IISER
THIRUVANANTHAPURAM

वार्षिक रिपोर्ट
Annual Report
2018 - 2019

भारतीय विज्ञान शिक्षा एवं अनुसंधान संस्थान, तिरुवनंतपुरम
Indian Institute of Science Education and Research, Thiruvananthapuram


ATION

ANNUAL REPORT 2018-19

Indian Institute of Science Education and Research
Thiruvananthapuram
Vithura, Thiruvananthapuram-695 551

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Printed at Akshara offset Ph: 0471 2471174

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PREFACE

The Annual Report included here contains the details of activities at Indian Institute of Science Education and Research Thiruvananthapuram (IISER TVM) and progress made during the Financial Year 2018-2019.

As a prelude, it may be noted that IISER TVM was established by the Government of India to provide quality education at the undergraduate level in modern science by integrating it with research. This institution began to function in 2008 along with IISER Bhopal. Overcoming numerous hurdles, the institute started its full operations from the permanent campus in Vithura, notwithstanding the fact that many buildings required for academic and research activities, e.g., lecture halls, administrative block, etc. were yet to take shape with very little funds left for completing the remaining constructions. Although Animal house and Biological sciences buildings were ready in terms of physical structures, full commissioning of these buildings for use to the expected levels remained a challenge due to precarious financial situation.

Despite the shortcomings, academic activities continued in full speed with 200 students joining the tenth batch of 5-Year BS-MS Dual Degree Programme in August 2018 along with 22 students for IPhD and 32 students for PhD programmes. In this year, 119 students of 5-Year BS-MS Dual Degree Programme (sixth batch), 15 Ph.D students and 2 MS exit students graduated during the Sixth Convocation of IISER TVM, which was held on 11th June 2018. The function was presided over by Prof. Goverdhan Mehta, FNA, FRS, University Distinguished Professor and Dr. Kallam Anji Reddy Chair, School of Chemistry, University of Hyderabad. I am delighted to mention that IISER TVM graduates are internationally competitive and many of them are pursuing their higher education in eminent academic institutions around the world.

In spite of notable successes in the academic front, much desires to be done to improve academic vibrancy and research output that is visible in terms of publications and seamless administration. This year, our institute turned another page in its brief history with changes at the leadership levels of both the Chairman of Board of Governors and the Director. I took over as the Director on April 01, 2019 after having served as a faculty member at IIT Kanpur for 20+ years. In keeping up with the high expectations of our country from IISERs in general and IISER TVM in particular, I am committed to striving hard to place the institution in the trajectory higher growth and better visibility, and to catapult IISER TVM to the ranks of one of the best institutes for science education and research in the country.

Jai Hind

Prof. J N Moorthy
Director

1. Preamble

Introduction

The Indian Institutes of Science Education and 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 to 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 organisation.

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

Chairperson

Dr. Tessy Thomas, Project Director for Agni-IV missile, Defence Research & Development Organisation (DRDO), Hyderabad

Members

Secretary, Department of Higher Education, MHRD, Govt. of India (ex-officio)

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

Director, Indian Institute of Science Bangalore (ex-officio)

Secretary, Department of Industrial Policy & Promotion, Govt. of India (ex-officio)

Secretary, Department of Science & Technology, Govt. of India (ex-officio)

Chief Secretary, Govt. of Kerala (ex-officio)

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

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

Prof. Vijayalakshmi Ravindranath, Chairperson, Centre for Neuroscience, IISc Bangalore

Prof. Bhavana Badhe, Jawaharlal Institute of Postgraduate Medical Education & Research, Puducherry

Joint Secretary & Financial Advisor, MHRD, Govt. of India (ex-officio)

Director, Indian Institute of Technology Hyderabad – w.e.f 20 June 2018

Registrar, Indian Institute of Science Education and Research Thiruvananthapuram (ex-officio) – Secretary

The board met on 14 May 2018 and 27 September 2018 during the period of report.

Finance Committee

Chairperson

Chairman, Board of Governors, IISER TVM

Members

Director, Indian Institute of Science Education and Research Thiruvananthapuram (ex-officio)
Joint Secretary (Admin) DHE, MHRD, Govt. of India (ex-officio)
Joint Secretary & Financial Advisor, MHRD, Govt. of India (ex-officio)
Prof. M P Rajan, School of Mathematics, IISER TVM
Shri. Harikumar S., Chief Engineer (Civil) (Retd), BSNL
Registrar, IISER TVM - Secretary
The finance committee met on 14 May 2018 and 27 September 2018 during the period of report.

Building and Works Committee

Chairperson

Director, Indian Institute of Science Education and Research Thiruvananthapuram

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
Prof. Srinivasa Murty Srinivasula, Professor, School of Biology, IISER TVM
Shri. M. Radhakrishnan, Registrar, IISER TVM
Project Engineer-cum-Estate Officer, IISER TVM - Member Secretary

The committee met on 18 April 2018, 11 September 2018 and 05 February 2019 during the period of report.

2. Human Resources

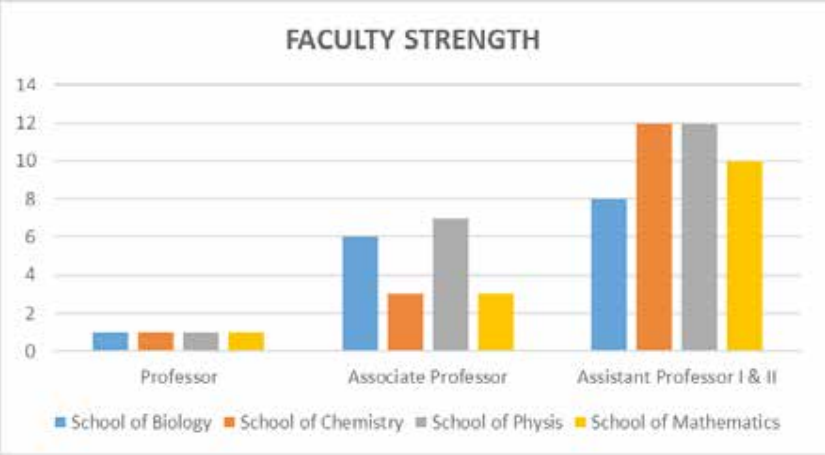
Human resources of the institute in 2018 - 19 comprised the following

Faculty	Regular and Contractual Faculty		65
	Emeritus/Honorary/Visiting/Adjunct Faculty		16
Technical and Non-Teaching Personnel	Officers	Regular	15 (Group A)
		Contractual	02 (Security Officers)
	Subordinate	Regular	56 (Group B – 30 & Group C – 26)
		Temporary & Contract	26

Faculty & Staff

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

Professor	School of Biology School of Chemistry School of Physics School of Mathematics	01 01 01 01
Associate Professor	School of Biology School of Chemistry School of Physics School of Mathematics	06 03 07 03
Assistant Professor Grade I & II	School of Biology School of Chemistry School of Physics School of Mathematics	08 12 12 10



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 15 faculty members, Ph.D. students, Post-Doctoral fellows, Technical Assistants and Project Assistants. Research programmes in the School are funded by Wellcome Trust/DBT India Alliance, The Royal Society UK, Dupont Inc, CSIR, DST, DAE, DBT and IISER TVM intramural support. The School also secured FIST funding from DST to develop the animal house, which will take ongoing research in the School a step further by incorporating animal models.

Our state-of-the art research laboratories are well equipped for imaging, molecular biology, animal tissue culture, biochemical and biophysical work. The IISER campus 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 the frontier research areas of biology

Sl. No.	Name	Position	Area of Research
1	Prof. Srinivasa Murty Srinivasula	Professor	Nutrient and energy homeostasis, gene regulation in neuroendocrine centers, neural circuitry of feeding.
2	Dr. Tapas Kumar Manna	Associate Professor	Microtubule cytoskeleton, mitosis, centrosome and spidle pole regulation, drug development, and ciliogenesis.
3	Dr. Hema Somanathan	Associate Professor	Insect navigation and sensory ecology; insect-plant interactions.
4	Dr. Kalika Prasad	Associate Professor	Plant molecular genetics-patterning, stem cell and regeneration, evolutionary developmental biology.
5	Dr. Nishant K T	Associate Professor	Meiotic recombination, genome stability, mutation rates.
6	Dr. Sunish Kumar Radhakrishnan	Associate Professor	Prokaryotic development and genetics
7	Dr. Stalinraj V	Associate Professor	Molecular virology- zoonotic viruses, virus discovery, virus host interactions, development of vaccine and monoclonal antibodies
8	Dr. Nisha N Kannan	Assistant Professor Grade II	Circadian clock, neuropeptides and sleep, post-transcriptional regulation of circadian rhythm etc.

