J and Uvacalol K. *Org. Biomol. Chem.* 2014, 12, 7279-7289, 2014.
51. A. Pathigoolla, **K.M. Sureshan**, Synthesis of Triazole-linked Homonucleoside Polymers through Topochemical Azide-Alkyne Cycloaddition, *Angew. Chem. Int. Ed.* 2014, 53, 9522-9525, 2014.
52. A. M. Vibhute, **K. M. Sureshan**, Strength from Weakness: Conformational Divergence between Solid and Solution States of Substituted Cyclitols Facilitated by CH...O Hydrogen Bonding, *J. Org. Chem.* 2014, 79, 4892-4908, 2014.
53. R. Mohnarao, A. Asokan, **K. M. Sureshan**, Bio-inspired synthesis of rare and unnatural carbohydrates and cyclitols through strain driven epimerization. *Chem. Commun.*, 50, 6707-6710, 2014.
54. Chandra Shekar and **R. S. Swathi**, Cation- $\pi$  interactions and rattling motion through two-dimensional carbon networks: Graphene vs Graphynes, *J. Phys. Chem. C* 119, 8912, 2015.
55. Jatish Kumar, Reshmi Thomas, **R. S. Swathi** and **K. George Thomas**, Au nanorod quartets and Raman signal enhancement: towards the design of plasmonic platforms, *Nanoscale*, 6, 10454-10459, 2014.
56. S.Unnikrishnan and **S.Shankaranarayanan**, Consistency relation in power law G-inflation, *JCAP* 1407, 003, 2014.
57. J. Skakala and **S.Shankaranarayanan**, No minimally coupled scalar black hole hair in Lanczos-Lovelock gravity, *Class. Quant. Grav.* 31, 175005, 2014.
58. K. Mallayya, R. Tibrewala, **S.Shankaranarayanan** and T. Padmanabhan, Zero modes and divergence of entanglement entropy, *Phys. Rev. D* 90, no. 4, 044058, 2014.
59. K. S. Asha, A. C. Reber, A. F. Pedicini, S. N. Khanna, **Sukendu Mandal** The effects of alkaline-earth counterions on the architectures, band-gap energies, and proton transfer of triazole-based coordination polymers, *Eur. J. Inorg. Chem.*, 2085, 2015.
60. K. S. Asha, P.R. Kavyasree, A. George, **Sukendu Mandal**, The role of solvent in framework dimensionality and their effect on band gap energy, *Dalton Trans.*, 44, 1009, 2015.
61. A. George, H. Choudhary, B. Satpati, **Sukendu Mandal**, Synthesis, Characterization and optical properties of ligand-protected indium nanoparticles, *Phys. Chem. Chem. Phys.*, 7109, 17, 2015.
62. P. C. Rao, K. S. Asha, **Sukendu Mandal**, Synthesis, Structure and band gap energy of a series of thermostable alkaline earth metal based metal-organic frameworks, *Cryst. Engg. Commun.*, 16, 9320, 2014.
63. K. S. Asha, K. Bhattacharyya, **Sukendu Mandal**, Discriminative detection of nitro aromatic explosives by a luminescent metal-organic framework, *J. Mater. Chem. C.*, 2014, 2, 10073, 2014.
64. R. Ghosh, Asha K. S, S. M. Pratik, A. Datta, R. Nath, **Sukendu Mandal**, Synthesis, Structure, photocatalytic and magnetic properties of an ox-bridged copper dimer, *RSC Advances*, 4, 21195, 2014.
65. F.Y. Pong, **Sukendu Mandal**, A. Sen, Steric and electronic effects in ethen/norbornene copolymerization by neutral silylaldiminato-Ligated palladium(II) catalysts *Organometallics*, 33, 7044, 2014.
66. George and **Sukendu Mandal**, Atom-precise Metal Nanoclusters in Applied Spectroscopy and the Science of Nanomaterials, Ed. P. Misra, Springer, 2014.
67. V. Suhail, P. Singh, **Tapas.K.Manna**, Suppression of centrosome protein TACC3 induces G1 arrest and cell death through activation of p38-p53-p21 stress signaling pathway, *European Journal of Cell Biology*, 94, 90-100, 2015.

68. G. E. Thomas, J. S. Sreeja, K. K. Gireesh, H. Gupta, **Tapas.K.Manna**, Suppression of +TIP protein EB1 sensitizes cells to paclitaxel-induced proliferation inhibition and apoptosis through inhibition of paclitaxel binding on microtubules, *International Journal of Oncology*, 46, 133-146, 2015.
69. P. Singh, G. E. Thomas, K. K. Gireesh, **Tapas.K.Manna**, TACC3 regulates microtubule nucleation by affecting gamma-tubulin ring complexes, *Journal of Biological Chemistry*, 289, 31719-31735, 2014.
70. K. K. Gireesh, J. S. Sreeja, S. Chakraborti, P. Singh, G. E. Thomas, H. Gupta, **Tapas.K.Manna**, Microtubule +TIP protein EB1 binds to GTP and undergoes dissociation from dimer to monomers on binding GTP, *Biochemistry*, 53, 5551-5557, 2014.
71. W. Li, **A. Thirumurugan**, P. T. Barton, Z. Lin, S. Henke, H. H.-M. Yeung, M. T. Wharmby, E. G. Bithell, C. J. Howard, A. K. Cheetham, Mechanical Tunability via Hydrogen Bonding in Metal–Organic Frameworks with the Perovskite Architecture, *J. Am. Chem. Soc.*, 136, 780, 2014.
72. R. Mukherjee, **Ullasa Kodandaramaiah**, What makes eyespots intimidating - The importance of pairedness, *BMC Evolutionary Biology*. 15: 34, 2015.
73. **Utpal Manna**, Manil T Mohan and Sivaguru S Sritharan, Stochastic Navier-Stokes Equations in Unbounded Channel Domains, *Journal of Mathematical Fluid Mechanics*, Volume 17 (1), 47–86, 2015.
74. G. Donadze and **Viji Z Thomas**, Bazzoni-Glaz Conjecture, *J. Algebra*, 420, 141-160, 2014.
75. J.P. Demers, **Vinesh Vijayan**, A. Lange, Recovery of Bulk Proton Magnetization and Sensitivity Enhancement in Ultra-Fast Magic-Angle Spinning Solid-State NMR *The Journal of Physical Chemistry Part B*, 119, 2908-2920, 2015.

## Conference Articles

1. **M.P Rajan** and G.D. Reddy, An a posteriori parameter choice Rule for singularly perturbed elliptic PDE, *Proceedings of International Conference on Mathematical and Computational Sciences*, Narosa Publishing House, page no: 25-34, 2015.
2. D. Pradeep and **M.P Rajan**, A modified Newton iterative scheme for solving nonlinear ill-posed problems, *Proceedings of International Conference on Mathematical and Computational Sciences*, Narosa Publishing House, page no: 15-24, 2015.
3. Thomas Buettner, Irina V. Kabakova, Darren D. Hudson, **Ravi Pant**, Christopher G. Poulton, Alexander C. Judge and Benjamin J. Eggleton, Phase-Locking in Multi-Frequency Brillouin Oscillator via Four-WaveMixing, *CLEO FW1D.6*, San Jose, June 2014
4. David Marpaung, Blair Morrison, **Ravi Pant**, Chris Roeloffzen, Arne Leinse, Marcel Hoekman, Rene Heideman, and Benjamin J. Eggleton, Ultrahigh suppression and reconfigurable RF photonic notch filter using reconfigurable RF photonic notch filter using a silicon nitride ring resonator, *CLEO SF2O.1*, San Jose, June 2014.
5. **Sainul Abideen P**, towards an open and flexible e-journal gateway for effective scientific knowledge sharing, *Information Studies*, 21 (1), pp 7-17, 2015.
6. **Ramanathan Natesh**, D.K. Clare, A.L. Horwich and H.R. Saibil. Visualising Chaperonin non-native protein interactions by single particle cryoEM, *The Second International Symposium on Protein Folding and Dynamics*, Bangalore, 5-7 November 2014.

## Book Chapters

- David Marpaung, **Ravi Pant** and Benjamin J. Eggleton, Harnessing Nonlinear Optics for Microwave Signal Processing, All-optical signal processing Edited by Stefan wabnitz and Benjamin J Eggleton Springer publishing.

## 6. Awards and Honours

Sl.No.	Faculty	Honors/Awards
1.	Dr. Archana Pai	Recipient of the N R Sen Young Scientist Award 2015
2.	Dr. K. George Thomas	Elected Fellow of Indian National Science Academy, New Delhi
		MRSI-ICSC Superconductivity & Materials Science Annual Prize, 2015
3.	Dr. Mahesh Hariharan	Chartered Chemist of the Royal Society of Chemistry, 2015
		Chartered Scientist of the Royal Society of Chemistry, 2015
		Asian and Oceanian Photochemistry Association Young Scientist Prize, 2014
4.	Dr. Rajeev N Kini	Kerala State Young Scientist Award
5.	Dr. Ravi Maruthachalam	Dupont Young Professor Award 2014
6.	Dr. Ravi Pant	Awarded Ramanujan Fellowship from DST SEBR in January 2015
7.	Dr. Reji Varghese	Kerala State Young Scientist Award 2014
8.	Dr. R. S. Swathi	Young Associateship of the Indian Academy of Sciences, Bangalore for the duration 2014-2017
		Distinguished Lectureship Award of the Japanese Chemical Society for work on Theoretical Chemistry
9.	Dr. K. M. Sureshan	Swarnajayanti Fellowship
10.	Dr.Ullasa Kodandaramaiah	Young Associate of the Indian Academy of Sciences 2014-2017
11.	Dr. Utpal Manna	Kerala State Young Scientist Award 2014 by the Kerala State Council for Science, Technology & Environment
12.	Dr. Viji. Z. Thomas	Awarded the PEIN grant for the year 2014 by the government of Spain to conduct research at University of Santiago de Compostel

In addition to the above, the following faculty / staff members received recognition from various bodies:

1. **Archana Pai:** Council Member, Indian Association for General Relativity and Gravitation, March 2014
2. **Archana Pai:** Chair, Selection Committee of GWIC (Gravitational Wave International Committee) Thesis Prize and Stefano Braccini Thesis Prize, Nov 2014
3. **Nishant. K. T:** Scientific visit, July 10-31, 2014: EMBL-Heidelberg
4. **Sainul Abideen .P:** Nominated as the Joint Coordinator of the IISER Library Consortium.
5. **Viji. Z. Thomas:** Invited to deliver a series of 4 lectures at the international workshop/conference on Schur Multiplier at HRI, India
6. **Viji. Z. Thomas:** Nominated as the Joint Coordinator of the IISER Library Consortium.

## 7. Other Academic Activities

The faculties of the institute have participated in various national and international conferences as listed below.

### Conferences and Workshops Attended

Sl. No.	Faculty/Student	Conference/ Workshop	Venue	Date	International/ National
1.	Dr. Adithya Lakshmana	Spectroscopy and Dynamics of Molecules and Clusters	Nainital	Feb 19-22, 2015	International
		Faraday Discussion 177: Temporally And Spatially Resolved Molecular Science	IISc, Bangalore	Jan 12-14, 2015	International
2.	Dr. Anil Shaji	Discussion Meeting On Quantum Measurements	IISc, Bangalore	Oct 22-24, 2014	International
3.	Dr. Archana Pai	Transient Workshop, NCRA-TIFR Invited Talk Title: Transient Sky in The Gravitational Waves Window	NCRA-TIFR, Pune	Feb 16, 2015	National
		Can GW Multi-detector observation of CBC shine light on SGRB? N R Sen Award Lecture, IAGRC Meeting 18-20 March	Raman Research Institute	Mar 20, 2015	International



4.	Dr. Archana Pai, Haris K	Exploring MLR/Correlation technique in All sky CBC GW search Poster Presentation in IAGRG meeting	Raman Research Institute	Mar 18-20, 2015	International
		synthetic streams mimic GW Multi- detector network Poster Presentation in ASI 2015	NCRA-TIFR, Pune	Feb 17-20, 2015	National
5.	Dr. A. Thirumurugan	8th Asian Photochemistry Conference 2014	Trivandrum	Nov 10-13, 2014	International
		Recent Trends in Inorganic- Organic Hybrid materials	Kottayam	Feb 26-27, 2015	National
		Fourth International Conference on Multifunctional, Hybrid and Nanomaterials (Hybrid Materials 2015)	Stiges, Spain	Mar 9-13, 2015	International
6.	Dr. Joy Mitra	NFO13	University of Utah, USA	Aug 31-3 Sep, 2014	Invited talk International Conference
7.	Dr. Madhu Thalakulam	ICCMSE 2014	Athens, Greece	Apr 4-7, 2014	International
		Current Trends in Condensed Matter Physics	NISER Bhubaneswar	Feb 19-22, 2015	National
		4th International Conference on Current Developments in Atomic, Molecular, Nano and Optical Physics with Applications (CDAMOP 2015)	Delhi University	Mar 11-15, 2015	International
		National Conference on Materials Science & Technology (MSAT- 2015)	Bishop Moore College, Mavelikara, Kerala	Feb 4, 2015	National
		National Seminar on Nanoscience and Nanotechnology	University of Kerala	Mar 19-20, 2015	National

8.	Dr. Mahesh Hariharan	24th Winter I-APS Conference	Florida, USA	Jan 1-4, 2015	International
		8th Asian Photochemistry Conference	Trivandrum, India	Nov 9-13, 2014	International
		2nd International Conference on Clean Energy Science	Qingdao, China	Apr 13-16, 2014	International
9.	Dr. Manoj. A. C. Namboothiry	Organic Photovoltaics Workshop (sponsored by CEFIPRA),	NCL Pune	Oct 15-17, 2014	International
		International Conference on "Energy harvesting, Storage and Conversion"	CUSAT-Cochin	Feb 4-7, 2015	International
		Annual Photonics workshop 2015	CUSAT Cochin	Feb 26-28, 2015	National
		National Workshop on Photovoltaics IEST PV 2015	IEST Kolkata	Jan 20-21, 2015	National
		New materials and nanotechnology	Heera Engineering College Nedumangadu	Jan 16-17, 2015	National
10.	Dr. M. M. Shaijumon	Indo-US Workshop on Energy Storage	Chennai, India	Apr 3-4, 2014	International
		International meeting on Lithium Batteries (IMLB) 2014	Como, Italy	Jun 10-14, 2014	International
		Eurasia 2013	IISc Bangalore, India	Dec 14-18, 2014	International
		Nano India 2015	Sastra University, India	Jan 29-30, 2015	National
		International Workshop on Engineering and Application of Nanocarbon Materials	Shandong, China	Feb 1-2, 2015	International
		International Conference on "Energy Harvesting, Storage and Conversion", IC-EEE2015	Kochi, India	Feb 5-7, 2015	International