9	Dr. Ramanathan Natesh	Assistant Professor Grade I	Molecular structural biology- protein crystallography, single particle cryoem.
10	Dr. Ullasa Kodandaramaiah	Assistant Professor Grade I	Prey-predator interactions, wolbachia in insects, secondary sexual characters, phylogenetic patterns, diversity of indian butterflies.
11	Dr. Ravi Maruthachalam	Assistant Professor Grade I	Plant centromere biology, uniparental genome elimination, genome stability, aneuploidy, haploid genetics, and minichromosome biology.
12	Dr. Jishy Varghese	Assistant Professor Grade I	Nutrient and energy homeostasis, gene regulation in neuroendocrine centers, neural circuitry of feeding.
13	Dr. Satish Khurana	Assistant Professor Grade I	Hematopoietic stem cells, bone marrow niche, developmental hematopoiesis.
14	Dr. N Sadananda Singh	Assistant Professor Grade I	Molecular biology, biochemistry, microbiology.
15	Dr. Sabari Sankar Thirupathy	Assistant Professor Grade I	Molecular biology, replication-transcription conflicts, mutagenesis and evolution of antibiotic resistance

School of Chemistry

The School of Chemistry established in the year 2008 at IISER Thiruvananthapuram has a vibrant academic and research ambience with 16 faculties, 79 Ph.D. students, and 6 technical assistants. The school also hosts short projects for a large number of under graduate students. The research activities of the school cover a wide range of areas in chemistry (inorganic, organic, physical and theoretical chemistry). The department is actively involved in research in the areas of inorganic and organometallic chemistry, physical organic chemistry, supramolecular chemistry, DNA nanotechnology, photophysics and photochemistry of nanomaterials and hybrid materials, solid state chemistry, NMR spectroscopy, theoretical chemistry, computational chemistry, electrochemistry and non-linear dynamics. On the experimental front, the department has a large number of state-of-the-art research facilities including 500 and 700 MHz NMR (CIF Facility), single crystal X-ray diffractometer (CIF Facility), powder X-ray diffractometer (CIF Facility), scanning electron microscope (CIF Facility), atomic force microscope, UV-Vis and UV-Vis NIR absorption spectrophotometers, emission spectrophotometer, FT-IR spectrophotometer, Raman spectrometer, circular dichroism spectrometer, vibrational circular dichroism spectrometer, circularly polarized luminescence spectrometer, fluorescence microscope, confocal fluorescence microscope, femtosecond transient absorption, picosecond fluorescence, gas chromatography-mass spectrometry, differential scanning calorimetry, thermogravimetric analyzer, electrochemical system, DNA and peptide synthesizers. The computational facilities include 3 clusters with a total of 120 processors.

Sl. No.	Name	Position	Area of Research
1	Prof. K George Thomas	Professor	Photochemistry & photophysics, hybrid nanomaterials, light-matter interactions at nanoscale, raman spectroscopy using nanomaterials, organized surfaces

2	Dr. Kana M Sureshan	Associate Professor	Medicinal chemistry, chemical biology, organic synthesis, carbohydrate chemistry, supramolecular chemistry, methodology development
3	Dr. Mahesh Hariharan	Associate Professor	Physical organic chemistry, biophysical chemistry
4	Dr. Sukhendu Mandal	Associate Professor	Cluster-assembled materials, atom-precise metal nanocluster, two dimensional hybrid materials
5	Dr. A Muthukrishnan	Assistant Professor Grade I	Fuel cell electro-catalysis, platinum-free catalysts for the cathodic reduction of oxygen in polymer electrolyte membrane fuel cells
6	Dr. Ajay Venugopal	Assistant Professor Grade I	Inorganic and organometallic chemistry
7	Dr. Alagiri Kaliyamoorthy	Assistant Professor Grade I	Developing new methods, activation and functionalization of relatively unreactive c–h bonds, asymmetric catalysis, synthesis of natural products
8	Dr. Gokulnath Sabapathi	Assistant Professor Grade I	Macrocyclic systems, bioinorganic chemistry, planar aromatic and antiaromatic systems, porphyrin based dye-sensitized solar cells (dssc)
9	Dr. Rajender Goreti	Assistant Professor Grade I	Asymmetric total synthesis, asymmetric catalysis, and medicinal chemistry.
10	Dr. Ramesh Rasappan	Assistant Professor Grade I	Asymmetric catalysis and natural product synthesis
11	Dr. Reji Varghese	Assistant Professor Grade I	Supramolecular chemistry with dna, and functional dna nanotechnology
12	Dr. Subrata Kundu	Assistant Professor Grade I	Inorganic reaction mechanisms, catalysis, bioinorganic chemistry
13	Dr. Thirumurugan Alagarsamy	Assistant Professor Grade I	Materials chemistry - metal organic frameworks, metal oxide clusters and nanocomposites for molecular separation, optical and conducting properties.
14	Dr. Vennapusa Sivaranjana Reddy	Assistant Professor Grade I	Theoretical and computational chemistry
15	Dr. Vinesh Vijayan	Assistant Professor Grade I	Nmr spectroscopy, structure determination of macromolecules
16	Dr. R S Swathi	Assistant Professor Grade I	Theoretical chemistry

School of Mathematics

The establishment of Indian Institutes of Science Education and Research (IISERs) is an innovative concept of the Ministry of Human Resource Development, Government of India, aimed at providing quality education in the basic sciences and fostering research in frontier areas of science.The School of Mathematics, IISER TVM is one of the foundational schools established in the Institute since its inception in the year 2008. At present, there are 14 full time faculty members, and 1 visiting faculty member affiliated to the School of Mathematics. The School provides a wonderful environment for students to learn Mathematics. The School of Mathematics at IISER Thiruvananthapuram offers courses in basic and advanced areas of mathematics at the undergraduate and postgraduate levels. The members of the School are actively involved in Theoretical,

Applied and Computational Research in Mathematics. The major research areas in Mathematics pursued at the Institute are

1. **Algebra, Linear Algebra, Number Theory and Cryptography**
2. **Algebraic Geometry**
3. **Complex Dynamics and Ergodic Theory**
4. **Differential Geometry**
5. **Functional Analysis and Numerical Functional Analysis**
6. **Graph Theory**
7. **Harmonic Analysis and Signal Processing**
8. **Partial Differential Equations - Control, Stochastics and Numerics**
9. **Mathematical Biology**
10. **Machine Learning and Data Science Research**

Algebra, Linear Algebra, Number Theory and Cryptography: Group theory with applications in Algebraic Topology, Commutative Algebra and Homological Algebra are some of the focus areas of Research in Algebra. This includes representation theory of finite groups and the theory of cellular algebras. Recently focussed on Schur algebras and q-Schur algebras and Schur-Weyl duality over the finite fields. Other interests includes Wreath product algebras, combinatorics of symmetric groups and Hecke algebras, Kazhdan-Lusztig polynomials and cell representations and Coxeter groups.

Research in linear algebra concerns the study of certain positivity classes of matrices arising from optimization problems, their structure, linear preservers and possible applications.

In number theory the main focus of research is on Analytic, Additive Number Theory and Arithmetic Geometry. More specifically on Modular forms, Deformation Theory of Galois representations and The Theory of Elliptic Curves and Zero Sum Sequences. This group of researchers are also working on applications of these in the area of Cryptography which plays a vital role in information security.

Algebraic Geometry: Studies in this area involve investigating geometric properties of moduli space of vector bundles over surfaces, Brill Noether theory over algebraic surfaces and geometric questions on curves embedded in a surface, mainly embedded in K3 surface. Studies in these areas are related to questions on constancy of gonality sequence.

Complex Dynamics and Ergodic Theory: The research focuses on complex dynamical systems of nonlinear maps: polynomials, rational functions etc., both open and closed; systems of holomorphic correspondences, correspondences generated by a finite rational semigroup etc. Holomorphic, non-invertible dynamical systems of the Riemann sphere are surprisingly intricate and beautiful.

Differential Geometry: Higher category theories and more specifically in connections on categorical bundles, non abelian gerbes and Grothendieck topology are the main focus of research.

Functional Analysis and Numerical Functional Analysis: One of the main research focus is on solving inverse and ill-posed problems. Constructing stable approximate solution for problems that are ill-posed in nature. Certain class of parameter identification problems in PDEs that are non-linear in nature; Singular perturbations problems in PDEs

Another major area of research in Functional Analysis in the School of Mathematics is to understand quantum dynamical semigroups, it's structure theories, dilation theory. Main objective is to study the structure of completely positive and completely bounded maps and homomorphisms.

Graph Theory: Graph theory is a branch of Mathematics which studies structures called graphs. The research focused is interdisciplinary in nature as it involves Spectral graph theory, Isoperimetric inequalities and Partial

differential equations. In particular looking into certain eigenvalue problems on graphs which can be viewed as isoperimetric inequalities related to combinatorial PDE and how it is similar and different from the existing classical results.

Harmonic Analysis and Signal Processing: The research deals with the analysis of certain convolution operators on locally compact groups. One of the cutting edge research in Applied Harmonic Analysis is the Mathematics of Digital Signal Processing. The research on this area focuses upon reconstruction of the analog signals from their local weighted average samples over various signal classes like shift invariant spaces, spline spaces and wavelet spaces.

Partial Differential Equations - Control, Stochastics and Numerics: The members of the group are actively involved in research in the areas of hyperbolic systems of conservation laws; asymptotic preserving schemes; genuinely multidimensional numerical schemes; nonlinear waves and shock waves; deterministic and stochastic fluid flow models (e.g. Navier-Stokes equations, Viscoelastic fluid flow equations, Cahn-Hilliard Navier-Stokes system, Nematic liquid crystal model, Landau-Lifshitz-Gilbert equations in ferromagnetism etc.); optimal control, maximum principle, stabilization and controllability problems related to these models; statistical behaviour (e.g. Invariant measures, ergodic property, large deviations) of solutions of stochastic partial differential equations; stochastic control; viscosity solutions, game theory; image processing using PDEs (image restoration and inpainting); signal detection and reconstruction using adaptive wavelet methods.

Mathematical Biology: The research group focus upon studying the tumour modelling and treatment of Cancer through a mathematical approach.

Machine Learning and Data Science Research: Data science research is an interdisciplinary field that make use of Mathematics, Statistics and Computer Science applicable to various domain such as Banking, Financial Services and Insurance (BFSI), Health Care, Genetics and many scientific areas. Data plays a big role in the modern digital world. Machine Learning and Artificial Intelligence are modern techniques used to discover hidden truth behind the data. The research focus upon developing new algorithms in this direction.