11.	Muhammed Saleem	Exploring the measurement of inclination angle of the binary and short GRB implications Talk presented in IAGRC Meeting 18-20 March 2015	Raman Research Institute	Mar 18-20, 2015	International
12.	Dr. Nishant K. T	EMBO conference on Experimental Approaches to Evolution and Ecology using Yeast and other Model Systems	EMBL Heidelberg	Oct 12-15, 2014	International
		2nd international conference on Chromosome Stability		Dec 14-17, 2014	International
		Interdisciplinary Approach to Biological Sciences (IABS)		Feb 2-3, 2015	International
		Biotechnology Colloquium, supported by KSCSTE-Science Popularization Programme		Jun 21, 2014	National
13.	Dr. Rajeev. N. Kini	5th International conference on Bismuth containing semiconductors	Ireland	Jul 13-16, 2014	International
14.	Dr. Ramanathan Natesh	The chamber of secrets, unfolding the Chaperonin assisted protein folding by Single particle CryoEM	New Delhi	Jul 9-11, 2014	International
		One day Seminar on "a career in Science: Challenges and Prospects (ACSCP)".	Madurai	Aug 25, 2014	National
		National Seminar on X-ray Crystallography	Madurai	Sep 29–Oct 1, 2014	National
		Recent Advances in Structural Biology & Drug Discovery	Roorkee	Oct 9 -11, 2014	International
		National Seminar on Recent Approaches In Biochemical Research (RABR-2014)	Trivandrum	Oct 28-29, 2014	National
		The Second International Symposium on Protein Folding and Dynamics	Bangalore	Nov 5-7, 2014	International
		New advances in X-ray diffraction and Cryo electron Microscopy (NXCM)- at INSA	New Delhi	Dec 15-17, 2014	International
		National Conference on New Materials and Drugs	Chennai	Feb 24–25, 2015	National
		National Colloquium on Hundred Years of Crystallography	Thalassery	Mar 23, 2015	National
		National Seminar on new perspectives in proteomics	Trivandrum	Mar 27, 2015	National

15.	Dr. Ramesh Chandra Nath	Workshop on Current Trends in Frustrated Magnetism	JNU, New Delhi	Feb 8-13, 2015	International
		A cluster of topical meetings on Current Trend in Condensed Matter Physics	NISER, Bhubaneswar	Feb 19-22, 2015	International
		National conference on advances in crystal growth and nanotechnology	CMS College, Kottayam	Jan 15-16, 2015	National
		National Seminar On Advances in Materials Science (NSAMS 2014)	Manonmani am Sundaranar University, Tirunelveli	Sep 29-30, 2014	National
16.	Dr. Ravi Maruthachalam	Arabidopsis research meeting/ Symposia	Hyderabad, India	Oct 9-10, 2014	National
		National seminar On Emerging problems in Potato, Central Potato Research Station, Shimla	Shimla, Himachal Pradesh	Nov 1-3, 2014	National
		Chromosome stability meeting- 2015	JNCASR, Bangalore	Dec 14-17, 2014	International
		National Seminar on Recent Advances in Plant Science Biotechnology National Seminar – Bioconcorrenza'15	University of Kerala, Trivandrum	Feb 27, 2015	National
		Biotechnology National Seminar – Bioconcorrenza'15	TamilNadu Agricultural University, Coimbatore	Mar 3, 2015	National
17.	Dr. Reji Varghese	Asian Photochemistry Conference-2014	Trivandrum	Nov 10, 2014	International
		10th JNC Research Conference	Trivandrum	Oct 10, 2014	National
		NAIST & IISER-TVM International joint workshop	Nara, Japan	Nov 26, 2014	International

18.	Dr. R. S. Swathi	Annual meeting of the Indian Academy of Sciences, Bangalore	IIT, Madras	Nov 7-9, 2014	National
19.	Dr. Sachindranath Jayaraman	Iclaa-2014 (International conference on linear algebra and applications)	Manipal University	Dec 2014	International
20.	Dr. Sainul Abideen .P	8 <sup>th</sup> IISER Library Consortium Meet	IISER-TVM	Dec 4-5, 2014	National
21.	Dr. S. Shankaran arayanan	Cosmology at the Interface	Kolkata	Jan 28-30, 2015	International
22.	Dr. Srinivasa Murty Srinivasula	XXXVIII All India Cell Biology Conference and International Symposium on "Cellular Response to Drugs"	CSIR-CDRI, Lucknow	Dec 10-12, 2014	International
23.	Dr. Sunish Kumar Radhakrishnan	Stalked alpha-Proteobacteria and relatives: from genes to structure	Schloss Rauschholz hausen, Marburg, Germany	Mar30-Apr3, 2014	International
		Gordon Research Conference on Bacterial Cell Surfaces	West Dover, VT, USA	Jun 22-27, 2014	International
24.	Dr. Tapas K Manna	International meeting on Microtubules by European Molecular Biology organization	EMBL, Heidelberg, Germany	May 28-31, 2014	International
		International Meeting on Chromosome Stability	JNCASR, Bangalore	Dec 14-17, 2014	International
25.	Dr.Ullasa Kodandaramaiah	Modern trends in phylogenetics	Calicut University	Mar 16-19, 2015	National
		80th Annual Meeting of the Indian Academy Of Sciences	IIT Chennai	Nov 7-9, 2014	National
26.	Dr. Vinesh Vijayan	National workshop in NMR spectroscopy	IIT madras	Feb 25-27, 2015	National

## Invited Lectures and Seminars Delivered

Sl.No.	Name of Faculty	Title of Lecture	Venue
1.	Dr. Adithya Lakshmana	Femtosecond Stimulated Raman Spectroscopy: Principles and Applications	IISER Pune
		IR and Raman Spectroscopy: Some useful insights from molecular vibrations	Central University of Tamilnadu, Thiruvavur, India
		Resonance excitation wavelength effects on Raman line shapes in ultrafast Raman loss spectroscopy	Osaka Univeristy, Osaka, Japan
2.	Dr. Anil Shaji	Measuring a quantum system with a quantum	IISc, Bangalore
		Structure of Physical Theories	St. Xavier's College Palayamkottai
		Quantum Computation	Madurai University
3.	Dr. Archana Pai	Constraining the binary inclination angle using the multi-detector observations	NCRA-TIFR Pune
4.	Dr. K. R. Arun	NPDE Workshop Hyperbolic Problems: Theory numerics and Applications	LNMIIT, Jaipur
		Symposium on Analysis and Applications	University College, Thiruvananthapuram
5.	Dr. Bindusar Sahoo	Group theory for particle physics	BITS Pilani, Hyderabad campus
6.	Dr. Joy Mitra	Tunnel Current Fluctuations in the Scanning Tunnelling Microscope	School of Mathematics and Physics, Queen's University Belfast, UK
7.	Dr. Kalika Prasad	Regeneration: Being competent Is not enough	NCBS, Bangalore
		The journey: from pluripotent state to organ outgrowth	CCMB, Hyderabad
8.	Dr. K. George Thomas	Electron transfer in II-VI and III-V semiconductor quantum dots	JNCASR, Bangalore
		Probing the optical properties of semiconductor quantum dots	Manali
		Probing the optical properties of semiconductor quantum dots	Brussels, Belgium
		Coupling of elementary excitations: A case study with plasmons and excitons	University of Melbourne, Australia
		Coupling of elementary excitations: A case study with plasmons and excitons	Tunis, Tunisia
		Photoinduced Charge transfer with Quantum Dots: Why InP is better CdSe?	IACS, Kolkata
9.	Dr. Madhu Thalakulam	Charge Amplification in the Vicinity of Quantum-Limit	Bhubaneswar
		Quantum dot qubits	Kerala University, Trivandrum, Kerala
		Mesoscopic Charge Amplifiers	Bishop Moore College, Mavelikara, Kerala

10.	Dr. Mahesh Hariharan	Tuning the Solid State Packing and Optical Properties of Organic Crystals	University of Durham
		Ultrafast Dynamics of Charge Carriers in Superstructured Organic Materials	Indo-UK Scientific Seminar at University of Leeds
		Light Harvesting Vesicular Donor-Acceptor Scaffold Limits the Rate of Charge Recombination	Montana State University, US
		Ultrafast Dynamics of Charge Carriers in Superstructured Organic Materials	Beijing, China
		Strategies to Reduce Rate of Charge Recombination	TIFR, Mumbai
11.	Dr. Manoj. A. G. Namboothiry	Spectroscopic Observation of Transformation between J and H Aggregates in Squaraine Dye in Presence of PCBM and its Effect on Solution Processed Inverted Bulk Heterojunction Solar Cells Processed in Air	NCL Pune
		Plasmon Enhanced Power Conversion Efficiency in Inverted Bulk Heterojunction Organic Solar Cell Synthesized in Air	IEST, Kolkata
		Plasmon Enhanced Power Conversion Efficiency in Inverted Bulk Heterojunction Organic Solar Cell Synthesized in Air	CUSAT, Cochin
		Plastic Solar Cell	CUSAT, Cochin
		Organic Solar Cell	CUSAT, Cochin
		Plastic Solar Cell	HEERA College of Engineering, Nedumangadu
12.	Dr. M. M. Shaijumon	Graphene based composite electrodes for energy storage	IISc Bangalore
		Two-dimensional layered nanomaterials for energy applications	Sastra University, Tanjavur
		Two-dimensional layered nanomaterials for energy applications	Shandong University, China
		Two-dimensional layered nanomaterials for Energy applications	CUSAT, Cochin
		Hybrid nanomaterials for energy applications	Womens college, Thiruvananthapuram
		Hybrid nanomaterials for energy applications	St. Thomas college, Pala, Kerala
		Two-dimensional Materials: Graphene and Beyond	Kerala University, Trivandrum, Kerala
		Hybrid nanostructures for energy storage	IUSSTF, Chennai
13.	Dr. M. P. Rajan	Machine Learning and Financial Time Series Prediction	Don Bosco, Kannur
		Inverse Problem and Its Applications	S.H. College, Kochi
		How to tackle ill-posedness of an inverse problem?- Theory and Applications	Thiagarajar College, Madurai

14.	Dr. Rajeev. N. Kini	Dynamics at the femtosecond & femtometer scale	NMAM Institute of Technology, NITTE
		Dynamics at the femtosecond & femtometer scale	Kerala Science Congress 2015, Allapuzha
		THz generation, detection and spectroscopy	CUSAT, Cochin
15.	Dr. Ramanathan Natesh	The Chamber of Secrets, Unfolding the Chaperonin assisted protein folding by Single Particle CryoEM	Delhi University
		Visualizing the amazing world of biological nano-machines within you: using X-Ray crystallography and single particle cryoEM	Thiagarajar College, Madurai
		An integrated approach to the Amazing world of biological nano machines using Protein Crystallography(PX) and SP CryoEM	MKU, Madurai
		Dealing with orientation and heterogeneity of macromolecular complexes in single particle Cryo Electron Microscopy	IIT, Roorkee
		Methodology and Applications in Structural Molecular Biology (Protein Crystallography and Single Particle CryoEM)	Kerala University, Trivandrum
		Methods in dealing with orientation and heterogeneity of particles in Single Particle Cryo Electron Microscopy and Image processing	RCB, New Delhi
		Visualizing the macromolecules of life by Protein Crystallography and Single Particle CryoEM	SNDBVCW Chennai
		Structural Biology Hybrid Methods An interface of Protein Crystallography and Single Particle CryoEM	Kannur University Thalassery Campus, Thalassery
16.	Dr. Ravi Maruthachalam	Structural 'omics' of proteins	IU-CGGT, University of Kerala, Trivandrum
		Engineering uniparental genome elimination for improved plant breeding	Dupont Knowledge Center, Hyderabad, India
		Karyotyping by next generation sequencing	Dupont Knowledge Center, Hyderabad, India
		A haploid genetic tool box for A.thaliana	CCMB, Hyderabad
		Centromeres and parental genome conflict	University of Delhi, New Delhi, India
		Advances in molecular tools for improved plant breeding	ICAR, Shimla, Himachal Pradesh
		Centromeres and parental genome conflict	JNCASR, Bangalore
		Centromere and parental genome conflict in plants	National Research Centre for Plant Biotechnology, New Delhi
		Centromere mediated uniparental genome elimination in plants	Department of Botany, Kariyavattom Campus, Thiruvananthapuram
Engineering uniparental genome elimination for in vivo haploid production in plants	Coimbatore, Tamil Nadu		



17.	Dr. Reji Varghese	Supramolecular Chemistry with DNA	Trivandrum
		Supramolecular Chemistry with DNA	Nara, Japan
		Supramolecular Chemistry with DNA	Nagoya, Japan
		Supramolecular Chemistry with DNA	Trivandrum
		Supramolecular Chemistry with DNA	Alleppey
		Supramolecular Chemistry: General Perspective	Trivandrum
18.	Dr. K. M. Sureshan	Chemistry with sugars and polyols.	University of Regensburg, Germany
		Chemistry with sugars and polyols	Friedrich-Alexander University, Erlangen-Nuremberg, Erlangen, Germany
		Chemistry with sugars and polyols	University of Bayreuth, Bayreuth, Germany
		Synthesizing and Catalyzing Innovations, 6th Young Investigator's Meet Boston	MIT, Cambridge, USA
		Chemistry with sugars and polyols	North Eastern University, Boston, USA
		Chemistry with sugars and polyols	University of Massachusetts, Amherst, USA
		Chemistry with sugars and polyols	Boston University, Boston, USA
		Chemistry with sugars and polyols	City College of New York, New York, USA
		Chemistry and supramolecular chemistry with sugars and polyols, International workshop on Biointegration and self-organized material system	NAIST, Japan
		Chemistry with sugars and polyols	Osaka University, Osaka, Japan
		TAAC, Frontiers in Chemical Sciences (FICS)	IIT Guwahati, India
		TAAC, 13th Eurasia Conference on Chemical Sciences,	IISc Bangalore, India
Biopolymer mimics via Topochemical Azide Alkyne Cycloaddition, IUPAC's International Symposium on Bio-Organic Chemistry (ISBOC-10)	IISER Pune, India,		

19.	Dr. R. S. Swathi	An exposition into the fascinating world of quantum mechanics	Mahatma Gandhi College, Thiruvananthapuram
		Insights into some exactly solvable problems in quantum mechanics	Mar Thoma College, Thiruvalla
		Understanding the fascinating world of atoms and molecules using quantum mechanics	Christ College, Irinjalakuda
		Insights into some exactly solvable problems in quantum mechanics	Milad-E-Shereif Memorial College, Kayamkulam
		Modelling optical features in metal nanostructures: Towards surface-enhanced spectroscopy	IISER Thiruvananthapuram and NIIST Thiruvananthapuram
		Cation- $\pi$ interactions and rattling motion through carbon networks: Graphene vs Graphynes	IIT Kanpur and IIT Bombay
		Modelling the energetics of encapsulation of atoms and atomic clusters into carbon nanotubes: An analytical approach	NCL, Pune and IISER, Pune
		Rattling motion of alkali and alkaline earth cations through carbon networks: A tale from the family of graphynes	IIT, Bombay
		An exposition into the world of atomic and molecular spectroscopy	Mar Athanasius College, Kothamangalam
		Electronic spectroscopy of atoms	UGC Academic Sponsored College, Thiruvananthapuram
		Electronic structure methods in quantum chemistry	CMS College, Kottayam
		Cation- $\pi$ interactions and rattling motion through carbon networks: Graphene vs Graphynes	Osaka University, Japan
		Modelling the energetics of encapsulation of atoms and atomic clusters into carbon nanotubes: An analytical approach	Institute of Molecular Sciences, Okazaki, Japan
		Modelling optical features in metal nanostructures: Towards surface-enhanced spectroscopy	Nihon University, Chiba, Japan
Modelling optical features in metal nanostructures: Towards surface-enhanced spectroscopy	IISER, Pune		
20.	Dr. Sainul Abideen.P	Blogs and Blogging for Library & Information Service	University of Kerala, Trivandrum
		Developing Digital Libraries using GenISISWeb	Fluid Control Research Institute (FCRI) Palakkad
		Design & Development of Online Tutorials	Calicut University
21.	Dr. S. Shankaranarayanan	Primordial Magnetogenesis	IISER-Bhopal, Bhopal

22.	Dr. Srinivasa Murty Srinivasula	Toll-Like Receptor (TLR)-mediated Autophagy	CCMB, Hyderabad
23.	Dr. Sukhendu Mandal	Discriminative Detection of Nitroaromatics by Fluorescent Metal-Organic Framework	Virginia Commonwealth University, USA
		Selective and Sensitive Detection of Trinitrophenol in Aqueous Phase: A Mechanistic Aspect	The Pennsylvania State University, USA
24.	Dr. Sunish Kumar Radhakrishnan	A redox switch for topoisomerase IV activity	Brandeis University, Waltham, MA, USA
		A redox twist to chromosome cycle in bacteria	CLRI, Chennai
25.	Dr. Tapas. K. Manna	Insights into Spindle-kinetochore interaction	JNCASR, Bangalore
26.	Dr. A. Thirumurugan	Materials Chemistry with MOFs	AMMRC, Kottayam
27.	Dr. Utpal Manna	Stochastic Navier-Stokes Equations in Unbounded Channel Domains	University of York, UK
28.	Dr. Vinesh Vijayan	Multidimensional NMR experiments and analysis for structural characterization of biomolecules	IIT madras
		Advances in NMR for life science and material science research	FCBS, Trivandrum
		NMR spectroscopy and its applications	UGC-Academic staff college, Trivandrum
		Multidimensional NMR methods for structure determination of proteins	M.G university, Kottayam

### Foundation Day and Science Day Lecture

The institute celebrated its fifth foundation day on 11 November 2014. The foundation day lecture was delivered by Prof. K. Vijay Raghavan FRS (Secretary, Department of Biotechnology) and was titled “The False War between Excellence and Relevance in Scientific Research”.

On the occasion of National Science Day, Feb 28, 2014, the institute organized a quiz competition for high school students in the city of Thiruvananthapuram. The undergraduate students of the institute also organized a “Science Show” with several accessible and interdisciplinary talks and demos of science experiments for the benefit of the participants in the quiz competition and for the accompanying school teachers.

## Colloquia

Sl.No.	Speaker	Institute	Title	Date
1.	Dr. N. R. Jagannathan	All India Institute of Medical Sciences New Delhi	Role of MRI and <i>in vivo</i> MR Spectroscopy (MRS) in Cancer Research	13 Mar 2015
2.	Prof. B. J Rao	Dept of Biological Sciences Tata Institute of Fundamental Research (TIFR), Mumbai	Is Biological Organization more a cause or a consequence of functions? The story of chromosomes	13 Feb 2015
3.	Prof. Martin Kuball	Center for Device Thermography and Reliability (CDTR)	Challenges for GaN Electronics: Of Dragon and Knights	10 Feb 2015
4.	Prof. Lars M Steinmetz	Stanford Genome Technology Center, Stanford University	The road from genomics to personalized medicine	13 Jan 2015
5.	Prof. K. Dharmalingam	Aravind Medical Research Foundation, Madurai	Next Generation Proteomics and Biomarker Discoveries	05 Sep 2014
6.	Prof. M. S. Raghunathan	National Centre for Mathematics, IIT Bombay	Mathematics: Art that would rather science?	26 Sep 2014
7.	Prof. G. Rajasekaran	Institute of Mathematical Sciences, C I T Campus, Chennai	Standard Model, Higgs Boson and What Next?	26 Sep 2014
8.	Prof. Rajan Conjeeveram	Tata Institute of Fundamental Research, Mumbai	Geometry and Arithmetic	08 Aug 2014
9.	Prof. S. M. Srivastava	Indian Statistical Institute, Kolkata	What is Logic?	04 Apr 2014

## Seminars

Sl.No.	Speaker	Institute	Title	Date
1.	Dr. Aswin Sai Narain Seshasayee,	NCBS, Bangalore	Evolutionary Pushes, Gene Expression Homeostasis and Chromosome Architecture in Bacteria.	26 Mar 2015
2.	Dr. K. Praveen Karanth,	Associate Professor, Centre for Ecological Sciences, Indian Institute of Science, Bangalore.	Species concepts and characterizing cryptic diversity: Case study of the widely distributed Hanuman langur	06 Mar 2015

3.	Dr. Raghu Padinjat M.B., B.S, Ph.D	Associate Professor, National Centre for Biological Sciences, Bangalore	Spatial control of lipid turnover during neuronal signaling	03 Mar 2015
4.	Prof. Anilkumar Gopinathan	Professor and Dean, School of Biosciences, VIT	"Nuclear receptors with special reference to steroid hormones"	02 Mar 2015
5.	Prof. Amitabh joshi,	Evolutionary and Organismal Biology Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore	Experimental Evolution	27 Feb 2015
6.	Dr. Narayana Yeddu,la,	Laboratory of Genetics, The Salk Institute for Biological Studies, California.	Mouse models of Lung Adenocarcinoma: Steps towards Personalized treatment of cancer.	17 Feb 2015
7.	Dr. Ravi Manjithaya	JNCASR, Bangalore	Small molecule modulators of autophagy in neurodegenerative disorders.	12 Feb 2015
8.	Dr. K Ramakrishnan	National Institute of Health (NIH), Bethesda, Maryland.	Building Functional Neuronal Networks: "Dissecting the cellular signalling mechanisms regulating neural patterning"	10 Feb 2015
9.	Dr. Syam Prakash Somasekharan	Department of Molecular Oncology, University of British Columbia.	Stress granules and their role in tumor progression	03 Feb 2015
10.	Dr. Anand Krishnan	Senior Postdoctoral fellow, Division of Neurology Department of Medicine University of Alberta	Tumor suppressors as critical regulators of the peripheral nerve regenerative milieu	21 Jan 2015
11.	Dr. Sathish Khurana	Interdepartmental Stem Cell Institute, KULeuven, Leuven, Belgium	Hematopoietic stem cells: trans-differentiation, niche, development and metabolism	21 Jan 2015
12.	Dr. Gopinath Meenakshisundaram	Institute of Medical Biology, Singapore	A molecular switch from a single mRNA controls skin homeostasis in wound healing and cancer.	20 Jan 2015

13.	Dr. Vinod P Krishnanunni	Oxford centre for integrative systems biology, Department of Biochemistry, University of Oxford	Dynamic modelling of biological networks	20 Jan 2015
14.	Dr. Prem Kumar Sinha	Department of Biochemistry and Molecular Biology Penn State College of Medicine, Hershey	From NADH Quinone Oxidoreductase (complex I) to Osmolytes: Tale of Two Worlds".	19 Jan 2015
15.	Dr. Jobin Varkey	Center for Converging Technologies, University of Rajasthan Jaipur	Structure and membrane interaction of amyloidogenic proteins in Alzheimer's and Parkinson's disease	16 Jan 2015
16.	Prof. Lars M. Steinmetz	Professor of Genetics, Stanford University Co-director, Stanford Genome Technology Center Associate Head of Genome Biology and Senior Scientist EMBL Germany	Exposing layers of transcriptome complexity and its use in dissecting complex traits	14 Jan 2015
17.	Dr. Soppina Virupakshi	University of Michigan Medical School, Ann Arbor, MI, USA	Kinesin-3 Motors are Marathon Runners of the Cellular World	06 Jan 2015
18.	Dr. Roop Mallik	Associate Professor and Wellcome-DBT Senior Fellow, Department of Biological Sciences, Tata Institute of Fundamental Research (TIFR), Mumbai.	The Journey of the Phagosome	19 Dec 2014
19.	Prof. Aneel Aggarwal	Mount Sinai School of Medicine, New York, USA	DNA Replication and Cancer	18 Dec 2014
20.	Dr. Rituraj Purohit	Vellore Institute of Technology (VIT University) Vellore, Tamilnadu	Role of ELA region in auto-activation of mutant KIT receptor: an *in silico *insight	08 Dec 2014
21.	David Gower	Department of Life Sciences, The Natural History Museum, London, UK	Snake Evolution and Vision'	28 Nov 2014
22.	Dr. K.R. Mahendran	Department of Chemistry, Chemical biology University of Oxford, United Kingdom	Molecular basis of antibiotic translocation through bacterial membrane porins	19 Nov 2014
23.	Prof. B. J. Rao	Department of Biological Sciences, TIFR, Mumbai	Chromosome Territories relocate during DNA-damage-response in mammalian nuclei: Regulation and Signaling	17 Nov 2014

24.	Prof. B. J. Rao	Department of Biological Sciences, TIFR, Mumbai	Chromosome Territories relocate during DNA-damage-response in mammalian nuclei: Regulation and Signaling	17 Nov 2014
25.	Prof. Tapas Kundu	Molecular Biology and Genetics Unit, JNCASR, Bangalore	Epigenetic Regulation of Chromatin Dynamics and Gene Expression: Implications in Differentiation, Disease and Therapeutics.	13 Nov 2014
26.	Dr. Samrat Mukhopadhyay	IISER- Mohali	The Dark Side of Proteins: From "Dr. Jekyll" to "Mr. Hyde	11 Nov 2014
27.	Prof. K. Veluthambi,	MKU, Madurai	Rice functional genomics by gene targeting.	28 Oct 2014
28.	Dr. John Mathew	IISER- Pune	Representations, Museums and Natural History	08 Oct 2014
29.	Dr. Erik Wijnker, PhD	University of Strasbourg Institut de Biologie Moléculaire des Plantes (IBMP-CNRS), France	Design your genome! Generating cybrids and chromosome substitution lines to dissect heterosis.	24 Sep 2014
30.	Dr. Chaitanya Athale	Asst. Prof., Div. of Biology, IISER Pune	"Collective effects In cytoskeletal dynamics and cell shape"	16 Sep 2014
31.	Prof. Dulal Pandam	Professor, School of Biosciences and Bioengineering, IIT-Bombay	"New Regulators of Microtubule Dynamics"	12 Sep 2014
32.	Dr. Vinay Tergaonkar	Institute of Molecular Cell Biology, A-STAR, Singapore	Telomerase the central regulator of all of the hall marks of cancer	26 Aug 2014
33.	Dr. Jomon Joseph	National Centre for Cell Science (NCCS), Pune	Nucleoporins: a novel role in miRNA pathway	21 Apr 2014
34.	Dr. Sukant Khurana	Cold Spring Harbor Laboratory, USA	Non-synaptic mechanisms of neuronal plasticity in auditory brainstem	02 Apr 2014

## Conferences and Workshops Organized

Sl.No.	Name of Faculty	Name of Sem./Wor./ Con.	Funded By	Date	International/ National
1.	Dr. Anil Shaji	NCAMP-XX	IIST, IISER, DST, KSCSTE	Dec 2-12, 2014	International
2.	Dr. K. R. Arun	Advanced Level Programme on Differential Equations	National Programme On Differential Equations (NPDE), Department of Mathematics, IIT-Bombay		National
3.	Dr. K. George Thomas, Dr. Mahesh Hariharan. Dr. Reji Varghese, Dr. R. S. Swathi, Dr. A. Thirumurugan, Dr. Adithya Lakshmana.Y	8th Asian Photochemistry Conference 2014	IISER-TVM jointly with CSIR-NIIST	Nov 10-13, 2014	International
4.	Dr. M. M. Shaijumon	Indo-US Workshop on 3D engineered electrodes for electrochemical energy storage	IUSSTF	Apr 3-4, 2014	International
5.	Dr. K. M. Sureshan	Ramanujan Fellows review meeting	DST	Mar 27-28, 2015	National
6.	Dr. M. P. Rajan	Science Talents Enrichment Programme	Kerala State Council for Science, Technology and Environment (KSCSTE)	Dec 15-19, 2014	National
7.	Dr. Nishant K. T (Co-organizer)	2nd international conference on Chromosome Stability	IISER-TVM, JNCASR, Wellcome Trust-DBT, EMBO, CSIR, DST, IUSSTF, Sigma, GE, Premas Life Science	Dec 14-17, 2014	International
8.	Dr. Ullasa Kodandaramaiah (co-organizer)	Workshop on Molecular Phylogenetics and Evolution	Mizoram University, DBT	Jul 21-23, 2014	National



## Students Achievements

IISER-TVM students have excelled in academic activities during this period. One of the students, Mr. Jishnu Nampoothiri has been awarded the prestigious Shyama Prasad Mukherjee Fellowship of CSIR.

- ❖ Many students achieved honours at international level as listed below.

### International Visits of Students

Sl. No.	Name	Achievements	Date
1	Anu Thomas	Khorana 2014	May – August, 2014
2	Adithya Singh	DAAD 2014	May 1-July 31, 2014
3	Dinumol Devasia	S N Bose 2014	May17-July 23, 2014
4	Linta Joseph	S N Bose 2014	June 1-July 30, 2014
5	Athira George	Post Lindau	June 2- August 29, 2014

- ❖ The graduated students of our Five Year BS-MS Dual Degree Programme got admissions for various programmes in different national/international universities.