Sl. No.	Name	Position	Area of Research
1	Prof. M P Rajan	Professor	Numerical functional analysis/ functional analysis; financial engineering/mathematical finance; mathematical biology
2	Dr. Devaraj P	Associate Professor	Harmonic analysis
3	Dr. Shrihari Sridharan	Associate Professor	Complex dynamics and ergodic theory
4	Dr. Utpal Manna	Associate Professor	Stochastic partial differential equations, stochastic processes, fluid dynamics
5	Dr. Geetha T	Assistant Professor Grade I	Representation theory
6	Dr. K Srilakshmi	Assistant Professor Grade I	Number theory
7	Dr. K R Arun	Assistant Professor Grade I	Hyperbolic systems of conservation laws, finite volume schemes, asymptotic preserving schemes, nonlinear waves
8	Dr. Mithun Mukherjee	Assistant Professor Grade I	Operator theory, operator algebra, non-cumulative dynamics
9	Dr. Sachindranath Jayaraman	Assistant Professor Grade I	Linear algebra and matrix analysis

10	Dr. Saikat Chatterjee	Assistant Professor Grade I	Differential geometry, higher category theories, gerbes
11	Dr. Sarbeswar Pal	Assistant Professor Grade I	Algebraic geometry
12	Dr. Sheetal Dharmatti	Assistant Professor Grade I	Differential equations, control and game theory, navier stokes' equations and image processing, fluid flow equations
13	Dr. Sumit Mohanty	Assistant Professor Grade I	Spectral graph theory, analysis on graphs
14	Dr. Viji Z Thomas	Assistant Professor Grade I	Group theory, commutative algebra and homological algebra

School of Physics

The School of Physics (SoP), the largest at IISER Thiruvananthapuram, is strongly committed to offer high-quality education and conduct research in diversified areas of Physics ranging from probing the atomic/ sub-atomic structure arrangements to the structure of the universe. In a broader perspective, the research could be classified into two approaches; the theoretical faculty develop new theories and model unsolved problems and predict new phenomena happening in nature, in a naturally nestled environment, while the experimentalist design and perform new experiments to explore new laws of physics that demand new theories for understanding.

Current faculty strength of the school is 19 and each of them are pioneers in their respective field of study. Many of the faculties are recipients of prestigious national and international awards and honors. This year is not an exemption. Dr. M M Shaijumon was awarded prestigious Material Research Society of India (MRSI) medal and Dr. Soumen Basak, a core team member of the international Plank collaboration, is one of the proud recipients of the 2018 Gruber cosmology prize.

The school has about 65 doctoral students being nurtured to conduct independent research in both basic and applied Physics. They are also involved in national and international collaborative research projects initiated individually or by their supervisors. The school is also proud of its BS-MS degree students, who go for internships in various reputed national and international laboratories and devote a year to do contemporary research projects which often leads to scientific publications. The master students generally seek and secure Ph. D. positions, often even before finishing their degrees, and get placed in various prestigious universities and research labs abroad and in India.

The School of Physics attracts external grants from various funding agencies. The proposal submitted to Department of Science and Technology, under Fund for Improvement of S&T Infrastructure in Universities and Higher Educational Institutions (FIST) program, to strengthen the research facilities, has been identified for support in Level-2 and got sanctioned with 2.75 crores to establish Liquid Helium Plant facility to support different low temperature measurement systems.

The school successfully organized a flawless national level “Joint Entrance Screening Test (JEST-2019)” to 20,169 candidates seeking admission to Ph. D. programmes in IISERs and various department of atomic energy supported premier institutes in India.

The school engages in various outreach activities through institute’s outreach program as well as independently. In the coming years, the school is actively looking for expansion both laterally and vertically in contemporary research fields.

Sl. No.	Name	Position	Area of Research
1	Prof. V Ramakrishnan	Professor and Director	Optical spectroscopy, nanomaterials, semiconductor hetereostructures.
2	Dr. Soumen Basak	Associate Professor	Observation of the cosmic microwave background (cmb) radiation, the afterglow of the big bang, and the analysis of cosmological and astrophysical data sets.
3	Dr. Joy Mitra	Associate Professor	Scanning probe microscopy, tunnelling induced luminescence, metal-semiconductor junctions.
4	Dr. Manoj A G Namboothiry	Associate Professor	Organic and hybrid optoelectronics, spintronics,metamaterials,thermoelectrics, application of physics to biology and device applications, solar cell.
5	Dr. Ramesh Chandra Nath	Associate Professor	Magnetism and superconductivity.
6	Dr. M M Shaijumon	Associate Professor	Multifunctional nanostructured materials-graphene, 2-dimensional layered nanostructures; energy storage - lithium ion batteries, supercapacitors; gas storage.
7	Dr. Anil Shaji	Associate Professor	Quantum information theory and open quantum systems.
8	Dr. Kumaragurubaran Somu	Associate Professor	Wide bandgap materials and related devices, high-temperature electronics, power and energy conversion devices, high-throughput techniques.
9	Dr. Bikas C Das	Assistant Professor Grade I	Novel charge transfer composite nanomaterials based thin film device applications.
10	Dr. Sreedhar B Dutta	Assistant Professor Grade I	Non-equilibrium physics, statistical and quantum field-theories.
11	Dr. Rajeev N Kini	Assistant Professor Grade I	Ultrafast optical studies of semiconductor nanostructures terahertz spectroscopy and imaging.
12	Dr. Amal Medhi	Assistant Professor Grade I	Topological insulators, fractional quantum hall state, strongly correlated electron systems.
13	Dr. Deepshika Jaiswal Nagar	Assistant Professor Grade I	Quantum phase transitions in low dimensional and low spin organic insulators as well as heavy fermions, phase diagram of weakly pinned type-ii superconductors, multiferroics.
14	Dr. Ravi Pant	Assistant Professor Grade I	Nanophotonics, stimulated brillouin/raman scattering, opto-mechanical interactions, slow-light, nonlinear optical phenomenon and devices, soliton self-frequency shift.

15	Dr. Bindusar Sahoo	Assistant Professor Grade I	Black hole entropy in supergravity and string theory, supergravity, ads-cft correspondence, higher-spin holography.
16	Dr. D V Senthil Kumar	Assistant Professor Grade I	Nonlinear dynamics: non-integrable systems, chaotic dynamics bifurcation and stability analysis synchronization network theory complex systems time-delay systems delay-induce etc.
17	Dr. M Suheshkumar Singh	Assistant Professor Grade I	Photoacoustic imaging (microscopy and tomography), speckle contrast imaging, spectroscopy for biomedical applications.
18	Dr. Madhu Thalakulam	Assistant Professor Grade I	Low temperature electron transport on nanoscale devices: quantum dots, quantum point contacts, nanowires & superconducting tunnel junction systems and topological insulators: etc.
19	Dr. K Shadak Alee	Assistant Professor Grade II	Random lasing, photonic crystals, pt symmetric optics.
20	Dr. Vinayak B Kamble	Assistant Professor Grade II	Nanostructures and thin films, surfaces and interfaces, defect induced properties of materials, dilute magnetic semiconductors, thermoelectric materials, semiconducting met .Etc..

Emeritus /Honorary /Visiting /Adjunct Faculty

The following **Emeritus/Honorary/Visiting/Adjunct Faculty** have contributed for the academic enrichment of the Institute during 2018 - 19

Sl. No.	Name of Faculty	Subject	Duration
1	Prof. M S Gopinathan	Chemistry	2018-19
2	Dr. T Ganga Devi	Biology	2018-19
3	Dr. G Jayakumar	Chemistry	2018-19
4	Prof. S Mahalingam	Biology	2018-19
5	Prof. S Natarajan	Chemistry	2018-19
6	Prof. M S Ramachandra Rao	Physics	2018-19
7	Dr. Guram Donadze	Mathematics	2018-19
8	Prof. Kankan Bhattacharya	Chemistry	2018-19
9	Prof. K Dharmalingam	Biology	2018-19
10	Prof. N Mukunda	Physics	2018-19
11	Prof. S Sampath	Chemistry	2018-19
12	Dr. S Aji	Mathematics	Varsha Semester 2018
13	Prof. Jugal Verma	Mathematics	2018-19
14	Prof. G Santhanam	Mathematics	2018-19
15	Dr. Harilal Madhavan	Economics	2018-19
16	Dr. Jobin Mathew Kanjirakkat	Eng.&Philosophy	2018-19

Administrative & Support Personnel

The Institute is having 71 regular and 2 contractual staff non-teaching administrative and support personnel. The details are as follows