Sl.No.	Name	School	Universities
1.	Samada M	Biology	Max Planck Institute for Terrestrial Microbiology, Marburg, Ph.D. Biology
2.	Vrinda K	Biology	Max Planck Institute for Developmental Biology, Tuebingen , Ph.D. Biology
3.	Animakshi N Bhushan	Biology	Dartmouth College, Hanover, USA Ph.D. Biology
4.	Ajai Pulianmackal	Biology	Ph.D. at University of Michigan, USA
5.	Arun Kumar M	Biology	University of Cincinnati, Masters of Biology
6	Ritwika Mukherjee	Biology	Tufts University, Boston, Ph.D. Biology
7	Puneet Prabhakar Singh	Biology	University of Edinburg, Scotland, Ph.D. Biology
8	Yamijala Santosh Bhargav	Biology	Going for IAS coaching, Delhi
9	Preeti	Biology	
10	Surasura Karthik	Biology	Going for IAS coaching, Delhi
11	M.S.Deenadayalan	Chemistry	Ph.D. Chemistry

12	Sujeesh K.S	Chemistry	IISc Bangalore, Ph.D. Chemistry
13	Jimmy Joy	Chemistry	University of Southern California, Ph.D. Chemistry
14	Raja Ghosh	Chemistry	Temple University, Ph.D. Chemistry
15	Harish Kumar Choudhary	Chemistry	IISc Bangalore, Ph.D. Chemistry
16	B.Sreeganesh	Chemistry	University of California, Irvine, Ph.D. Chemistry
17	Soma Chaudhary	Chemistry	University of Groningen, Netherlands, Ph.D. Chemistry
18	Neeraj Kumar	Chemistry	
19	Neeruganti Manjunath	Chemistry	Preparing for civil services
20	Ashish Kumar Chalana	Chemistry	Sivanadar University, Ph.D. in Chemistry
21	M. Nagarjuna Amarnath	Chemistry	Doing project at Sivanadar University, Delhi
22	L. Phani Raj	Maths	TIFR Mumbai, Ph.D. Theoretical Computer Science
23	Pooja Agarwal	Maths	Brown University, Ph.D. Maths
24	Mano Vikash. J	Maths	University of Illinois, Chicago , Ph.D. Maths
25	Variganji Divya	Maths	Going for IAS coaching, Hyderabad
26	Harish Lingam	Maths	IIT, Chennai, Doing MTech
27	Soma Naren Thejaswi	Maths	Assistant Manager in Cooperation Bank in Karnataka
28	Prateek Bhatnagar	Maths	MS (Financial Engineering), USA
29	Choda Praneeth	Maths	Assistant Manager in Vijaya Bank in Karnataka
30	Meesala Bhanu Teja	Maths	Preparing for civil services
31	Mohit Khare	Maths	Working in Industry
32	Dibya Prakash Tarai	Maths	IIM Shillong, MBA
33	Jishnu. N. Nampoothiri	Physics	Brandeis University, Graduate Program in Physics (PhD)
34	Chithra. H. sharma	Physics	IISER-TVM, Ph.D. Physics

35	Salini. K	Physics	Dartmouth College, Hanover, USA Ph.D. Physics
36	Neeraj Kumar Rajak	Physics	IISER-TVM, Ph.D. Physics
37	Amandeep Singh Buppal	Physics	Ph.D. Physics (Germany)
38	Ajit Kumar Mehta	Physics	ICTS or RRI, Bangalore , Ph.D. Physics
39	Som Sarang	Physics	University of California, Merced, Ph.D. Physics
40	Atul Mohan	Physics	NCRA, Pune, Ph.D. Physics
41	Ajeesh M.O	Physics	Max Planck Dresden, Ph.D Physics
42	Vijay Pathak	Physics	IISER-TVM, Ph.D. Physics
43	Vigneshwar. N	Physics	IMSc, Chennai, Ph.D. Physics
44	Mani Ratnam Rai	Physics	IISc, Bangalore, Ph.D. Applied Physics
45	Krishnanand Mallayya. M	Physics	The Pennsylvania State University, Ph.D. Physics

- ❖ The graduated students of our Ph.D. Programme have joined for Post-Doctoral fellowship in different international universities.

Sl.No.	Name	School	Universities
1	Deepthi Jose	Chemistry	France
2	Jissy A K	Chemistry	Germany

- ❖ Out of 635 candidates appeared in the JEST 2015 Physics Examination, 3 students of our fifth year BS-MS have qualified test and for pursuing Ph D programme.

The rank and percentile details are as follows:

Sl.No.	Name	Rank	Percentile
1	V P S Ritwika	259	94.43
2	Joseph. P.J.	278	94.02
3	Sreenath. K. M	355	92.40

## Summer Programme

### IISER Thiruvananthapuram Summer Visiting Programme Fellowship:

924 online applications were received for 2014 IISER TVM Summer visiting programme. A total of 30 students were selected by individual schools, based on merit, out of which 23 students reported and have successfully completed the projects.

### IASc-INSANA-SASI Project Fellowship:

18 selected students from Indian Academy of Sciences (IAS) have been allotted to IISER Thiruvananthapuram for the Academy summer programme and have completed their projects.

### External Students from other institutions:

According to present record, various individual laboratories from IISER Thiruvananthapuram selected 9 external students from other institutions and these students have carried out or are carrying out their projects.

### IISER Thiruvananthapuram students:

175 BS-MS students from IISER Thiruvananthapuram have registered for carrying out projects during this summer in various laboratories (much higher than 111 during last year 2013).

## Outreach activities

The institute is very active in outreach activities to promote scientific research in the country. Our faculty members visit schools and colleges and organize one day programmes in the respective places. We have conducted many such programmes in southern states of the country. Kerala State Council for Science, Technology and Environment has chosen IISER-TVM as the nodal agency to regularly organize Science Talent Enrichment Programme (STEP) for the top talented Pratibha Scholars of the state. IISER-TVM also conducted Ishan Vikas programme for North-East students. We also conducted quiz competition for school children on National Science Day.

## 8. Facilities

### Laboratory

The institute has dedicated laboratories for undergraduate program in addition to advanced level research lab maintained by faculty members of various schools.

### Physics Laboratory

Physics Laboratory for BS-MS students are arranged to raise curiosity of the students towards scientific principles. The experiments are such that they give a training to students to handle simple instruments and also sophisticated instruments. Sufficient number of instruments are available, as far as possible, so that the students can individually do the experiments. Some experiments which require computers to plot the data are also arranged. In the first two years all BS-MS students do all experiments.

They are categorised as Mechanics, Electricity & Magnetism, Optics and Heat & Thermodynamics. From fifth semester onwards they do advanced experiments, Electronics (using both discrete and integrated devices) experiments. Students have to design electronic circuits and analyse their working. The laboratory has acquired some good facilities for the laboratory courses. X-ray diffraction experiments, STM, velocity of light determination apparatus, spectroscopic instruments, gamma ray spectrometer etc. are available. A vacuum coating unit is available for doing mini projects. Some more instruments are being added to the list, for Physics Major students.

## Chemistry Laboratory

Chemistry experiments done during the first and second years (four Semesters) provide students opportunities to extend their knowledge and understanding of the basic concepts and include both qualitative and quantitative analysis. In each semester ten to twelve experiments are done. The course covers principles and applications of chemical laboratory techniques, including preparation and analysis of chemical materials, measurement of pH, paper chromatography, thin layer chromatography, column chromatography, visible-ultraviolet spectrophotometry, infrared spectroscopy, chemical kinetics, data analysis, and elementary synthesis. Experiments are done from refractometry, conductometry, potentiometry, and cryoscopy. Physical properties like surface tension, viscosity, dipole moment are measured and recorded for various organic compounds. Extensive hands-on laboratory learning is provided to each student. This helps them gain proficiency in basic laboratory techniques and experience with modern lab instrumentation. Some of the experiments being done during the advanced courses are: Isolation of curcuminoids and eugenol from turmeric and clove -- analysis and preparation of their derivatives, Synthesis of transition metal complexes (Cobalt, Nickel, Molybdenum etc.) with various ligands and study of their kinetic, magnetic and spectral properties with group theoretical interpretation, Advanced physical chemistry experiments in polarimetry, conductometry and potentiometry. The courses enable students to analyse and solve problems, to integrate chemical knowledge in the successful conduct of research as well as work well in team-based research.

## Biology Laboratories

The BS-MS biology laboratories of IISER-TVM are located in the CPG Block of Engineering College, where students of I year (150 students) & IIInd year (130 students) are being trained in doing experiments related to Introductory Biology (I Sem), Physiology (IIInd Sem) and Genetics and Molecular Biology (IVth Sem) during this semester. The experiments related to Evolution and ecology (IIIrd Sem) are mostly performed in a field setting. Taking complexities involved in conducting biological experiments into consideration, all the experiments would be performed ahead of actual class experiment to standardize the protocols with each set of reagents, to ensure quality of reagents. Preparations for the experiments also take substantial amount of time before the arrival of the students. Depending on the nature of experiments, the time for completing the experiment usually takes beyond the stipulated time. In the

laboratory the students will get an opportunity to test theory experimentally, and confirm the facts related to the design of experiments. They will also be trained on how to be critical and analytical. Students have to follow certain rules in the lab like proper dress code, punctuality, maintaining record, active participation in doing the experiments, aware of safety measures etc. Lab sessions are also conducted for 3 & 4th year major biology students. The experiments are of high standard and while doing them the students get a chance to learn and do the working of highly sophisticated instruments such as PCR machine, Gel Documentation System, Orbital Shaker - Incubator, Fluorescence Microscope, Stereo zoom Microscope, Refrigerated centrifuge etc.

## Library

The institute has a fast growing library to meet academic and research needs of the institute community. Library adopts state of the art technologies to facilitate access to online and print resources to its users. Major international journals and online resources in science and interdisciplinary areas have been subscribed. Library is successful in providing most of the resources in electronic format which facilitate 24X7 e-library.

The library's extensive online collection from more than 40 international societies and scientific publishers includes full-text e-journal databases, journal archives, video journal, e-books, bibliographic and review databases etc., which are useful for academic and research activities of the institute research community. Major online full-text databases including AACR, ACS Web Edition, AIP, AMS, Annual Reviews, APS, ASM, Electro Chemical Society Digital Library, IEEE Xplore, IOP, JSTOR, Nature, OpticsInfobase, OUP, Project Euclid, RSC Gold, Science Online, ScienceDirect, SIAM, SpringerLink, Wiley, World Scientific, etc. are made available. Resources like IEEE ASPP+POP package, Grammarly tool etc., were added during this period. Major bibliographic database including Faculty of 1000, MathScinet, ScifinderScholar, Web of Science, etc. are also made available. ScifinderScholar was enhanced to the multiuser version during this period. Apart from the online resources, library possesses print books, CD ROMs etc. in core and allied subjects.

IISER Thiruvananthapuram Library is a core member in the Indian National Digital Library in Engineering, Science and Technology (INDEST-AICTE) Consortium established by the Ministry of HRD. Dr. Sainul Abideen P, Asst. Librarian attended 22nd meeting of the National Steering Committee of the INDEST-AICTE Consortium held on 25.08.2014, at IIT Delhi and the 10th Annual Meet and Workshop of INDEST-AICTE Consortium, held during 5-6 May, 2014 at NIT Silchar.

Institute Library is part of the IISER Library Consortium, constituted jointly by all IISERs. Eighth IISER Library Consortium Meet was hosted by IISER Thiruvananthapuram, during 4-5, December, 2014. Dr. Sainul Abideen.P, Asst. Librarian, has been nominated as Joint Coordinator of IISER Library Consortium.

Library has memberships/affiliations in national bodies like Developing Library Network (DELNET) and the UGC-Infonet Consortium established by the University Grants Commission (UGC), and in Kerala University Library.

Library has a very effective document delivery service which facilitates in providing the articles/resources that are not available in the institute. More than 1500 interlibrary loan transactions were undertaken during this period. Library received 74 books as complementary copies mainly from National Board for Higher Mathematics (NBHM).

More than 200 new users have taken library membership during 2014-15. A training program on the 'Web of Knowledge' was organised by the Library on 14.1.2015. MLISc students and faculty members of the Dept. of Library and Information Science, Kannur University visited the library on 20.01.2015.

Library operations are automated using the 'Evergreen' integrated library automation software. Major enhancement of library automation was carried out during this period with several innovative facilities including email based transaction notifications.

Library Info Blog of IISER Thiruvananthapuram was launched during the 8th IISER library consortium meet. This blog acts as a current awareness platform of the library, announcing details of newly added books, new resources, details of the recent publications, library events, photos etc.

In connection with the national unity day, an Exhibition of Rare Photographs of Sardar Vallabhbhai Patel was organized by the library on 31.11.14. As part of Hindi week celebrations, Library organised an 'Exhibition of Hindi Books' on 24.9.2014.

## Computing and Networking Facility

The institute has gigabit ethernet based data network in the transit campus. Internet connectivity is through a 1 Gbps leased line provided as part of the National Knowledge Network (NKN). Additional bandwidth of 10 Mbps through a BSNL leased line is also available. 2 Mbps leased line connectivity is available at the permanent campus site. Different office buildings are interconnected using fibre. WiFi connectivity is provided to select hostels from the transit campus through BSNL telephone lines.

The institute has a computer lab with 50 workstations, two computational clusters and several servers providing instructional and research support including Moodle course management suite, DNS, DHCP, NFS and other services. The IT personnel of the institute provide both hardware and software support to the faculty, students and staff in addition to making computational software like GAUSSIAN, MATLAB, QCHEM etc. available for use. The LAN of the institute has over 300 PCs. Licences are available for the software like Windows, Office, EndNote, Adobe Acrobat Pro, Origin and Symantec Antivirus.

Since August 2011, the institute has a fully functional virtual classroom funded by the NKN project. The classroom has been in use for over eight semesters facilitating the exchange of at least two courses each semester between IISER Thiruvananthapuram, IISER Pune, IISER Bhopal, NCBS Bengaluru and TIFR Centre for Applicable Mathematics in Bengaluru as well as allowing for the streaming of research talks and colloquia from the premier institutes in the country. The virtual classroom facility also allows for the recording and storage of lectures and seminars organized by the institute.

## Hostels

During 2014-15 six buildings were taken on lease for use as hostels (Hall of residence XIV, XV, XVI, XVII, XVII, XIX, XX) to accommodate the students joined during the academic year. Presently there are 20 rented buildings being used as hostels. There are eight ladies hostels and twelve gents hostels.

All the hostels are furnished and have provision for amenities like washing machine, television, indoor games and internet facilities. Round the clock security is provided in all the hostels. Shuttle transport services are provided round the clock for commutation of students to and from hostels to institute and back.

A new gym with state of the art facilities has been operationalized for use of students and staff. Efforts are on to hire one swimming pool and outdoor game facilities for the students.

## 9. Sports and Cultural Activities

### Sports

IISER-TVM students participate in two major sports events each year:

1. ITSAV – IISER-TVM Annual Sports Meet
2. Inter-IISER Sports Meet.

The institute's Annual Sports Fest, ITSAV, was held during 24th -26th October 2014. This year ITSAV saw a significant improvement over last year, had a very enthusiastic participation from students and turned out to be a great success. This year's ITSAV was augustly inaugurated with the March-past event, which witnessed excellent participation, and torch lighting by the Director Prof. Ramakrishnan. There were various events conducted, including Athletics, Badminton, Cricket, Football, Table Tennis, Throw ball, Kho-Kho, Basketball, Volleyball etc. The events were held in the transit campus using the facilities of the College of Engineering (CET). Apart from the sports fest activities, IISER-TVM students regularly play practice matches (Football, Cricket, Volleyball etc.) with IIST-Trivandrum, CET-Trivandrum and other local colleges.

This year the Institute has also setup a state-of-the-art gymnasium with an experienced gym trainer in order to cater the need of maintaining physical fitness among the students and the members of IISER-TVM. The institute has also set up its own sporting facility for sports and will be providing volleyball, basketball and badminton courts to students in the upcoming semester. In addition, a swimming pool has also been availed which will be functional for use in the upcoming semester.

The Institute has also organized two marathons this year. As a part of National Unity Day a marathon was conducted in which students and faculties actively participated and the winners were awarded for their efforts. Another run was conducted as a part of "Run Kerala Run" promoting National Games of this year. IISER-TVM also participated in football and volleyball in the inter-college tournaments conducted by CET. IISER-TVM Volleyball team was able to qualify to the semi-finals.