Administration

Sl.No.	Name of Official	Designation
1	Shri. M Radhakrishnan	Registrar
2	Shri. B V Ramesh	Deputy Registrar (Finance & Accounts)
3	Shri. Siva Dutt V K	Superintending Engineer
4	Dr. Sainul Abideen P	Assistant Librarian
5	Shri. Hariharakrishnan	Deputy Registrar (Academics)
6	Shri. P Y Sreekumar	Scientific Officer (IT)
7	Shri. Priji E Moses	Assistant Executive Engineer (Civil)
8	Dr. Goldwin Hemalatha M	Medical Officer
9	Dr. Thiraviam P	Medical Officer
10	Shri. Sreehari S	Assistant Executive Engineer (Electrical)
11	Shri. Sudin B Babu	Deputy Registrar (Purchase & Stores)
12	Shri. Manoj Kumar S	Assistant Registrar (Estb & HR)
13	Smt. Divya V J	Technical Officer
14	Smt. Nimi Joseph Chaly	Assistant Registrar (Project Finance)
15	Shri. Satya Srinivas Naraharisetti	Assistant Registrar (Admn& Facilities)
16	Smt. Darli K G	Private Secretary
17	Smt. Navya Paul	Senior Technical Assistant
18	Shri. Vijesh K	Senior Technical Assistant
19	Shri. Krishna Kumar	Senior Technical Assistant
20	Shri. Sangeeth M	Senior Technical Assistant
21	Shri. Alex Andrews P	Technical Assistant
22	Smt. Nafeesa C K	Library Information Assistant
23	Shri. Jayaraj J R	Library Information Assistant
24	Shri. Praveen Peter	Junior Engineer (Civil)
25	Shri. Arun Reghunath	Superintendent
26	Smt. Mini Philip	Personal Assistant
27	Shri. Adarsh B	Technical Assistant
28	Shri. Anilkumar P R	Technical Assistant
29	Shri. Naveen Sathyan	Technical Assistant
30	Shri. Ajith Prabha	Superintendent
31	Shri. Manoj M T	Accountant
32	Shri. Satheesh R	Superintendent
33	Smt. Veena P P	Personal Assistant
34	Smt. Suja V R	Office Assistant (Multi Skill)
35	Smt. Vidya Senan I	Office Assistant (Multi Skill)
36	Smt. Archana P R	Office Assistant (Multi Skill)
37	Smt. Beena N K	Office Assistant (Multi Skill)

38	Shri. Muruganandam A	Office Assistant (Multi Skill)
39	Shri. Rajesh A P	Office Assistant (Multi Skill)
40	Shri. Rakesh M V	Office Assistant (Multi Skill)
41	Shri. Jins Joseph	Nurse
42	Smt. Divya A T	Nurse
43	Shri. Arun Kumar M	Attendant –Electrical
44	Shri. Ratheesh C	Attendant –Plumber
45	Smt. Sarika Mohan	Junior Technical Assistant
46	Shri. Vivek V G	Junior Technical Assistant
47	Shri. Pradeep Kumar G T	Junior Technical Assistant
48	Shri. Nibith Kumar K P	Junior Technical Assistant
49	Ms. Lakshmi C	Junior Technical Assistant
50	Shri. Packiya Rajan	Junior Technical Assistant
51	Shri. Muthukumaran A	Junior Technical Assistant
52	Smt. Sruthi U.A	Junior Hindi Translator
53	Shri. Arun Raj J R	Physical Education Instructor
54	Shri. Ashinraj D	Junior Engineer (Civil)
55	Shri. Sarath Kumar R	Junior Engineer (Electrical)
56	Smt. Sandhya P S	Technical Assistant
57	Shri. Aneesh A	Technical Assistant
58	Smt. Nithya Rani	Technical Assistant
59	Smt. Lekshmi Thampi	Technical Assistant
60	Smt. Deepthi P	Technical Assistant
61	Smt. Lekshmi Devi L	Technical Assistant
62	Ms. Amritha Sivan	Junior Technical Assistant
63	Smt. Lincy Varghese	Junior Technical Assistant
64	Ms. Aathira S	Junior Technical Assistant
65	Shri. Subin S	Junior Technical Assistant
66	Smt. Sruthi R Balu	Office Assistant (Multi Skill)
67	Shri. Anil Prakash M	Office Assistant (Multi Skill)
68	Shri. Pradeep Kumar C	Office Assistant (Multi Skill)
69	Shri. Santhosh B S	Office Assistant (Multi Skill)
70	Shri. Nagarjuna Paidisetty	Office Assistant (Multi Skill)
71	Shri. Anas A Z	Office Assistant (Multi Skill)

Consultants and Contractual Officers

Sl. No.	Name of Official	Designation
1	Shri. Gopakumar G	Asst. Security Officer
2	Shri. Jayan V	Asst. Security Officer

3. Academic Programmes & Students

Students BS-MS Dual Degree Programme

The Sixth Convocation of IISER TVM was held on 11 June 2018, in the permanent Vithura Campus. The

function was presided by Prof. Goverdhan Mehta, FNA, FRS, University Distinguished Professor and Dr. Kallam Anji Reddy Chair, School of Chemistry, University of Hyderabad. The sixth batch of Five Year BS-MS Dual Degree Programme consisting of 119 students, 15 Ph.D. students and 2 MS exit students were graduated on the occasion.

200 students joined the tenth batch of Five Year BS-MS Dual Degree Programme in August 2018 at the Permanent Campus, who were selected through three channels respectively KVPY, IIT-JEE merit list and the Aptitude Test for the top 1% students of class XII exams of all the State Boards, CBSE and ICSE.

The category distribution is as follows

Category	SCB		JEE		KVPY		Total
	M	F	M	F	M	F	
GEN	48	46	4	0	5	0	**103**
OBC-NCL	13	41	7	0	1	0	**62**
SC	13	9	1	0	0	0	**23**
ST	7	5	0	0	0	0	**12**
Total	**81**	**101**	**12**	**0**	**6**	**0**	**200**

Ph.D. Programme

32 students were admitted to Ph.D. Programme during the academic year 2018-19. 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/JGEEBILS etc. 22 students from IPHD were promoted to PhD programme.

Int. Ph.D. Programme

22 students were admitted to the programme during the academic year 2018-19 through written exam/JEST and interview.

Total student strength in 2018-19 is given below

Programme	2012-13 admissions	2013-14 admissions	2014-15admissions	2015-16admissions	2016-17 admissions	2017-18 admissions	2018-19 admissions	Total
5Yr Integrated BS-MS	-	3	133	126	160	211	200	**833**
Ph. D.	11	17	23	26	36	31	32	**176**
Int. Ph.D.	2	10	6	21	21	29	22	**111**
Total	**13**	**30**	**162**	**173**	**217**	**271**	**254**	**1120**

4. Research and Development Activities

Research and Development in IISER TVM spans across various sub-fields in Biology, Chemistry, Mathematics and Physics. Faculty members and students are actively engaged in pursuing research in basic and applied topics in these areas. Several successful research collaborations are actively being pursued with researchers in premier institutions in India and abroad. The faculty have been successful in attracting research funding from national and international funding bodies. Faculty and students have attended international and national meetings to present their research and have authored several high quality publications in peer-reviewed journals.

New Sponsored Projects

Sl. No.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Brain-like computing – Designing the basic building blocks for artificial neurons and synapses	Dr. Bikas C Das	Dr. Leszek Majewski	UGC-UKIERI	16.46 lakhs	2018-2020
2	Conformal Approach to Supergravity: New Perspectives and Applications	Dr. Bindusar Sahoo	None	SERB	26.25 lakhs	2019-2022
3	Certain class of diagram algebras arising from Schur-Weyl Duality	Dr. Geetha T	None	SERB	6.60 lakhs	2018-2021
4	Topochemical synthesis of pseudoprotein	Dr. Kana M Sureshan	None	SERB	49.78 lakhs	2019-2022
5	STEP	Prof. M P Rajan	None	KSCSTE	3.5 lakhs	
6	Van der Waals superconducting circuits operating at elevated temperatures & magnetic fields	Dr. Madhu Thalakulam	None	SERB	56.94 lakhs	2019-2022
7	Development of New and Utilization of existing CRISPR-Cas tools to understand regulators of cytoskeleton in cardiomyocyte	Dr. N Sadananda Singh	None	SERB	47.35 lakhs	2019-2022
8	Genome-scale screening for response to drug treatment	Dr. N Sadananda Singh	None	SERB	40.98 lakhs	2018-2021
9	Mechanism of meiotic crossing over through the Msh4-Msh5 dependent pathway	Dr. Nishant K T	None	SERB	36.4 lakhs	2019-2022
10	Study of Convolution Operators on Topological Groups	Dr. Devaraj P	None	SERB	6.6 lakhs	2019-2022
11	Metal-decorated graphynes for molecular adsorption	Dr. R S Swathi	None	KSCSTE	22.4 lakhs	2018-2021
12	Targeted editing of potato genome to develop variety specific True Potato Seed (TPS)	Dr. Ravi Maruthachalam	None	NASF	29.49 lakhs	2018-2021

13	Apomixis Technologies for Increasing Agricultural Production (FBR)	Dr. Ravi Maruthachalam	None	CSIR-CCMB	12 lakhs	2019-2020
14	High fluorine content DNA micelle: A universal "OFF/ON" 19F-NMR-based probe for the detection of miRNA and Telomerase for cancer diagnosis	Dr. Reji Varghese	Dr. Mahesh Hariharan	DBT	48 lakhs	2019-2022
15	Gauge theory of categorical principal bundles	Dr. Saikat Chatterjee	None	SERB	6.6 lakhs	2019-2022
16	Moduli space of vector bundles and ACM bundles	Dr. Sarbeswar Pal	None	SERB	4.4 lakhs	2018-2021
17	RNF 167, an ubiquitin E3 ligase with several reported mutations in diverse cancers, controls NF-κB activation	Prof. Srinivasa Murty Srinivasula	Dr. Tapas Kumar Manna	SERB	31.35 lakhs	2018-2021
18	Insights into the Interplay of H_2S and NO at Redox Active Metal sites	Dr. Subrata Kundu	None	SERB	37.4 lakhs	2018-2021
19	Tailoring the Catalytic Properties of Atom-Precise Metal Nanoclusters	Dr. Sukhendu Mandal	None	SERB	87 lakhs	2018-2021
20	Some Extremum Eigenvalue Problems Related to Combinatorial PDE	Dr. Sumit Mohanty	None	SERB	6.6 lakhs	2018-2021
21	Understanding diversification of Impatiens species in the Northern Western Ghats	Dr. Ullasa Kodandaramaiah	Dr. Deepak Barua	DBT	30.552 lakhs	2018-2021
22	Study of Stochastic Nematic Liquid Crystal Models and Related Constrained Physical Problems	Dr. Utpal Manna	None	SERB	6.6 lakhs	2019-2022
23	Study of Novel Oxide and Graphene Core Shell nanoarchitectures for High Temperature Thermoelectric Power Generations	Dr. Vinayak B Kamble	None	SERB	44.80 lakhs	2019-2022
24	Junction barrier modulation studies in metal oxide 1D core-shell nanostructure for chemical sensors	Dr. Vinayak B Kamble	None	DST	35 lakhs	2018-2021