The third Inter IISER Sports Meet (IISM) was held between 10th and 14th Dec 2014 in IISER-Mohali. All IISERs as well as NISER-Bhubaneswar participated, while IISc-Bangalore was a new addition in the competing list. This year IISER-TVM availed the facility of training students every week at the Laxmibai National College for Physical Education-Kariavattom (LNCPE) by the national-level coaches, for all the sport events and athletics which improved their skills. The IISER-TVM contingent comprising 71 students (51 boys and 20 girls) left for Mohali on 7th December 2014. Our students participated in all events including Athletics, Chess, Badminton, Cricket, Football, Table Tennis, Throw ball, Kho-Kho, Kabaddi, Basketball, Volleyball and Lawn Tennis.

The IISER-TVM contingent returned to Trivandrum with an appreciable performance standing fourth among the five IISERs, NISER-Bhubhnaeshwar and IISc-Bangalore. This year's meet involved a very stiff competition among the seven participant institutes in all events. The team spirit and efforts of our contingent were sincere and inspiring. It was hard luck that we reached the finals of many athletic events, but these were unfortunately not conducted due to heavy rainfall. Our contingent scored 2 gold, 4 silver and 1 bronze in individual events, bronze in girls 4X400 m relay and was also the winner in the Volleyball girl's category. Girls this year showed a commendable improvement over last year.

To recognize the contribution of students to the institute sports and to encourage them, awards in different categories are given to the students every year. For instance, for the year 2014, eleven students (5 boys and 6 girls) were awarded with "Sports Color" for their extraordinary performance in ITSAV-2014 as well as in IISM-2014. For their consistent and remarkable contribution towards institute sports for the last 4-5 years in various sports events, three students of the outgoing batch were awarded the "Sports Citation" award. Mr. Louis Jose was honoured with the "Sportsman of the Year-2014" award for his outstanding performance in both ITSAV-2014 and IISM-2014. This year the "Role of Honor" was awarded to Mr. Sagil. G. Sathyan for his impeccable and exceptional performance throughout the years.

### **Cultural Activities**

The cultural club of IISER-TVM organized various events and competitions to celebrate festivals and national holidays. A rendition of patriotic songs by the students marked the Independence Day and Republic Day celebrations. The cultural club organised Pookkalam, tug of war and Rangoli competitions as part of Onam and Diwali celebrations which also included music, dance and drama. A debate on 'National Security, Safety and Unity', as part of the National Unity day celebrations, saw an enthusiastic participation from the students (31 Oct 2014). The students actively took part in elocution competitions conducted on National Education day (11 Nov 2014). Dr. R. Balasubramaniam gave a talk on "Building a resurgent India", on National Youth day (16 Jan 2015). Ishya, the cultural fest of IISER-TVM was organized in the month of February. Tarang, the group dance competition, Aalap, the duet singing competition, a fashion show and a short film competition were some of the highlights. Several other competitions and cultural nights were also held.

The cultural club of IISER-TVM jointly with the SPICMACAY Trivandrum Chapter, organised several concerts and workshops in IISER-TVM - a Koodiyattam performance by Sri. Margi Madhu and team, a Qawwali concert by the Warsi brothers, a two day workshop on Papier Mache and Madhubani painting by

Mrs. Hemadevi and a flute rendition by Pt. Hariprasad Chaurasia. Students of IISER-TVM attended the 2nd SPICMACAY International convention at IIT-Madras where they got opportunity to interact with eminent artists. IISER-TVM jointly with IIST hosted the state convention of SPICMACAY- Kerala. Students from all over Kerala participated in crafts workshops and intensives in music and dance and other traditional art forms.

IISER-TVM co-hosted 'LAYAM 2015' the Kerala State Convention of SPICMACAY (Society for Promotion of Indian Classical Music and Culture Amongst Youth) which was attended by 250 students (37 from IISER) and about 70 professionals and teachers from across the state. It consisted of several Workshops to quickly amass the fundamentals and nuances of selected art forms including Bharatanatyam, Kathakali, Carnatic and Hindustani Vocal, Chakyar Koothu, Kalaripayattu, Warli painting, Cherial Painting and Saw-dust mask making. It also had seminars and talks by eminent personalities in film making and architecture and performances by renowned artists including Prof T N Krishnan, Pt. Hariprasad Chaurasia and Smt. Malavika Sarukkai.

## 10. Permanent Campus

### A. GENERAL & MASTER PLAN

The permanent campus of IISER is coming up in an area of 200 acres of land at Vithura in the valley of scenic Ponmudi hills. The site at Vithura is 40 km from Thiruvananthapuram. The land was handed over by Govt. of Kerala to the institute on 15.10.2008. The campus is highly uneven, dotted with smaller and larger hills and borders a reserve forest. Part of the area lies between an 800 m high steep sided hill Kottamala and a perennial stream called Makki.

The master plan was prepared taking maximum advantages of the terrain.

- The Academic Complex has been located as a compact integrated cluster on the central plot midway between the lowest and highest elevations.
- The student hostels have been located towards the south east periphery of the campus with covered pedestrian connectivity to the academic complex.
- The residential zone of faculty members and staff is planned in the 35 acres of undulating terrain in the western portion of the campus and is separated by the Makki river with the academic zone.
- Construction will be done as per the plans with minimum foot print and retaining maximum green cover.

Master Plan was also prepared taking into consideration energy conservation, rain water harvesting, waste water recycling etc. and with a view to provide for future expansion.

- The Campus will be developed taking into account green building concepts and we are aiming to achieve four star rating as per GRIHA (Green Rating for Integrated Habitat Assessment).
- The project area falls within the high rainfall zone of South Kerala. The total average annual rain fall is 300 cm and with 8 months of the year having rainfall over 20 cm. There are two streams passing

through the project area having catchment of 200 ha and 100 ha respectively totally falling within the forest. This catchment is adequate to supply the entire water requirements for the project. Taking the average rainfall of 300 cm, the total water annually passing through the campus is 90 lakh m<sup>3</sup> while the annual water requirement for the project is only 3.65 lakhs m<sup>3</sup> which constitutes only about 4% of the water availability. In order to cater the water requirements for a period of 4 dry months a small reservoir of storage (50,000 m<sup>3</sup>) is proposed in the Vattakuzhy thodu on the southern part near the entrance to the project area.

- We are planning for a very good rain water harvesting system also for collecting water from roof of buildings for recharging the ground water.

The major facilities provided in the master plan includes

#### I. Academic Complex

Administrative Block, Computer Centre, Lecture Theatre Complex, Physical Science Block, Chemical Science Block, Biological Science Block, Mathematical Science Block, Humanities Block, Common Instrumentation & Workshop, Animal House, Solvent Store.

#### II. Faculty Residence

Director's Bungalow, Type A, B, C, D, E, Quarters, Faculty Club, Health Centre.

#### III. Students Hostels

M. S. Boys Hostel Cluster, Girls Hostel Cluster (M.S & Ph.D), PhD Boys Hostel cluster, Central Dining Hall.

#### IV. Recreation

Sports ground, Indoor Stadium, Tennis Courts, Students Club, Coffee Shop.

#### V. Others

Campus School, Shopping Centre, Guest House.

#### VI. Engineering Services

Pump house, UG reservoir, Main receiving station & 3 other substations, Sewage Treatment Plant – 2 Nos, Effluent Treatment Plant – 1 No.

The total plinth area of academic complex proposed is 40523 m<sup>2</sup> and residential complex is 76477 m<sup>2</sup> totalling to 1,17,000 m<sup>2</sup>. Out of this, in the first phase Academic Complex with a plinth area of 31183 m<sup>2</sup> and the Residential complex and other services with an area of 38188 m<sup>2</sup> totalling 69371 m<sup>2</sup> has been taken up. The tendered cost of Phase-I work is Rs. 253 Crores.

### B. PHASE I: BALANCE CONSTRUCTION OF BUILDINGS & STRUCTURES (PHASE I BALANCE BUILDING AND DEVELOPMENT WORKS & PHASE II WORKS) IN THE CAMPUS IISER TVM

In the 26th meeting of Buildings & Works Committee on 14.11.2014, it was decided to recommend on entrusting the remaining works of Phase I and Phase II works like guest house, shopping complex, admin and lecture theatre complex to Central Public Works Department (CPWD). The MoU was entered with CPWD by IISER TVM on 15.01.2015.

M/s CES have submitted the estimates for balance works of non-priority works in Phase-I coming under the scope of CPWD. Based on these estimates supplied by CES, CPWD has invited tenders for works in hostel area and academic area.

#### C. PHASE-II - PACKAGE – I - WORK OF CONSTRUCTION OF HOSTELS AND DINING HALL

The work was awarded to M/s RDS Project Limited for a value of Rs. 131,22,97,959/. The contractor is expected to start work in May 2015. The foundation works for Block A, Block B and the Dining Hall is in progress. Footing concreting of block B has been started. The work is being monitored by M/s HLL Life Care Limited, the Construction Management Agency. The completion date is fixed as November 2017.

#### D. DETAILS OF ONGOING WORKS

Completed Works	14
Work order issued/ongoing works	43
Tendering/Approval state	12
Total	69
Total value of work	Rs. 54 Crore
Progress achieved	60%
Scheduled date for partial shifting of the transit campus	Oct 2015

## 11. Statement of Accounts

The Annual Statement of Accounts of IISER Thiruvananthapuram for the year 2014-15 consists of

Balance Sheet with Schedule forming part of Balance Sheet;

Income and Expenditure Account with supporting Schedules; and

Receipts and Payments Account

### I. Grants & Receipts

#### A. Grants

- ❖ The unspent balance as on 01.04.2014: Rs. 72.37 crore
- ❖ The grants received from MHRD during the year: Rs. 149.40 crore
  - Capital Grant: Rs. 106.40 crore*
  - Revenue Grant: Rs. 43.00 crore*
- ❖ Total fund available for the year 2014-15: Rs. 221.77 crore

#### B. Revenue Receipts

The revenue of the institute from Annual Fees & Others for the year is Rs. 8.09 crore.

### II. Expenditure

- ❖ The amount utilised for acquiring Capital Assets during the year:
  - Construction, Lab Equipment & Other Assets : Rs. 56.01 crore*
- ❖ The amount utilised for Revenue Expenditure during the year:
  - Revenue Expenses : Rs. 44.43 crore*
- ❖ Total expenditure for the year 2014-15 : Rs. 100.44 crore

### III. External Projects & Fellowships

- ❖ Total grant available during the year: Rs. 11.78 crore
- ❖ Utilisation: Rs. 5.34 crore
- ❖ Unutilised balance: Rs. 6.44 crore

## Separate Audit Report of the Comptroller & Auditor General of India on the accounts of the Indian Institute of Science, Education and Research, Thiruvananthapuram for the year ended 31 March 2015.

We have audited the attached Balance sheet of Indian Institute of Science, Education and Research, Thiruvananthapuram as at 31 March 2015, the Income & Expenditure Account and Receipts & Payment Account for the year ended on that date under Section 19 (2) of the Comptroller and Auditor General's (Duties, Powers and Conditions of Service) Act, 1971 read with section 22 of the NIT Act. These financial statements are the responsibility of the Institute's Management. Our responsibility is to express an opinion on these financial statements based on our audit.

2. This Separate Audit Report contains the comments of the Comptroller & Auditor General of India (CAG) on the accounting treatment only with regard to classification, conformity with the best accounting practices, accounting standards and disclosure norms, etc. Audit observations on financial transactions with regard to compliance with the Law, Rules & Regulations (Propriety and Regularity) and efficiency- cum- performance aspects, etc., if any, are reported through Inspection Reports/ CAG's Audit Reports separately.

3. We have conducted our audit in accordance with auditing standards generally accepted in India. These standards require that we plan and perform audit to obtain reasonable assurance about whether the financial statements are free from material misstatements. An Audit includes examining, on a test basis, evidences supporting the amounts and disclosure in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of financial statements. We believe that our audit provides a reasonable basis for our opinion.

4. Based on our audit, we report that:

- i. We have obtained all the information and explanations, which to the best of our knowledge and belief were necessary for the purpose of our audit:
- ii. The Balance Sheet, Income & Expenditure Account and Receipt & Payment Account dealt with by this report have been drawn up in the format approved by the Ministry of Human Resource Development, Government of India.
- iii. In our opinion, proper books of accounts and other relevant records have been maintained by the Indian Institute of Science, Education and Research, Thiruvananthapuram as required under Regulation 16.1 forming part of Memorandum of Association of the Institute in so far as it appears from our examination of such books.
- iv. We further report that:

### A. BALANCE SHEET

#### I. Application of Funds

**a) Fixed Assets (Schedule -4)- Tangible Assets- Rs. 106.20 crore Scientific and Laboratory Equipment- Rs. 85,50,07,997**

This included Rs. 2960.64 Lakh being imported value of following equipment which were purchased before March 2015 and installed after March 2015. This has resulted in overstatement of Tangible Assets by Rs. 2960.64 lakh with corresponding understatement of Capital work-in-progress.

- i) High Resolution NMR Spectrometer- Rs. 1036.17 Lakh
- ii) High Resolution 300 KV Transmission Electron Microscope- Rs. 936.44 lakh.
- iii) Cryo Transmission Electron Microscopy Systems- Rs. 381.28 lakh
- iv) Electron Spectroscopy (XPS)- Rs. 357.24 lakh
- v) Leica LMD Microdissection Systems- Rs. 83.41 lakh
- vi) Modular Glove Box- Rs. 66.13 lakh
- vii) Phenom Desktop Scanning Electron Microscope Model- Rs. 59.69 lakh
- viii) High Resolution NMR Spectrometer- Rs. 40.28 lakh

## B. INCOME AND EXPENDITURE ACCOUNT

### I. Expenditure

#### a) Depreciation (Schedule-4)- Rs.5.70 crore.

This is overstated by Rs. 236.83 lakh due to provision of depreciation for the following assets which were not installed during 2014-15, resulting in understatement of Excess of Income over Expenditure as well as Tangible Assets by Rs. 236.83 lakh.

- i) High Resolution NMR Spectrometer- Rs. 82.89 lakh
- ii) High Resolution 300 KV Transmission Electron Microscope- Rs. 74.91 lakh
- iii) Cyro Transmission Electron Microscopy System- Rs. 30.50 lakh
- iv) Electron Spectroscopy (XPS)- Rs. 28.58 lakh
- v) Leica LMD Microdissection Systems- Rs. 6.67 lakh
- vi) Modular Glove Box- Rs. 5.29 lakh
- vii) Phenom Desktop Scanning Electron Microscope Model- Rs. 4.77 lakh
- viii) High Resolution NMR Spectrometer- Rs. 3.22 lakh

## C. GENERAL

### 1. Significant Accounting Policies (SCHEDULE 23)

- (i) A reference is invited to item number 4 of the Significant Accounting Policies which stated that depreciation on fixed assets has been charged under written down value method at rates specified by MHRD. The accounting policy adopted by Institute was not in consonance with the MHRD format which stated that depreciation should be charged on straight line

method. Further it also did not disclosed accounting policy for depreciation on addition during the year.