Consultancy Projects

Sl. No.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Non- destructive characterization of the thickness of thermal barrier coatings using THz spectroscopy: A feasibilty study	Dr. Rajeev N Kini	None	GE INDIA INDUSTRIAL PVT LTD	4.42 lakhs	2018-2019

Women Scientist Project

Sl. No	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Investigating post-transcriptional regulation of steroidogenic genes during development	Dr. Smitha Vishnu	None	DST	31.5 lakhs	2019-2022

Ongoing Sponsored Projects

Sl. No.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Vanadium Based Hybrid Materials for Electrochemical Energy Storage	Dr. A Thirumurugan	None	SERB	45.7 lakhs	2017-2020
2	N-Heterocyclic (NHC)-mediated Desymmetrization of meso-cyclic Anhydrides and Enantioselective Dearomotive, Conjugate Borylation Reactions	Dr. Alagiri Kaliyamoorthy	None	SERB	40.92 lakhs	2016-2019
3	Directed Site-Selective C-H Functionaization of Aromatic and Heteroaromatic Precursors	Dr. Alagiri Kaliyamoorthy	None	SERB	46.36 lakhs	2017-2021
4	Center for computation, modeling and simulation (CCMS)	Dr. Amal Medhi	Dr. Anil Shaji, Dr. Nishant K T, Dr. R S Swathi, Dr. Archana Pai, Dr. S Shankaranarayan, Dr. K R Arun	MHRD	400 lakhs	2014-2019
5	Localization and Flow of Information in Quantum Computing and Open Quantum Dynamics	Dr. Anil Shaji	None	SERB	21.03 lakhs	2017-2020
6	A Detail Study of Electrolyte-Gated Organic Field-effect Transistors	Dr. Bikas C Das	None	SERB	49.48 lakhs	2017-2021

7	Development of Charge-Transfer Nanohybrids of 2D Transition Metal Dichalcogenides to Fabricate Flexible Thin Film Devices	Dr. Bikas C Das	None	SERB	23.10 lakhs	2018-2021
8	Collective Dynamics of Complex Nonlniear Systems	Dr. D V Senthil Kumar	None	CSIR	25.60 lakhs	2017-2020
9	Development of solid-state hybrid hydrogen storage using Palladium and Magnesium nanoclusters	Dr. Deepshikha Jaiswal Nagar	None	ISRO	34.06 lakhs	2017- 2020
10	Development of hydrogen sensors for extended range of temperatures from 100K to 300K using 2D nano cluster assembled films of Palladium	Dr. Deepshikha Jaiswal Nagar	None	ISRO	23.8 lakhs	2016-2018
11	Effect of size on the superconducting properties of films assembled in nanocluster form in elemental superconductors Al, Pb and Nb	Dr. Deepshikha Jaiswal Nagar	None	SERB	23.06 lakhs	2016-2019
12	Planarization of Porphyrin Dimers and Trimers for Near – IR Applications	Dr. Gokulnath Sabapathi	None	SERB	26 lakhs	2016-2019
13	Community plant-pollinator interactions at the landscape level (Extension phase)	Dr. Hema Somanathan	Dr. Deepak Barua	DBT	33.19 lakhs	2015- 2020 (Extended for 2 years)
14	Ecology and Conservation of Freshwater Swamp Ecosystems (Extension Phase)	Dr. Hema Somanathan	Dr. Rajendra Prasad	DBT	56.22 lakhs	2015- 2020 (Extended for 2 years)
15	The effect of interannual variation in flowering intensity, periodicity and synchrony on pollution and fruit set in a highly seasonal tropical forest in the western ghats	Dr. Hema Somanathan	Dr. Deepak Barua	SERB	20.42 lakhs	2018-2021
16	Functional Analysis for Genetic and Molecular Mechanisms that Maintain Nutrient and Energy Homeostasis	Dr. Jishy Varghes	None	SERB	42.90 lakhs	2017-2021
17	Nanoscale writing of bespoke Graphene devices for electronic and plasmonic scalable technologies.	Dr. Joy Mitra	Prof. Ravi Silva, Dr. P Dawson	UKIERI-UGC	28.8 lakhs	2017-2019

18	Design of a Surface-Enhanced Spectroscopy based Device for the Rapid Detection of Organophosphate Pesticides and Pyrethroid Insecticides in Fruits and Vegetables	Prof. K George Thomas	Dr.Thomas Biju Mathew, Dr. Anil Shaji, Dr. K R Arun, Dr. Y Adithya Lakshmanna, Dr. Sheetal Dharmatti, Dr. R S Swathi	SERB	284.55 lakhs	2017-2020
19	Dipolar and Multipolar Interactions in Assembled Molecules and Nanostructures: Developing a General Description and its Applications	Prof. K George Thomas	Dr. Mahesh Hariharan Dr. R S Swathi	DST	590.31 lakhs	2016-2019
20	J C Bose Fellowship	Prof. K George Thomas	None	SERB	82.40 lakhs	2014-2019
21	Chemical Biological Intervention in Cell Signaling	Dr. Kana M Sureshan	None	DST	242 lakhs	2015-2019
22	Number Theory	Dr. K Srilakshmi	None	DST	35 lakhs	2014-2019
23	Functional characterization of genetic and epigenetic regulatory networks involved in the reproductive development in rice	Dr. Kalika Prasad	None	DBT	105 lakhs	2015-2020
24	Engineered 2-dimensional transition metal dichalcogenide (TMD) nanostructures for efficient hydrogen generation	Dr. M M Shaijumon	None	SERB	37.38 lakhs	2017-2020
25	Hybrid Energy Storage Devices based on Multifunctional Nanocomposite Materials	Dr. M M Shaijumon	Dr. Thirumurugan Alagarsamy	DST	104 lakhs	2017-2020
26	Cost-effective handheld medical device for real-time intraoperative scanning applications at operation bedside	Dr. M Suheshkumar Singh	None	SERB	31.74 lakhs	2017-2020
27	DST FIST Grant for School of Chemistry@IISER Thiruvananthapuram: 500 MHz NMR Spectrometer with Solid State Attachment	Dr. Mahesh Hariharan	None	DST	685 lakhs	2017-2022
28	Charge and Energy Transfer in Molecular Multifunctional Materials	Dr. Mahesh Hariharan	Prof. K George Thomas Dr. R S Swathi	DST	10.2 lakhs	2017-2020
29	Approaches to improve open circuit voltage and fill factor- Enhancing the power conversion efficiency in organic- inorganic hybrid systems	Dr. Manoj A G Namboothiry	Dr. Ajay Venugopal	DST	88 lakhs	2016-2019

30	Understanding human gene functions involved in cholesterol homeostasis Cardiomyocyte	Dr. N Sadananda Singh	None	DBT	32.50 lakhs	2017-2022
31	Elucidating post-transcriptional regulation of circadian behavior in Drosphila	Dr. Nisha N Kannan	Dr. Jishy Varghese	DBT	157 lakhs	2016-2021
32	Tunable azacrown-based graphene nanomeshes for gas separation	Dr. R S Swathi	None	SERB	18 lakhs	2017-2020
33	Bifunctional Enamine/ Transition MetalSynergistic Catalysis for the Formation of New-C-C Bonds:Synthesis and Exploration of New Class of Phosphanyl Amino Ligands for Catalysis	Dr. Rajendar Goreti	None	SERB	35.42 lakhs	2017-2020
34	Ramanujan Research Award	Dr. Rajendar Goreti	None	SERB	38 lakhs	2016-2021
35	Investigation of the interaction of acoustic phonons with electrons in semiconductor nanostructures	Dr. Rajeev N Kini	None	KSCSTE	38.32 lakhs	2018-2021
36	Synthesis and characterization of frustrated spin-1/2 chain compounds.	Dr. Ramesh Chandra Nath	None	DAE	28.11 lakhs	2017-2020
37	Stereoconvergent Cross-Coupling : Asymmetric Synthesis of Boronic Esters and Silanes	Dr. Ramesh Rasappan	None	SERB	38 lakhs	2016-2021
38	Asymmetric Catalysis: Exploring Organosilanes in Stereospecific and Convergent Reactions	Dr. Ramesh Rasappan	None	SERB	55 lakhs	2016-2019
39	Identification of novel kinetochore proteins with special reference to improving in vivo haploid production in plants	Dr. Ravi Maruthachalam	None	Dupont Young Professor Grant	15 lakhs	2014-2019
40	Ramanujan Reasearch Award	Dr. Ravi Pant	None	SERB	38 lakhs	2015-2020
41	Solid State Structural Analysis of Photoactive Molecular Assemblies on DNA Scaffold through Single Crystal X-ray Diffraction	Dr. Reji Varghese	None	KSCSTE	27.80 lakhs	2017-2020
42	Gerbes and Categorical geometry	Dr. Saikat Chatterjee	None	SERB	13.35 lakhs	2017-2020
43	Understanding the role of Periostin-Itgav interactions in adult and fetal hematopoiesis	Dr. Satish Khurana	None	DBT	359.84 lakhs	2016-2021