- (ii) As per the revised Format of Financial Statements for Central Higher Educational Institutions issued by the Ministry of Human Resource the following Accounting Policies also require disclosure in the Financial Statements:
  - a) Accounting Policy adopted on Revenue Recognition on Fees from Students.
  - b) Accounting Policy adopted on accounting Retirement Benefits.

## **2. Contingent Liabilities and Notes to Accounts (SCHEDULE 24)**

- i. A reference is invited to Item No. 4 of Notes to Accounts, wherein it was stated that physical unspent balance as on 01.04.2015 was Rs. 690.82 lakh. However, as per the Utilization Certificate submitted to the MHRD, actual physical unspent balance was only Rs. 419.24 lakh.
- ii. A reference is invited to Item No. 4- Change in Accounting Policies, wherein, it was stated that depreciation on account of change in accounting policy as directed by MHRD has been charged to Income and Expenditure Account in the current Financial Year. The financial impact of the above change amounting to Rs. 41.20 lakh also should have been disclosed.
- iii. IISER had awarded the contract for construction of Academic Complex and Residential Complex at Vithura to M/s Consolidated Construction Consortium Ltd, (CCC Ltd.) in March 2011 and the same was terminated in February 2014 due to poor performance. Subsequently, Institute encashed (March 2014) the BG of Rs. 3367.28 lakh furnished for performance guarantee, security deposit and availing advance. After evaluation of the works completed and the compensation adjusted against the amount of work done, Institute demanded (01.05.2015) Rs. 85.87 lakh towards the value of materials to be returned to M/s CCCL. In reply, the party submitted (14.05.2015) a counter claim for Rs. 70.36 crore and intimated the intention to go for arbitration. The above facts should have been disclosed in the notes on accounts. But it was not done.

### **A. Grants in aid**

Out of the grants in aid of Rs. 222.50 crore (including Rs. 71.57 crore brought forward from previous year), the organization could utilize a sum of Rs. 220.92 crore leaving a balance of Rs. 1.57 crore as unutilized grant as on 31 March 2015.

### **B. Management Letter:**

Deficiencies which have not been included in the Audit Report have been brought to the notice of the Director, Indian Institute of Science, Education and Research, Thiruvananthapuram through a management letter issued separately for remedial/ corrective action.



- iv. Subject to our observations in the preceding paragraphs, we report that the Balance sheet, Income & Expenditure Account and Receipt & Payment Account dealt with by this report are in agreement with the books of accounts.
- v. In our opinion and to the best of our information and according to the explanations given to us, the said financial statements read together with the Accounting Policies and Notes on Accounts, and subject to the significant matters stated above and other matters mentioned in Annexure to this Audit report give a true and fair view in conformity with accounting principles generally accepted in India.
  - a. In so far as it relates to the Balance Sheet, of the state of affairs of the Indian Institute of Science, Education and Research, Thiruvananthapuram as at 31 March 2015; and
  - b. In so far as it relates to Income & Expenditure Account of the surplus for the year ended on that date.

**For and on behalf of the C& AG of India**

**Director General of Audit (C), Chennai.**

**Place: Chennai**

**Date: December 2015**

## Annexure I

1. **Adequacy of Internal Audit System:**

The Internal Audit has been done up to the financial year 2014-15. The internal audit system is adequate and commensurate with the size and nature of transactions of the Institute.

2. **Adequacy of Internal Control System:**

IISER has not prepared Accounting Manual so far

3. **System of Physical Verification of Assets:**

Annual physical verification of assets has been done only upto 2013-14. Annual Physical verification of assets was not conducted during the year 2014.15.

4. **System of Physical Verification of Inventory**

Annual physical verification of inventory was not conducted during the year 2014-15 as the procurement was made on need basis and issued to concerned Department.

5. **Regularity in payment of statutory dues:**

The IISER is regular in payment of statutory dues.

Sd /-  
**Deputy Director/ DT (II)**

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, THIRUVANANTHAPURAM**
**BALANCE SHEET AS AT 31ST MARCH 2015**

SOURCES OF FUNDS	Schedule No	Amount in Rupees	
		2014-15	2013-14
<b>UNRESTRICTED FUND</b>			
CORPUS/ CAPITAL FUND	1	3,755,978,429	2,691,517,524
DESIGNATED/ EARMARKED FUNDS	2	-	-
CURRENT LIABILITIES AND PROVISIONS	3	489,728,078	447,253,465
UNSPENT BALANCE OF EXTERNAL PROJECTS	3A	64,449,730	42,040,897
<b>TOTAL</b>		<b>4,310,156,237</b>	<b>3,180,811,886</b>
<b>APPLICATION OF FUNDS</b>			
<b>FIXED ASSETS</b>	4		
TANGIBLE ASSETS		1,062,044,285	584,459,815
INTANGIBLE ASSETS		62,947,881	113,058,711
CAPITAL WORK-IN-PROGRESS		1,119,008,451	1,043,421,397
<b>INVESTMENTS FROM EARMARKED / ENDOWMENT FUNDS</b>	5	-	-
LONG TERM INVESTMENT			
SHORT TERM INVESTMENT			
<b>INVESTMENT - OTHERS</b>	6	-	-
<b>CURRENT ASSETS</b>	7	414,695,015	1,020,444,994
<b>LOANS, ADVANCES &amp; DEPOSITS</b>	8	1,651,460,605	419,426,969
<b>TOTAL</b>		<b>4,310,156,237</b>	<b>3,180,811,886</b>
<b>SIGNIFICANT ACCOUNTING POLICIES</b>	23		
<b>CONTINGENT LIABILITIES AND NOTES TO ACCOUNTS</b>	24		

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, THIRUVANANTHAPURAM

### INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015

PARTICULARS	(Amount in Rs.)		
	Schedule	2014-15	2013-14
<b>INCOME</b>			
Academic Receipts	9	9,133,550	7,686,600
Grants & Subsidies	10	477,797,576	270,962,002
Income from Investments	11	-	-
Interest Earned	12	3,293,115	430,086
Other Income	13	77,618,809	73,804,332
Prior Period Income	14	-	-
Depreciation Added Back due to change in adopting depreciation rates from Income Tax Act to Companies Act			115,413,103
<b>TOTAL (A)</b>		<b>567,843,050</b>	<b>468,296,123</b>
<b>EXPENDITURE</b>			
Staff Payments & Benefits	15	150,173,305	113,095,882
Academic Expenses	16	112,986,439	92,107,840
Administrative & General Expenses	17	200,030,553	55,116,864
Transportation Expenses	18	9,799,613	6,889,096
Repairs & Maintenance	19	4,600,696	3,049,654
Finance cost	20	206,971	702,666
Other Expenses	21	-	-
Depreciation	22	57,042,033	96,286,002
Prior Period Expenses	23	-	-
<b>TOTAL (B)</b>		<b>534,839,610</b>	<b>367,248,004</b>
<b>Balance being excess of Income over Expenditure (A-B)</b>		<b>33,003,440</b>	<b>101,048,119</b>
Transfer to/ from Designated Fund Building Fund Others (Specify)			
<b>BALANCE BEING SURPLUS/(DEFICIT) CARRIED TO CAPITAL FUND</b>		<b>33,003,440</b>	<b>101,048,119</b>
Significant Accounting Policies	23		
Contingent Liabilities & Notes on Accounts	24		

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, THIRUVANANTHAPURAM

### RECEIPTS AND PAYMENTS FOR THE PERIOD/YEAR ENDED 31.03.2015

		Amount in Rupees			
RECEIPTS	2014-15	2013-14	PAYMENTS	2014-15	2013-14
I. Opening Balance			I. Expenses		
a) Cash in hand			a) Establishment Expenses	245,633,312	100,515,475
b) Bank Balances			b) Academic Expenses	139,970,537	65,332,643
i) In current accounts			c) Administrative Expenses	243,353,714	148,062,775
Canara Bank	144,005,729	64,843,965	d) Transportation Expenses	14,283,182	6,861,493
ii) Deposit/Savings accounts			e) Repair & Maintenance Expenses	4,600,696	3,175,916
State Bank of Travancore	347,865,159	12,702,355	f) Prior period Expenses		
Canara Bank	475,229,970	421,073,726	II. Payments made against earmarked endowment funds		
State Bank of India	28,520,006	11,609,715	III. Payment against Sponsored Projects	53,426,265	45,196,910
Canara Bank Project A/c	24,824,130	15,440,483			
II. Grants Received			IV. Payment against sponsored fellowships		
a) From Government of India	1,494,000,000	842,200,000	V. Investments and deposits made		
b) From State Government			a) Out of Earmarked/Endowment funds		
c) From other sources (details)			b) Out of Own Funds (Investments-Others)		
DST		16,423,600	VI. Term Deposits with Scheduled Banks		
CSIR		250,400	VII. Expenditure on Fixed Assets & Capital		
KVPY	1,833,000	2,608,491	Work-in-Progress		
UGC	13,422,041		Purchase of Fixed Assets and	560,102,726	455,693,351
External Projects (including interest)	82,891,238	55,142,979	Expenditure on Capital Work-in-progress		
III. Academic Receipts	9,133,550	7,686,600	VIII. Other payment including Statutory payment		
IV. Receipts against Earmarked/Endowment Fund			IX. Refunds of Grants	204,750	41,604
V. Receipts against sponsored projects			X. Deposits & Advances	998,922,213	
VI. Receipts against Sponsored Fellowships and Scholarships			XI. Other payments		
VII. Income on Investments from			VIII. Closing Balances		
a) Earmarked/Endow. Funds			a) Cash in hand	0	
b) Own Funds (Other Investment)			b) Bank Balances		
VIII. Interest Received			i) In current accounts		
a) On Bank deposits	26,633,263	37,142,079	a) Canara Bank A/c	4,493	144,005,729
b) Loans, Advances etc.			ii) In deposit/savings accounts		
c) Savings Bank Account	3,293,115	430,086	a) SBT	358,858,410	347,865,159
IX. Investment encashed			b) Canara Bank	-79,306,631	475,229,970
X. Term Deposits with Schedule bank encashed			c) SBI	56,315,750	28,520,006
XI. Other Income (Including prior period income)	18,792,343	21,042,667	d) Canara Bank Project A/c	78,822,993	24,824,130
XII. Deposits & Advances	4,748,866	336,728,015			
XIII. Miscellaneous receipts including Statutory receipts					
XIV. Any other receipts					
<b>Total</b>	<b>2,675,192,410</b>	<b>1,845,325,161</b>	<b>Total</b>	<b>2,675,192,410</b>	<b>1,845,325,161</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31 ST MARCH 2015

SCHEDULE 1- CORPUS/CAPITAL FUND:	Amount in Rupees			
	2014-15		2013-14	
-				
<b>Balance as at the beginning of the year</b>		2,691,517,524		2,032,148,916
Add: Contributions towards Corpus/Capital Fund	1,509,255,041		829,282,491	
Add: Grant from UGC, Government of India and State Government to the extent utilized for capital expenditure	560,102,726		455,693,351	
Add: Assets purchased out of Earmarked funds				
Add: Assets purchased out of sponsored projects, where ownership vests in the institution				
Add: Assets donated/ gifts received				
Add: Other additions				
Add: Excess of income over expenditure transferred from income and expenditure account	33,003,440		101,048,119	
<b>Total</b>		<b>4,793,878,731</b>		<b>3,418,172,877</b>
Less: Deficit transferred from the income and expenditure account				
Less: Utilized during the year		1,037,900,302		726,655,353
<b>BALANCE AT THE YEAR-END</b>		<b>3,755,978,429</b>		<b>2,691,517,524</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31 ST MARCH 2015

SCHEDULE 3- CURRENT LIABILITIES AND PROVISIONS		Amount in Rupees	
	Sub Sch No.	2014-15	2013-14
<b>A. CURRENT LIABILITIES</b>			
1. Deposits from staff			
2. Deposits from students			
<b>3. Sundry Creditors:</b>	1		
a) For Goods & Services		329,118	-
b) Others		64,889,317	41,366,576
4. Deposits Others (including EMD, Security Deposits)	2	40,291,546	27,624,212
<b>5. Statutory Liabilities( GPF,TDS,WC TAX, CPF, GIS,NPS) :</b>			
a) Overdue			
b) Others	3	999,988	93,698
6. Other current Liabilities	4	383,218,109	378,168,979
a) Salaries			
b) Receipts against sponsored projects			
c) Receipts against sponsored fellowships and scholarships			
d) Unutilized Grants			
e) Grants in advance			
f) Other Funds			
g) Other liabilities			
<b>Total (A)</b>		<b>489,728,078</b>	<b>447,253,465</b>
<b>B. PROVISIONS</b>			
1. For Taxation			
2. Gratuity			
3. Superannuation/Pension			
4. Accumulated Leave Encashment			
5. Trade Warranties/Claims			
6. Others (Specify)			
Total (B)		-	
<b>Total (A+B)</b>		<b>489,728,078</b>	<b>447,253,465</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MARCH 2015

<b>SCHEDULE 3 (a)-ENDOWMENT FUNDS (Sponsored Projects)</b>								
								Amount in Rupees
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sl. No	Name of the Project	Opening Balance 2014-15		Receipts / Recoveries during the year	Total	Expenditure during the year	Total	
		Credit	Debit				Credit	Debit
1	CSIR PROJECT OF DR. AJAY VENUGOPAL			1,00,000	1,00,000	-	1,00,000	
2	CSIR PROJECT OF DR. KM.SURESHAN	4,99,570		(3,79,570)	1,20,000	1,20,000	-	
3	CSIR PROJECT OF DR. TAPAS K MANNA	-		(1,41,933)	(1,41,933)	24,734	-	1,66,667
4	CSIR PROJECT OF DR.HEMA SOMANATHAN	-		(20,000)	(20,000)	(20,000)	-	
5	CSIR PROJECT OF DR.SUKHENDU MANDAL	-		6,00,000	6,00,000	62,503	5,37,497	
6	DAE PROJECT OF DR.M.M.SHAJIJUMON	-		3,17,013	3,17,013	4,85,260	-	1,68,247
7	DAE NBHM PROJECT OF DR.UTPAL MANNA	-		59,500	59,500	45,597	13,903	
8	DAE PROJECT OF DR.TAPAS KUMAR MANNA	7,72,500		-	7,72,500	9,07,109	-	1,34,609
9	DBT PROJECT OF DR.KALIKA PRASAD	23,94,691		-	23,94,691	39,12,227	-	15,17,536
10	DBT PROJECT OF DR.M.M.SHAJIJUMON	2,43,019		3,88,000	6,31,019	4,60,446	1,70,573	
11	DBT PROJECT OF DR.REJI VARGHESE	-		83,48,400	83,48,400	3,45,805	80,02,595	
12	DBT PROJECT OF DR.MAHESH HARIHARAN	15,91,456		-	15,91,456	1,76,036	14,15,420	
13	DST FT DR AYAN DATTA	1,36,490		-	1,36,490	-	1,36,490	
14	DST FT PROJECT OF DR K M SURESHAN	-		(11,96,840)	(11,96,840)	-	-	11,96,840
15	DST FT PROJECT OF DR. ANIL SHAJI	36,605		-	36,605	-	36,605	