44	Identification and Characterization of Molecular Pathways involved in Immune-related Autophagy	Prof. Srinivasa Murty Srinivasula	Dr. Tapas Kumar Manna	DBT	67.81 lakhs	2018- 2021
45	Elucidating the role of GTP-induced transition of EB1 dimer to monomer in the regulation of microtubule plus ends	Dr. Tapas Kumar Manna	None	CSIR	15 lakhs	2018-2021
46	To determine the role of ubiquitin ligase SCF-FBXW7 in regulation of centriole biogenesis and duplication in human cells	Dr. Tapas Kumar Manna	None	SERB	63 lakhs	2017-2020
47	Determining the role of microtubule plus tip protein EB1 in regulation of spindle-kinetochore associated protein complex Ska: the mechanism underlying the stabilization of spindle-kinetochore attachment	Dr. Tapas Kumar Manna	None	DBT	59 lakhs	2016-2019
48	Comparative biogeography of plants of the Western Ghats	Dr.Ullasa Kodandaramaiah, N.Mohanan (JNTBGRI)	P Padmesh, G Rajkumar, K B Ramesh kumar, T Shaju	DBT	62.19 lakhs	2015-2020 (Extended 2 years)
49	INSPIRE Faculty Award	Dr.Ullasa Kodandaramaiah	None	DST	35 lakhs	2014-2019
50	Theoretical investigation on relaxation dynamics of ultrafast generated molecular triplet states	Dr. Vennapusa Sivaranjana Reddy	None	SERB	23.26 lakhs	2016-2019
51	Development of Novel metal oxide-graphene based nanocomposite materials for Microsensors and Nanoelectronics device Applications.	Dr. Vinayak B Kamble	None	DST	35 lakhs	2016-2021
52	Engineered 1D Heterostructures for Chemical Sensor Device Applications	Dr. Vinayak B Kamble	None	MeitY	Facility Support	2017-2020

Women Scientist Project

Sl. No.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Novel polymer supported chiral metal catalysts: asymmetric cross-coupling reactions	Dr.Tamilselvi Chinnusamy	None	DST	29.4 lakhs	2017-2020

Completed Sponsored Projects

During the period 2018-19, 10 projetcs have completed. The details are given below:

Sl.No.	Name of Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (in lakhs)	Duration
1	Molecular Magnesium Hydrides: Hydrogen Storage	Dr. Ajay Venugopal	None	DST	35 lakhs	2013-2018
2	DST-Inspire Faculty Grant	Dr. Gokulnath Sabapathi	None	DST	86.27 lakhs	2013-2018
3	MicroRNA functions in regulation of metabolism and energy homeostasis	Dr. Jishy Varghese	None	DST	73 lakhs	2013-2018
4	Smartening smart materials by nano-carbon incorporation : An Industry Academia collaboration in surface engineering and characterisation	Dr. Joy Mitra	Prof. Ravi Silva, Dr.Chintan Bhatt, Dr. Syed Asif	Royal Academy of Engineering, UK	40 lakhs	2017-2019
5	Design, synthesis and photocatalytic water splitting properties of functional cobalt based inorganic-organic hybrids	Dr. Mahesh Hariharan	None	KSCSTE	45.2 lakhs	2015-2018
6	Inspire Faculty Fellowship	Dr. Mithun Mukherjee	None	DST	35 lakhs	2013-2018
7	Generation and characterization of minichromosomes and neocentromere formation in plants	Dr. Ravi Maruthachalam	None	DBT	82.5 lakhs	2013-2018
8	Mid Infrared (Mid-IR) sources using stimulated Brillouin scattering and soliton self-frequency shift Reference	Dr. Ravi Pant	None	SERB	63.7 lakhs	2015-2018
9	Morphometry and phylogeography of Honey Bees and Stingless Bees in India Phase-II ah	Dr. Ullasa Kodandaramai	Network-Project with many institutions across India	DBT	33.73 lakhs	2015-2018 (Extended upto 25.03.2019)
10	Comparative NMR study of structure and dynamics of VDACs, human VDAC1 and rice VDAC4, using segmental isotope labeling technique	Dr. Vinesh Vijayan	None	SERB	35.88 lakhs	2015-2018

1. Molecular Magnesium Hydrides: Hydrogen Storage

The ability of the β-CH functionality in a butylmagnesium cation $[Me_6TREN–Mg–n\text{-}Bu]^+$ to quantitatively reduce benzophenone has been demonstrated. The hydridic nature of the β-CH functionality is highlighted by its abstraction using $B(C_6F_5)_3$. β-CH abstraction over alkylation in $[Me_6TREN–Mg–n\text{-}Bu]^+$ is dependent on the nature of the incoming electrophile and the polarity of the solvent. We have report the synthesis, structure and reactivity of molecular amidomagnesium cations bearing tris{2-(dimethylamino)-ethyl}amine (Me_6TREN). Me_6TREN binds to the cationic magnesium centre exhibiting κ^4 and κ^3 coordination modes in $[Me_6TREN–Mg–N(SiHMe_2)_2]^+$ and $[Me_6TREN–Mg–N(SiMe_3)_2]^+$ respectively. $[Me_6TREN–Mg–N(SiHMe_2)_2]^+$ reacts with benzophenone resulting in the insertion of the carbonyl group across Si—H bond. The reaction between $[Me_6TREN–Mg–N(SiMe_3)_2]^+$ and CO_2 leads to $[Me_6TREN–Mg–OSiMe_3]^+$, while the reaction with H_2O results in $[Me_6TREN\text{-}Mg\text{-}OH]_2^{2+}$. Attempts to prepare hydridomagnesium cations from $[Me_6TREN–Mg–N(SiMe_3)_2]^+$ using KH resulted in the precipitation of MgH_2 and the isolation of $[(Me_6TREN)K(THF)_3]^+$. A thermally stable terminal hydridozinc cation has been isolated. The nucleophilicity of the hydride ligand is demonstrated by inserting carbon dioxide, carbodiimide and benzophenone across the Zn—H bond in a facile manner. Preliminary studies on catalytic hydrosilylation using $PhSiH_3$ indicate that the hydridozinc cation in the presence of BPh_3 can selectively reduce CO_2 to $PhSi(OCHO)_3$.

2. DST-Inspire Faculty Grant

Synthesis and recognition properties of novel ditopic ion receptors derived from crown ether and carbazole or calix[n]phyrin subunits.

Herein we propose to make new hybrid receptors called heteroditopic receptors, and explore their binding properties along their structures. Inspired from the traditional molecular hosts, we are interested in targeting a less conventional macrocyclic ligands based on indole and carbazole subunits tethered with crown ether or cryptands by rational methods. The ion pair receptors must possess both cation- and anion-binding sites, which are delicately placed in right distance and geometry able to form contact ion pair. Carbazole is an aromatic heterocyclic compound of two benzene rings fused on either side of a five-membered nitrogen containing ring. The advantage of incorporating carbazole lies in its close relation to pyrrole, increased electron conductance, structural rigidity, chemical stability and the ability to bind metals in its deprotonated form. Herein we report the synthesis of carbazole embedded hexaphyrin-like macrocycles and their corresponding bis-BODIPY complexes. A solution of 3,6-di-tert-butyl-1,8-dibromocarbazole and (1-(*tert*-butoxycarbonyl)-*1H*-pyrrol-2-yl) boronic acid in the presence of a catalytic amount of $PdCl_2(PPh_3)_2$. After silica-gel column chromatographic purification N-boc protected bis-pyrrole connected carbazole was obtained in 80 % yield, which after deprotection gave 1,8-Di(-*1H*-pyrrole)-3,6-di-tert-butyl)-9H-carbazole in quantitative yield. The electronic absorption spectrum of both **FB** and anion bound (**AB**) is dominated by a broad Soret type band in the visible region presumed the existence of semi-conjugated nature and absence of Q-bands indicates the macrocycle may either antiaromatic or non aromatic. The large red shift observed upon complete protonation is typical of meso-aryl expanded porphyrins. In contrast, the electronic absorption spectrum of the corresponding BODIPY complexes is dominated by a sharp Soret-like band which is slightly red shifted to that of the parent macrocycle. The solution structure of **FB** was investigated with the aid of ^1H NMR spectrum which exhibit simple features with the signals corresponds to only NH's and the carbazole moiety. This simplicity in the

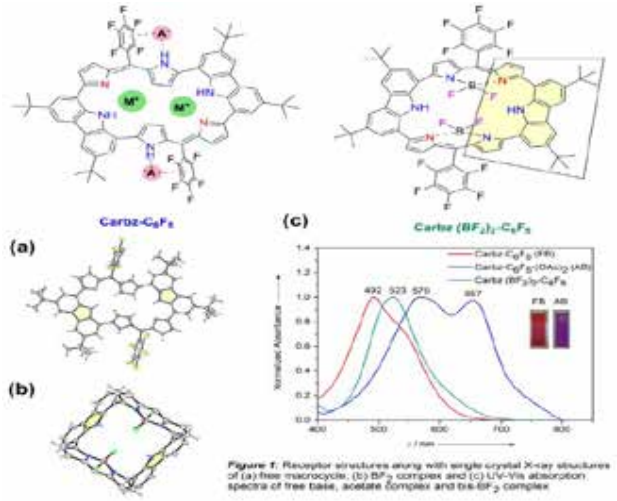


Figure 1. Receptor structures along with single crystal X-ray structures of (a) free macrocycle, (b) BF_2 complex and (c) UV-Vis absorption spectra of free base, acetate complex and bis-BF_2 complex

spectrum could be due to the large fluxional behaviour arising from the fast rotation of the pyrrole rings A and B at room temperature.

3. MicroRNA functions in regulation of metabolism and energy homeostasis

Living organisms need to maintain an internal balance despite fluctuations in their external environment. Nutrient homeostasis is achieved through the efficient management of food intake and utilisation of an organisms' internal energy stores. microRNAs, a class of short non-coding RNAs, has been shown to buffer gene expression changes in various biological systems and maintain homeostatic state. About 28 microRNAs are conserved across bilaterian animals (miRBase) separated by ~500 million years of evolution would have key roles in regulating common biological functions like maintenance of nutrient and energy balance.

In this project

a) investigated the role of bilaterian microRNAs in regulating nutrient and energy homeostasis in Drosophila

b) investigated the involvement of microRNAs in the crosstalk between fatbody and IPCs in Drosophila

For analyzing the biological functions of bilaterian microRNAs *in vivo,* we generated microRNA-inhibitors (microRNA-sponges) in the laboratory. We then conducted a large scale genetic screen using microRNA-sponges to knock down the levels of endogenous microRNAs in a pan-neuronal manner, in the *Drosophila* insulin producing neurons, larval fatbody and adult fatbody. From this screen we have identified several microRNAs that play a role in managing neural maintenance, nutrient storage and starvation sensitivity. Experiments have further confirmed the role of novel microRNAs and their target genes in the maintenance of nutrient homeostasis, neural maintenance and ageing. Thus, this project revealed novel gene regulatory mechanisms that act on signaling pathways which helps organisms in maintaining nutrient homeostasis.

4. Smartening smart materials by nano-carbon incorporation : An Industry Academia collaboration in surface engineering and characterisation

This Industry Academia collaborative project drew upon dual strands of aiming to strengthen sharing of research expertise and capability between academia and industry. The primary research objectives of the project were functionalisation of surfaces for novel applications along with an educational objective of showcase a novel scanning probe educator platform to academic stake holders. The latter providing a platform for educating students in India and elsewhere on the essentials of nanoscale science and technology. As a part of the project different routes to surface functionalisation aiming for targeted applications in optical properties, electrical properties and sensing etc. were undertaken as part of the project as itemised below. (i) Carbon nanotube growth on patterned substrates for modifying optical properties (ii) Nanoscale modification of Graphene Oxide (GO) to reduced GO for optoelectronic functionalisation (iii) Indium tin oxide thinfilm coatings and tunning for optoelectronic applications and (iv) ZnO based surface engineering of hierarchical structures for energy and spectroscopic applications. The last strand explored plasmonics of ZnO – metal nanoparticles & ZnO–quantum dot structures, fundamentally for exploring energy and charge transfer optimisation pathways and leading to applications in efficient detection of chemical analytes.

5. Design, synthesis and photocatalytic water splitting properties of functional cobalt based inorganic-organic hybrids

As per the proposal, cobalt complex based on 4-(pyren-1-yl)-2,2'-bipyridine was synthesized in an attempt to explore the possibility of its use as a water oxidation catalyst by forming a photoinduced charge separated state, where in an electron transfer from the photoexcited aryl unit to the metal centre instigates the catalytic cycle for $2H^+ + 2e^- \rightarrow H_2$. [Co Py Bpy] was characterized using ESI-HRMS and ^1H NMR. Alteration in UV- Visible spectrum of Py Bpy accompanied by reduction in fluorescence quantum yield and lack of change in fluorescence lifetime of Py Bpy upon titration with $CoCl_2$ is indicative of complex formation between

Co^{2+} and Py Bpy in the ground state. Equilibrium constant for complex formation from the slope of the Stern-Volmer plot was obtained to be 1.52×10^7 M^{-1} at 25°C. The fluorescence quantum yield of Py Bpy and [Co Py Bpy] is estimated to be 0.56 and 0.20 respectively, in ACN. Cyclic voltammogram of [Co Py Bpy] display peaks close to that of oxidation process in pyrene and reduction of Co^{2+}. Favourable negative ΔG_{eT} of -0.66 eV from Weller analysis for photoinduced electron transfer from photoexcited state of pyrene to Co^{2+} prompted us to carryout transient absorption measurements to examine the possible existence of charge transfer intermediates. Nanosecond transient absorption measurements of [Co Py Bpy] displayed two positive absorption peaks at 430 nm and 470 nm. The transient species at 470 nm is attributed to the pyrene radical cation whereas the species at 430 nm could be attributed to the presence of Co(I) species further confirmed by UV-Vis SPEC analysis indicating possible existence of charge separated state resulting from photoinduced electron transfer from ligand (Py Bpy) to Co(II). Femtosecond transient absorption measurements are being undertaken to decipher the early excited state dynamics following photoexcitation and aggregation of the complexes is being explored to look whether there is an extension in the lifetime of the charge separated states. Water splitting experiments utilizing the complex is also under investigation. Oure detailed investigations suggests that [Co Py Bpy] can be a suitable material for photocatalytic water splitting, optoelectronic and semiconducting device applications.

In addition, we found other interesting crystalline packing arrangements in the chosen aromatic ligands which resulted in novel findings. The results were published in international peer reviewed journals of high impact.

6. Inspire Faculty Fellowship

A basic goal of the study of quantum dynamics is the classi_cation of semigroups of normal unital -endomorphisms of the algebra of all bounded operators on a separable Hilbert space up to cocycle conjugacy. Such semigroups are known as E0-semigroups. Associated with every such E_0 - semigroup, there is a (tensor) product system of Hilbert spaces ([1]). This translates the problem of classification of E_0 - semigroups up to cocycle conjugacy into the problem of classification of product systems up to isomorphisms.

Additive units of product systems

In a series of papers, Tsirelson established interesting new examples of type II product systems coming from measure types of random sets or generalized random (Gaussian) processes. Liebscher ([5]), then made a systematic study of measure types of random sets. Additive units and roots are introduced in [3]. These concepts are defined at the level of inclusion systems. This helps us to compute numerical index more directly. A bijective correspondence is shown between the set of all additive units/roots in an inclusion system and those in the generated product system.

Generator of the norm continuous completely positive semigroup

It is well known that the generator L of a norm continuous completely positive semigroup also known as quantum dynamical semigroup acting on a C*-algbera $B \subset B(H)$ has the form

$$L(b) = \psi(b) + kb + bk^*, b \in B \qquad (0.1)$$

for some completely positive map $\psi : B \to B(H)$ and $k \in B(H)$.

The canonical decomposition (0.1) was first obtained by Gorini, Kossakowski ans Sudarshan for finite dimensional C*-algebras and by Lindbald for hyper-finite von Neumann algberas (for normal maps). In [4], a complete description of the generator of norm continuous quantum dynamical semigroup was obtained.

In [6], we prove a general result for a sequence of completely positive maps using the theory of Bures metric. The decomposition (0.1) follows as a special case.

Two states

Let $\varnothing_1$, $\varnothing_2$ be two completely positive maps from a unital C*-algebra $\mathcal{A}$ to another unital C*- algebra $\mathcal{B}$. The

Stinespring's theorem provides joint Stinespring tuple ($\varepsilon\sigma 1,\sigma 2,\chi$) where ε is a Hilbert $\mathcal{B}$ module with two left actions σ_1 and σ_2 of $\mathcal{A}$ on $\mathcal{E}$ and a vector $x \in \mathcal{E}$, such that $\varnothing_i(.) = \langle \chi, \sigma_i(.)\chi \rangle$ for i = 1, 2. Then we can define,

$$\gamma(\varnothing_1, \varnothing_2) = \inf \|\sigma_1 - \sigma_2\|_{cb},$$

where the infimum is taken over all `joint' representation modules (ε, σ_1, σ_2, χ), of ($\varnothing_1$, $\varnothing_2$).

We call γ as representation metric'. In [2], we introduce the notion of representation metric and study basic properties of γ ($\varnothing_1$, $\varnothing_2$) and its relationship with β ($\varnothing_1$,$\varnothing_2$). We show that γ is indeed a metric if the range algebra under consideration is a von Neumann algebra or an injective C*-algebra. We establish a very interesting direct relation of this metric with Bures metric. This may be considered as a new formula to compute Bures metric. We prove the result for states and then extend it to the case of injective C*-algebras. Finally, in the last section we have examples to show that the range algebra does matter for computing the representation metric.

7. Generation and characterization of minichromosomes and neocentromere formation in plants

In this project, we have demonstrated that ring minichromosomes of varying sizes can be generated as a result of uniparental genome elimination process induced by manipulating the centromere specific histone H3 variant, CenH3. Importantly all the minichromosomes appeared to be ring minichromosomes originating exclusively from the genomic regions in and around the centromere regions predominantly containing the native centromere repeat sequences, rather than linear minichromosomes. This suggests that ring minichromosomes are more likely to form from those DNA fragments arising from centromere regions, followed by aberrant DNA repair of fragmented ends, where in the either side of the fragments undergo non-homologous end joining (NHEJ) to create ring minichromosomes.

In addition, we have demonstrated that the ring minichromosomes can recombine between themselves such that two ring minichromosomes can concatenate to produce a larger ring minichromosomes. The resultant ring minichromosomes can undergo recombination with regular linear chromosomes and exchange DNA between them leading to deletion of those fragments from the regular chromosomes such that at times, these ring chromosomes can be mutagenic.

In a screen for natural variation for the frequency high haploid induction following crossing to haploid inducing parent, we identified two natural accessions that gave rise to high number of haploid progeny after genome elimination. Preliminary analysis of the genetic basis behind this observation suggests that epigenetic disturbance by way of hypo methylation of centromeres may promote uniparental genome elimination. This has great significance in translating this observation to crops of agronomic importance while engineering a CenH3 based haploid inducer in that crop species of interest.