16	DST FT PROJECT OF DR.M.M. SHAIJUMON	-	2,37,416	2,37,416	2,37,416	-	
17	DST INDO-EUROPE PROJECT OF DR.K.GEORGE THOMAS	6,98,715	-	6,98,715	17,28,476	-	10,29,761
18	DST MPG PROJECT OF DR.ARCHANA PAI	1,12,087	11,03,889	12,15,976	4,28,077	7,87,899	
19	DST MPG PROJECT OF DR.SHANKARA NARAYANAN	11,86,671	16,670	12,03,341	11,43,107	60,234	
20	DST SERB PROJECT OF DR.TAPAS K MANNA	-	7,70,095	7,70,095	7,70,095	-	
21	DST SERB PROJECT OF DR.MAHESH HARIHARAN	-	-	-	3,85,312	-	3,85,312
22	DST SERB PROJECT OF DR.RAJEEV KINI	7,40,755	4,00,000	11,40,755	9,85,307	1,55,448	
23	DST SERB PROJECT OF DR.RAMESH CHANDRANATH	-	4,65,424	4,65,424	4,40,201	25,223	
24	DST SERB PROJECT OF DR.MADHU THALAKULAM	-	30,50,000	30,50,000	1,66,700	28,83,300	
25	DST SERB PROJECT OF DR.SUKHENDU MANDAL	-	40,00,000	40,00,000	5,16,941	34,83,059	
26	DST SERB PROJECT OF DR. JOY MITRA	-	29,00,000	29,00,000	1,66,700	27,33,300	
27	DST SERI PROJECT OF DR.MANOJ NAMBOOTHIRY	125,06,371	10,00,000	135,06,371	149,48,434	-	14,42,063
28	DST UKIERI PROJECT OF DR.RAJEEV KINI	6,11,000	-	6,11,000	1,85,849	4,25,151	
29	DST FT PROJECT OF DR.ARCHANA PAI	1,61,953	1,25,624	2,87,577	2,87,559	18	
30	DST-INDO-JAPAN PROJECT OF DR.K.GEORGE THOMAS	2,34,303	-	2,34,303	85,410	1,48,893	
31	DST-JSPS OF DR.NISHANT.K.T	-	37,350	37,350	-	37,350	
32	DST MPG PROJECT OF DR.RAMESH CHANDRANATH	62,000	-	62,000	62,000	-	
33	DST-RFBR PROJECT OF DR.ULLASA.K	8,69,523	-	8,69,523	16,10,844	-	7,41,321
34	DST SERB PROJECT OF DR.AJAY VENUGOPAL	-	3,36,176	3,36,176	3,45,730	-	9,554
35	DU-PONT YOUNG PROF. PROGRAMME OF DR. RAVI MARUTHACHALAM	-	5,01,504	5,01,504	98,263	4,03,241	
36	INDO US PROJECT OF DR.MM SHAIJUMOIN	3,71,262	1,73,913	5,45,175	5,45,175	-	
37	INSPIRE FACULTY AWARD OF DR.AJAY VENUGOPAL	6,21,895	7,00,000	13,21,895	6,82,609	6,39,286	

38	INSPIRE FACULTY AWARD OF DR. ULLASA KODANDARAMAIAH			7,00,000	7,00,000	42,245	6,57,755	
39	IUSSTF FELLOWSHIP OF DR. MAHESH HARIHARAN	-		5,91,650	5,91,650	5,91,650	-	
40	JC BOSE FELLOWSHIP OF DR. K GEORGE THOMAS	-		13,60,000	13,60,000	3,84,184	9,75,816	
41	MAX PLANCK PROJECT OF DR.ARCHANA PAI	26,63,595		14,48,313	41,11,908	25,06,423	16,05,485	
42	MHRD COE PROJECT OF DR. AMAL MEDHI	-		150,00,000	150,00,000	-	150,00,000	
43	MPG PROJECT OF DR.SHANKARA NARAYANAN	21,77,452		25,84,369	47,61,821	25,13,072	22,48,749	
44	NISSAN PROJECT OF DR. M.M. SHAIJUMON	7,20,459		1,53,663	8,74,122	8,74,122	-	
45	RAMALINGA SWAMY FELLOWSHIP OF DR. RAMANATHAN NATESH	6,06,696		-	6,06,696	16,63,311	-	10,56,615
46	RAMALINGA SWAMY FELLOWSHIP OF DR. RAVI MARUTHACHALAM	1,34,555		15,28,710	16,63,265	12,65,632	3,97,633	
47	RAMANUJAN FELLOW. OF DR ANIL SHAJI	1,07,670		17,80,000	18,87,670	3,88,874	14,98,796	
48	RAMANUJAN FELLOW. OF DR. SHANKARA NARAYANAN	-		18,03,123	18,03,123	1,06,901	16,96,222	
49	RAMANUJAN FELLOW. OF DR.REJI VARGHESE	-		17,84,681	17,84,681	7,13,193	10,71,488	
50	RAMANUJAN FELLOW.OF DR. KM SURESHAN	1,13,828		-	1,13,828	1,50,679	-	36,851
51	RAMANUJAN FELLOWSHIP OF DR.JISHY VARGHESE	7,24,645		17,80,000	25,04,645	5,78,126	19,26,519	
52	SSB AWARD OF PROF.K.GEORGE THOMAS	-		1,80,000	1,80,000	1,80,000	-	
53	SWARNA JAYANTI FELLOWSHIP OF DR. K M SURESAN	-		145,00,000	145,00,000	1,75,000	143,25,000	
54	UGC UKIERI PROJECT OF DR. JOY MITRA	-		8,10,500	8,10,500	1,63,046	6,47,454	
55	WELCOME TRUST DBT PROJECT OF DR NISHANT K.T.	76,72,577		42,14,854	118,87,431	70,58,768	48,28,663	
56	WT/ DBT PROJECT OF DR.SUNISH R	-		-	-	17,31,117	-	17,31,117
	INTEREST ON SB ACCOUNT	32,68,554		17,22,604	49,91,158	-	49,91,158	
	<b>Total</b>	<b>420,40,897</b>	<b>0</b>	<b>758,35,098</b>	<b>1178,75,995</b>	<b>534,26,265</b>	<b>740,66,223</b>	<b>96,16,493</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MARCH 2015

SCHEDULE 3 (b)-SPONSORED FELLOWSHIPS AND SCHOLARSHIPS						Amount in Rupees	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sl. No	Name of the Sponsor	Opening Balance as on 01.04.2014		Transactions during the year		Closing Balance as on 31.03.2015	
		Credit	Debit	Credit	Debit	Credit	Debit
1	DST - INSPIRE (BSMS)	5,710,888	-	-	23,028,863	-	17,317,975
2	CSIR (PhD Research Scholars)	-	8,752,866	-	4,579,611	-	13,332,477
3	KVPY (BSMS)	447,314	-	1,833,000	2,112,000	168,314	-
4	UGC (PhD Research Scholars)	-	5,361,165	13,422,041	3,734,215	4,326,661	-
	<b>Total</b>	<b>6,158,202</b>	<b>14,114,031</b>	<b>15,255,041</b>	<b>33,454,689</b>	<b>4,494,975</b>	<b>30,650,452</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MARCH 2015

SCHEDULE 3(c)-UNUTILIZED GRANTS FROM UGC, GOVERNMENT OF INDIA AND STATE GOVERNMENTS	Amount in Rupees	
	2014-15	2013-14
<b>A. Plan grants: Government of India (MHRD)</b>		
Balance B/F	723,722,228.00	613,395,726.00
Add: Receipts during the year	1,494,000,000.00	810,000,000.00
<b>Total (a)</b>	2,217,722,228.00	1,423,395,726.00
<b>Less Refunds</b>		
Less: Utilized for Revenue Expenditure	444,342,887.00	243,980,147.00
Less: Utilized for Capital Expenditure	560,102,726.00	455,693,351.00
<b>Total (b)</b>	1,004,445,613.00	699,673,498.00
<b>Unutilized carried forward (a-b)</b>	<b>1,213,276,615.00</b>	<b>723,722,228.00</b>
<b>B. UGC Grants: Plan</b>		
Balance B/F		
Add: Receipts during the year		
<b>Total (c)</b>	NIL	NIL
<b>Less Refunds</b>		
Less: Utilized for Revenue Expenditure		
Less: Utilized for Capital Expenditure		
<b>Total (d)</b>	NIL	NIL
<b>Unutilized carried forward (c-d)</b>		
<b>C. UGC Grants Non-Plan</b>		
Balance B/F		
Add: Receipts during the year		
<b>Total (e)</b>	NIL	NIL
<b>Less Refunds</b>		
Less: Utilized for Revenue Expenditure		
Less: Utilized for Capital Expenditure		
<b>Total (f)</b>	NIL	NIL
<b>Unutilized carried forward (e-f)</b>		
<b>D. Grants from State Govt.</b>		
Balance B/F		
Add: Receipts during the year		
<b>Total (g)</b>	NIL	NIL
<b>Less Refunds</b>		
Less: Utilized for Revenue Expenditure		
Less: Utilized for Capital Expenditure		
<b>Total (h)</b>	NIL	NIL
<b>Unutilized carried forward (g-h)</b>		
<b>Grand Total (A+B+C+D)</b>	<b>1,213,276,615.00</b>	<b>723,722,228.00</b>

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH, THIRUVANANTHAPURAM**  
**SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2015**

SCHEDULE 4 - FIXED ASSETS (PLAN+NON PLAN)												
Sl. No.	DESCRIPTION	GROSS BLOCK				DEPRECIATION				NET BLOCK		
		Opening Balance as on 01.04.2014	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions/ Adjustment	Total Depreciation	31.03.2015	31.03.2014
	<b>TANGIBLE ASSETS</b>											
1	<b>LAND:</b>											
	<b>a) Freehold</b>											
	Land obtained from Govt	1			1	0.00%					1	1
	Vithura	954,506			954,506	0.00%					954,506	954,506
2	Site Development											
3	<b>BUILDINGS:</b>	75,443,902	19,829,726		95,273,628	2.00%	10,677,154	396,595	(5,235,693)	5,838,056	89,435,572	64,766,748
4	Roads & Bridges					2.00%						
5	Tubes & Water Supply					2.00%						
6	Sewage & Drainage					2.00%						
7	Electrical Installation and equipment	14,137,057	328,356		14,465,413	5.00%	5,417,113	16,418	(3,027,099)	2,406,432	12,058,981	8,719,944
8	Plant and Machinery	18,865,608	13,096,381		31,961,989	5.00%	6,448,437	654,819	(3,383,597)	3,719,659	28,242,330	12,417,171
9	Scientific & Laboratory Equipment	618,218,375	390,303,306		1,008,521,681	8.00%	162,643,269	31,242,441	(40,372,026)	153,513,684	855,007,997	455,575,106

Sl. No.	INTANGIBLE ASSETS	GROSS BLOCK						DEPRECIATION				NET BLOCK				
		Opening Balance as on 01.04.2014	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Amortization for the year	Deductions / Adjustment	Total Amortization / Adjustments	31.03.2015	31.03.2014				
10	Office Equipment					7.50%										
11	Audio Visual Equipment					7.50%										
12	Computers & Peripherals	40,981,485	7,679,327		48,660,812	20.00%	28,272,890	1,535,865	(11,228,047)	18,580,708	30,080,104	12,708,595				
13	Furniture, Fixtures and Fittings	36,471,921	5,864,942		42,336,863	7.50%	18,225,524	439,870	(9,555,899)	9,109,495	33,227,368	18,246,397				
14	Vehicles	701,044	10,279		711,323	10.00%	381,022	1,028	(51,962)	330,088	381,235	320,022				
15	Library Books & Scientific Journals	17,551,487	1,089,315		18,640,802		6,800,161	108,932	(924,482)	5,984,611	12,656,191	10,751,326				
16	Small Value Assets															
	<b>TOTAL (A)</b>	<b>823,325,386</b>	<b>438,201,632</b>	<b>-</b>	<b>1,261,527,018</b>		<b>238,865,570</b>	<b>34,395,968</b>	<b>(73,778,805)</b>	<b>199,482,733</b>	<b>1,062,044,285</b>	<b>584,459,816</b>				
17	CAPITAL WORK-IN PROGRESS (B)															
											1,119,008,451	1,043,421,397				
											<b>2,181,052,736</b>	<b>1,627,881,213</b>				
18	Computer Software	11,508,590	2,106,550		13,615,140	40.00%	9,123,469	842,620	2,903,715	12,869,804	745,336	2,385,121				
19	E-Journals	157,451,324	44,207,490		201,658,814	40.00%	46,777,734	17,682,996	74,995,539	139,456,269	62,202,545	110,673,590				
20	Patents					9 YEARS										
	<b>TOTAL-(C)</b>	<b>168,959,914</b>	<b>46,314,040</b>	<b>-</b>	<b>215,273,954</b>		<b>55,901,203</b>	<b>18,525,616</b>	<b>77,899,254</b>	<b>152,326,073</b>	<b>62,947,881</b>	<b>113,058,711</b>				
	<b>GRAND TOTAL (A+B+C)</b>	<b>992,285,300</b>	<b>484,515,672</b>	<b>-</b>	<b>1,476,800,972</b>		<b>294,766,773</b>	<b>52,921,584</b>	<b>4,120,449</b>	<b>351,808,806</b>	<b>2,244,000,617</b>	<b>1,740,939,924</b>				

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MARCH 2015

SCHEDULE 7 - CURRENT ASSETS	Amount in Rupees		
	Sub Sch. No.	2014-15	2013-14
<b>1. Stock</b>			
a) Stores and Spares			
b) Loose Tools			
c) Publications			
d) Laboratory Chemicals, consumables and glass wares			
e) Building materials			
f) Electrical materials			
g) Stationery			
h) Water supply material			
<b>2. Sundry Debtors:</b>			
a) Debts Outstanding for a period exceeding six months			
b) Others			
<b>3. Cash balances in hand (including cheques/drafts and imprest)</b>	4	-	-
<b>4. Bank Balances:</b>			
<b>Institute Balance</b>			
a) With Scheduled Banks:			
-On Current Accounts	5	4,493	144,005,729
-On Term Deposit Accounts (includes margin money)	5	560,257,282	839,078,189
-On Savings Accounts	5	(224,389,753)	12,536,946
b) With non-Scheduled Banks:			
-On Current Accounts			
-On Term Deposit Accounts			
-On Savings Accounts			
<b>Project Balance</b>			
a) With Scheduled Banks:			
-On Current Accounts			
-On Term Deposit Accounts (includes margin money)			
-On Savings Accounts		78,822,993	24,824,130
b) With non-Scheduled Banks:			
-On Current Accounts			
-On Term Deposit Accounts			
-On Savings Accounts			
<b>5. Post Office- Savings Accounts</b>			
<b>TOTAL</b>		<b>414,695,015</b>	<b>1,020,444,994</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31ST MARCH 2015

SCHEDULE 8- LOANS, ADVANCES & DEPOSITS	Amount in Rupees		
	Sub Sch. No.	2014-15	2013-14
<b>1. Advances to employees: (Non-interest bearing)</b>			
a) Salary			
b) Festival			
c) Medical Advance			
d) Other (to be specified)			
<b>2. Long Term Advances to employees: ( Interest bearing)</b>			
a) Vehicle Loan		-	60,428
b) Home Loan			
c) Others (to be specified)			
<b>3. Advances and other amounts recoverable in cash or in kind or for value to be received</b>			
a) On Capital Account			
b) To suppliers			
c) Others	7	1,144,194,601	185,562,694
<b>4. Prepaid Expenses</b>			
a) Insurance			
b) Other Expenses	6	27,157,561	115,091,835
<b>5. Deposits</b>			
a) Telephone			
b) Lease Rent			
c) Electricity			
d) AICTE, if applicable			
e) Others (to be specified)			
<b>6. Income Accrued:</b>			
a) On Investments from Earmarked/Endowment Funds			
b) On Investments-Others			
c) On Loans and Advances			
d) Others (includes income due unrealized-Rs.....)	8	69,239,172	29,712,422
<b>7. Other Current Assets Receivables</b>			
a) Debit balances in sponsored projects			
b) Debit balances in fellowship & scholarships			
c) Grants recoverable			
d) Other receivables			
<b>8. Claims Receivable</b>	9	410,869,271	88,999,590
<b>TOTAL</b>		<b>1,651,460,605</b>	<b>419,426,969</b>



**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH  
THIRUVANANTHAPURAM**

**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR  
ENDED 31ST MARCH 2015**

<b>SCHEDULE 9- ACADEMIC RECEIPTS</b>		
	Amount of Rupees	
	2014-15	2013-14
<b>FEE FROM STUDENTS</b>		
<b>Academic</b>		
a) Tuition fee	7,535,350	6,306,850
b) Admission fee		
c) Enrolment fee		
d) Library fee	314,100	138,300
e) Laboratory fee		
f) Art & Craft fee		
g) Registration fee	216,400	183,400
h) Syllabus fee		
i) Other Receipts	573,700	507,000
TOTAL (A)	8,639,550	7,135,550
<b>Examinations</b>		
a) Admission test fee		
b) Annual examination fee	413,450	354,450
c) Mark sheet, Certificate fee		
d) Entrance Examination fee		
TOTAL (B)	413,450	354,450
<b>Other Fee</b>		
a) Identity Card fee		
b) Fine/ Miscellaneous fee		
c) Medical fee	57,050	46,800
d) Transportation fee		
e) Hostel Fee	23,500	149,800
TOTAL (C)	80,550	196,600
<b>Sale of publications</b>		
a) Sale of admission forms		
b) Sale of syllabus and question paper		
c) Sale of prospectus including admission forms		
TOTAL (D)		
<b>Other Academic Receipts</b>		
a) Registration fee for workshops programmes		
b) Registration fees (Academic Staff College)		
<b>GRAND TOTAL (A+B+C+D)</b>	<b>9,133,550</b>	<b>7,686,600</b>

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH  
THIRUVANANTHAPURAM**

**CHEDES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR  
ENDED 31ST MARCH 2015**

<b>SCHEDULE 10- GRANTS/SUBSIDIES</b>			
		Amount of Rupees	
		2014-15	2013-14
(Irrevocable Grants & Subsidies Received)			
<b>Balance B/F</b>		715,766,399	613,139,261
ADD: Receipts During the Year			
Capital Grant		1,494,000,000	810,000,000
	General	824,600,000	
	SC	159,600,000	
	ST	79,800,000	
Revenue Grant			
	General	333,250,000	
	SC	64,500,000	
	ST	32,250,000	
DST - INSPIRE		-	16,423,600
CSIR - PhD Research Scholar		-	250,400
KVPY - BSMS		1,833,000	2,608,491
UGC - PhD Research Scholar		13,422,041	-
		<b>2,225,021,440</b>	<b>1,442,421,752</b>
Less: Capital Expenses Incurred during the year		560,102,726	455,693,351
Less: Closing Unspent balance of grant		1,187,121,138	715,766,399
		<b>477,797,576</b>	<b>270,962,002</b>
<b>TOTAL</b>		<b>477,797,576</b>	<b>270,962,002</b>

**INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH  
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**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT  
FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015**

<b>SCHEDULE 12- INTEREST EARNED</b>	(Amount-Rs.)	
Particulars	2014-15	2013-14
1) On Savings Accounts with scheduled banks	3,293,115.00	430,086.00
2) On Loans		
a. Employees/ Staff		
b. Others		
3) On debtors and others receivables		
<b>TOTAL</b>	<b>3,293,115.00</b>	<b>430,086.00</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

### SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015

SCHEDULE 13- OTHER INCOME	Amount in Rupees	
	2014-15	2013-14
<b>A. Income from Land &amp; Building</b>		
a) Hostel room rent	1,932,000	1,620,000
b) License fee	325,150	182,900
c) Hire charges of Auditorium/ Playground/ Convention Centre, Etc		-
d) Electricity Charges recovered	641,500	540,000
e) Water Charges recovered		
<b>Total</b>	<b>2,898,650</b>	<b>2,342,900</b>
<b>B. Sale of Institutes Publications</b>		
<b>Total</b>	-	-
<b>C. Income from Holding Events</b>		
a) Gross receipts from annual function/ sports carnival		
Less: Direct expenditure incurred on the annual function/ sports carnival		
b) Gross receipts from fetes		
Less: Direct expenditure incurred on fetes		
c) Gross receipts on educational tours		
Less: Direct expenditure incurred on tours		
d) Others ( to be specify and separately disclosed)		
<b>Total</b>	-	-
<b>D. Interest On Term Deposits:</b>		
a) With Scheduled Banks	66,160,012	52,761,665
b) With Non-Scheduled Banks		
c) With Institutions		
d) Others		
<b>Total</b>	<b>66,160,012</b>	<b>52,761,665</b>
<b>E. Interest On Savings Accounts:</b>		
a) With Scheduled Banks		
b) With Non-Scheduled Banks		
c) With Institutions		
d) Others		
<b>Total</b>	-	-
<b>F. On Loans:</b>		
a) Employees/Staff		
b) Others	44,721	11,624,975
<b>Total</b>	<b>44,721</b>	<b>11,624,975</b>
<b>G. Interest on Debtors and Other Receivables</b>		
<b>Total</b>	-	-
<b>H. Others</b>		
a) Income from consultancy		
b) RTI Fees	160	210
c) Income from royalty		
d) Sale of application form	2,600	4,800
e) Misc. receipts (Sale of tender form, waste paper, etc.)	8,512,666	2,730,121
f) Profit on sale/ disposal of Assets		
1. Owned asset		
2. Assets acquired out of grants, or received free of cost		
g) Other Incomes	-	4,339,661
<b>Total</b>	<b>8,515,426</b>	<b>7,074,792</b>
<b>GRAND TOTAL (A+B+C+D+E+F+G+H)</b>	<b>77,618,809</b>	<b>73,804,332</b>

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### SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/ YEAR ENDED 31ST MARCH 2015

SCHEDULE 15- STAFF PAYMENT & BENEFITS	Amount in Rupees	
	2014-15	2013-14
a) Salaries and Wages	115,089,645	90,595,164
b) Allowances and Bonus	3,498,580	3,762,396
c) Contribution to Provident Fund		
d) Contribution to Other Fund (Leave Salary & NPS Employer Share)	27,195,058	5,692,146
e) Staff Welfare Expenses		
f) Retirement and Terminal Benefits		
g) LTC Facility	1,497,641	2,017,902
h) Medical facility	1,889,106	2,346,749
i) Children Education Allowance	815,170	734,381
j) Honorarium		
k) Others (Leave Salary)	188,105	7,947,144
<b>TOTAL</b>	<b>150,173,305</b>	<b>113,095,882</b>

## INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM

SCHEDULE 16- ACADEMIC EXPENSES	Amount in Rupees	
	2014-15	2013-14
a) Laboratory Expenses	55,779,507	46,371,447
b) Field Work/ Participation	272,633	1,368,586
c) Expenses on Seminar/ Workshop		
d) Payment to visiting faculty		
e) Examination		
f) Student welfare expense		
g) Admission expenses	179,591	442,762
h) Convocation expense	712,976	1,083,014
i) Publication		
j) Stipend/ means-cum-merit scholarship	56,041,732	42,842,031
k) Subscription Expense		
l) Others (Specify)		
<b>TOTAL</b>	<b>112,986,439</b>	<b>92,107,840</b>

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**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR  
ENDED 31ST MARCH 2015**

SCHEDULE 17- ADMINISTRATIVE AND GENERAL EXPENSES	Amount in Rupees	
	2014-15	2013-14
A. Infrastructure		
a) Electricity and power	128,038,448	8,980,122
b) Water charges	1,024,358	203,174
c) Insurance	-	48,033
d) Rent, Rates and Taxes	33,250,653	22,585,426
B. Communication		
e) Postage & Telegram	615,315	216,136
f) Telephone and Internet Charges	2,145,841	1,540,349
C. Others		
g) Printing and Stationary	2,741,617	2,224,303
h) Travelling and Conveyance Expenses	4,919,245	2,777,145
i) Expenses on Seminar/Workshops	6,994,356	4,662,167
j) Hospitality		
k) Auditors Remuneration	201,960	86,180
l) Professional Charges		
m) Advertisement and Publicity	6,978,220	4,287,414
n) Magazine & Journals		
o) Others (specify)		
sports or cultural fest or celebration expense	1,220,533	357,569
Consumables	647,519	252,175
Contingencies	1,598,744	870,566
Cable TV Charges	57,250	70,865
Newspaper & Periodicals	125,599	53,591
Office contingencies	3,808,183	1,320,589
Software License fees	839,489	801,849
Photography Charges	24,815	46,100
Guest house and other expenses	639,446	614,564
Miscellaneous expenses	-	2,500
Gardening & Landscaping Charges	15,750	13,150
Other Administrative / Miscellaneous Expenses	3,205,721	3,001,610
Reward & Recognition	-	3,588
Legal and consultancy charges	937,490	97,700
<b>TOTAL</b>	<b>200,030,553</b>	<b>55,116,864</b>

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**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT  
FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015**

<b>SCHEDULE 18- TRANSPORTATION EXPENSES</b>	<b>Amount in Rupees</b>	
	<b>2014-15</b>	<b>2013-14</b>
1. Vehicles (owned by educational institution)		
a) Running expense	83,165	40,766
b) Repairs & Maintenance	42,038	24,769
c) Insurance Expenses	8,412	7,939
2. Vehicles taken on rent		
a) Rent/ Lease expenses	9,665,998	6,815,622
3. Vehicle (Taxi) Hiring expenses		
<b>TOTAL</b>	<b>9,799,613</b>	<b>6,889,096</b>

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**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT  
FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015**

<b>SCHEDULE 19- REPAIRS &amp; MAINTANENCE</b>	<b>Amount in Rupees</b>	
	<b>2014-15</b>	<b>2013-14</b>
a) Building	213,125	282,579
b) Furniture & Fixtures		
c) Plant & Machinery	4,387,571	2,767,075
d) Office Equipments		
e) Computers		
f) Laboratory & Scientific equipment		
g) Audio Visual equipment		
h) Cleaning Material & Services		
i) Book binding charges		
j) Gardening		
k) Estate Maintenance		
f) Others (Specify)		
<b>TOTAL</b>	<b>4,600,696</b>	<b>3,049,654</b>

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**SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT  
FOR THE PERIOD/YEAR ENDED 31ST MARCH 2015**

<b>SCHEDULE 20- FINANCE COSTS</b>	<b>Amount in Rupees</b>	
	<b>2014-15</b>	<b>2013-14</b>
a) Bank Charges	206,971	702,666
b) Others (specify)		
<b>TOTAL</b>	<b>206,971</b>	<b>702,666</b>

## SCHEDULE 23- SIGNIFICANT ACCOUNTING POLICIES

### 1. Accounting Conventions

The accompanying financial Statements are prepared on Historical Cost Convention.

### 2. Fixed Asset

Cost of Assets acquired out of grant from Government of India is credited to General Fund.

### 3. Closing

Items issued to labs are treated as consumed and hence closing Stock of lab Consumables / Chemicals is taken as Nil

### 4. Depreciation

Depreciation on fixed assets has been charged under written down value method at rates specified by MHRD.

### 5. Grant in Aid

- ◆ Grant in Aid received and receivable from Government of India amounting to Rs. 1,49,40,00,000/- during the year 2014-15 has been credited to General fund to the extent of amount spent for Capital Expenditure and Credited to Income & Expenditure Account to the extent of amount utilized for revenue expenditure.
- ◆ Grant in Aid received from KVPY amounting to Rs. 18,33,000/- has been credited to Income & Expenditure account to the extent of amount utilized for revenue expenditure.
- ◆ Grant in Aid received from UGC amounting to Rs. 1,34,22,041/- has been credited to Income & Expenditure account to the extent of amount utilized for Revenue expenditure.

### 6. Interest on Flexi/ Fixed Deposits & Term Deposits

Interest on flexi/Fixed Deposits has been credited in the accounts on Accrual Basis.



## SCHEDULE 24- CONTINGENT LIABILITIES AND NOTES ON ACCOUNTS

1. The land (approx. 200 acres in Jersey Farm, Vithura, Karipur Village, Nedumangadu Taluk, Thiruvananthapuram District) has been given by Government of Kerala, at free of cost and hence recorded at nominal value in the accounts as per Accounting Standard: 12- Accounting for Government Grant.
2. The construction works done at CET Campus which were completed are capitalized. Permanent infrastructure assets created in the temporary premises located at CET on shifting of the location of the Institute permanently to Vithura.
3. During the Year, Income & Expenditure Account shows balance of net income of Rs. 3,30,03,440/-.
4. Change in Accounting Policies
  - ◆ Depreciation on account of change in accounting policy as directed by MHRD has been charged to Income & Expenditure Account in the current Financial Year.
  - ◆ The unutilized grant shown under Schedule 3(c) Plan Grants from MHRD is Rs.121.32 crore out of which Rs.114.41 crore has been paid as advance including Rs.96.65 crore payment made to CPWD as Deposit work for Phase I Construction of IISER Permanent Campus vide Balance Sheet Sub Schedule 7. Hence physical unspent balance as on 01.04.2015 is Rs.6.91 cr. (Rs.6,90,82,014).
  - ◆ As per the note by C & AG, deposit made with KSEB amounting to Rs. 1,80,00,000/- and prepayment made Rs. 9,70,61,000/- being the cost of cable laying work at Vithura were written off during the year.
  - ◆ The treatment of Project grant and its utilization is on cash basis except for Rs. 2,38,533/- for which, expenditure incurred in the year 2014-15 and payment made in year 2015-16. The accounting of the assets acquired out of project grant & revenue expenditure met from such grant are not accounted in the institute final accounts, only the unspent balance of project grant & Interest is shown under the Current Liabilities of the Institute's Balance Sheet.
  - ◆ Extra expenditure incurred for external Projects were supported by Institute by providing Rs. 42,61,214/- during the year and are charged to Income & Expenditure Account for the year.