8. Mid Infrared (Mid-IR) sources using stimulated Brillouin scattering and soliton self-frequency shift

Reference

Goal 1*- Demonstration of narrow linewidth Brillouin laser in the mid-IR region around 2000nm and Brillouin frequency comb:* The Brillouin laser and frequency comb around wavelength region of ~ 2004 nm, which is

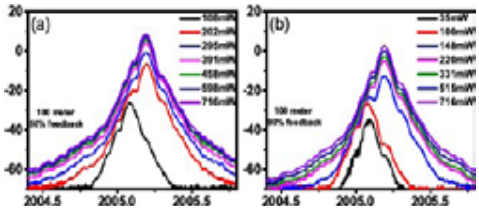


Fig 1. Brillouin laser optical spectra for different combinations of fiber-length and feedback factor: (a) 100 meter with 50% feedback, (b) 100 meter with 90% feedback

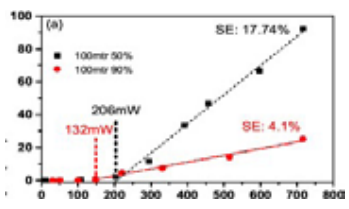


Fig 2. Stokes power as a function of the pump power for a 100 m long Brillouin ring.

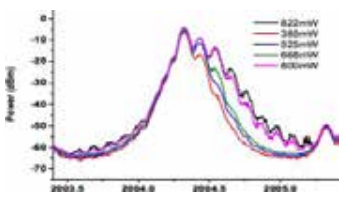


Fig 3. Brillouin comb showing multi-Stokes generation as the pump power is increased

important for CO_2 sensing because CO_2 has absorption around this wavelength, has been demonstrated with record efficiency. Figures 1(a) and 1(b) show the spectrum of the Brillouin ring laser where the generated Stokes signal is fed back to a100 m long silica fiber using feedback fraction of 50% and 90%. As the pump power was increased, the output Stokes power increased

Goal 2- *High repetition rate pulsed source:*

For Fabry-Perot geometry, we achieve multi- Stokes generation with 8 Stokes lines (see Fig. 3), which resulted in pulsed output in time domain paving the way for high-repetition rate short pulse generation. Figure 3 show the output spectrum for multi-Stokes generation in a 100 m long FP cavity showing 8 Stokes lines. Figure 4 shows the time domain output of the Brillouin comb which will result in high repetition rate, which is equal to the Brillouin shift, pulse train when the phases of the comb lines locked. Currently work on phase-locking of these comb lines is under progress.

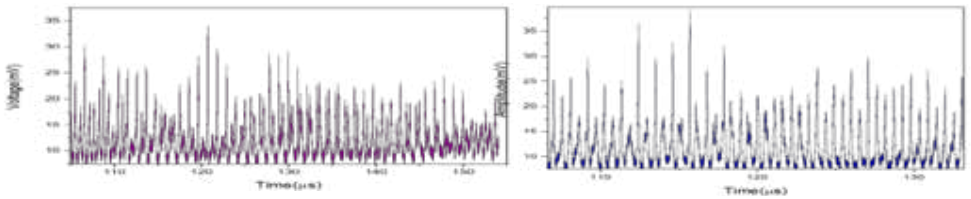


Figure 4(a, b) Time domain response of Brillouin comb showing pulse generation. Phase locking of Brillouin comb lines will result in pulses of picosecond scale pulse width with repetition rate equal to the Brillouin shift.

Goal 3- *Tunable Mid-IR source using soliton self-frequency shift* could not be tried due to procurement issues with one of the equipment for which the purchase order was placed in September 2017. However, we have done two new projects in the 2 µm wavelength regime for enabling future optical communications where Brillouin lasers and pulsed sources, developed as part of Goals 1 and 2, will be useful. Following are the two new projects:

1. Demonstrated multi-channel wavelength conversion exploiting continuous wave four-wave mixing (FWM). We demonstrate three channel FWM with -25 dB efficiency. The three channels were obtained by RF modulation of a laser using 10 GHz signal.
2. We demonstrated Brillouin slow-light for the first time in the 2 µm wavelength region. Wavelength region around 2000 nm is fast becoming the wavelength region of interest for optical communications and require tunable delay.

Demonstration of multi-channel wavelength conversion and Brillouin slow-light will pave the way for all-optical signal processing in the 2 µm wavelength region.

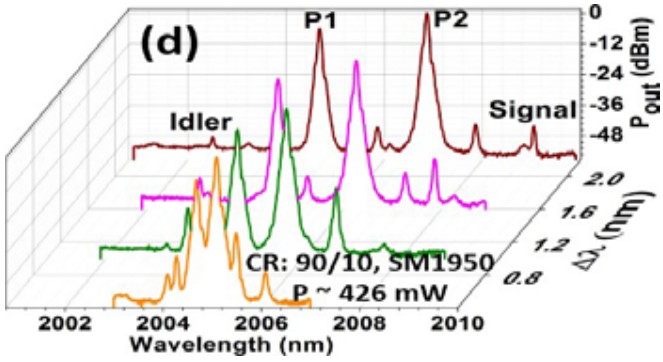


Fig. 5. Optical spectra showing four wave mixing around 2000nm at a fixed total input power of 426 mW for four different wavelength separations (Δλ) between the lasers with coupling ratio of 90:10

9. Morphometry and phylogeography of Honey Bees and Stingless Bees in India Phase-II ah

The project investigated the taxonomy and phylogenetic relationships of Indian honeybees. My lab was specifically tasked with the goal of deciphering the evolutionary relationships among Indian stingless bees. We collected samples from several Indian regions, and also obtained samples through other collaborators. Based on these samples, the project has produced a phylogeny of stingless bees from India, with good representation of samples from across the country. These results, along with the morphological investigations have clarified several taxonomic aspects and identified interesting species complexes that will need to be investigated in further details

10. Comparative NMR study of structure and dynamics of VDACs, human VDAC1 and rice VDAC4, using segmental isotope labeling technique

Objectives of the project

To determining the structure of OsVDAC4 and compare it to the already determined structure of human VDAC1

- To ascertain the importance of the N-terminal helix in the gating process especially the interaction of helix residues and the residues in the beta sheets
- To study the interactions and change in dynamics responsible for anion transport by the protein
- To model the conserved gating mechanism in VDACs.

Deviation made from original objectives (if any)

We expressed and synthesiszed OsVDAC4, the N-terminal helix and the OsVDAC4 without the helix. However the structural characterization of the protein were not possible through NMR as we found that the protein oligomarize making it difficult to study with NMR. However the chemical ligation between the N - terminal helix and the C-terminal expressed protein was successful. We hope to publish our studies on the chemical ligation part soon with electrophysiology studies.

Simultaneously we worked on identifying the aggregating conformer of tau protein which is involved in alzheimers. We could characterize the aggregation and the conformational change of the core of tau using NMR. We also extended the idea of the segmental isotope labeling to tau protein, where in we expressed and purified R3R2 repeat region of tau with an N-terminal Cysteine (Cys-3R2) and synthesized R4TH6 with a thioester and ligated both moieties. We did kinetic and aggregation experiment to characterize the interaction between the two hexapeptides in the tau protein that is thought to be responsible for the aggregation of the protein.

Consultancy

Sl.No.	Name of the Project	Principal Investigator	Co-Investigator	Sponsoring Agency	Amount Sanctioned (Rs. in Lakh)	Duration
1	Apomixis Technologies for increasing Agricultural production	Dr. Imran Siddiqi, CSIR-CCMB	Dr. Ravi Maruthachalam	CSIR- NCR/FBR	12 Lakhs	3 years

5. Research Publications

Journal Articles

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Book Chapter

1. **Dr. Ramanathan Natesh**, **"**Single Particle Cryo-EM as a pipeline for obtaining atomic structures of drug targets in pharma-industry" book chapter In: Mohan C. (eds) book title **"**Structural Bioinformatics-Applications in Preclinical Drug Discovery Process" in series "Challenges and Advances in Computational Chemistry and Physics", Springer Nature editions, 27, 375, 2019.

2. Widjaja I, Wang C, van Haperen R, Gutiérrez-Álvarez J, van Dieren B, Okba N M A, **Dr. Stalinraj V**, Li W, Fernandez-Delgado R, Grosveld F, van Kuppeveld F J M, Haagmans B L, Enjuanes L, Drabek D, Bosch B J, Towards a solution to MERS: protective human monoclonal antibodies targeting different domains and functions of the MERS-coronavirus spike glycoprotein. Emerging Microbes & Infections, 530-516: (1)8 2019.

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6. Awards and Honours

Sl. No	Faculty	Honors / Awards
1	Dr. Harilal Madhavan	Associate Researcher position at Austrian academy of Sciences, Vienna (for research collaborations) (2018 April onwards)
2	Prof. K George Thomas	J C Bose National Fellowship (2019-2024)
		Elected as the president (2019-2020) of the Asian and Oceanian Photochemistry Association (APA)
3	Dr. Kalika Prasad	Elected as national board member of Indian Society of Developmental Biology
		DB early career Guest Editor for year 2018 in Developmental Biology (USA)
		Editorial Board Member of Journal of Genetics (2018 to 2020)
4	Dr. Kana M Sureshan	Fellow of Royal Society of Chemistry (2018): invited under the Leader of the Field Category
		Alexander von Humboldt return Fellowship (2018)
5	Dr. M M Shaijumon	MRSI medal, 2019
		Academic Editor, PLUS ONE
6	Prof. M P Rajan	GOAL Achievers award(2018) for best educational research and development, GOAL India.
		Distinguished Scientist Award (2018) in Mathematics ,Venus International
7	Dr. Mahesh Hariharan	Featured in The Journal of Physical Chemistry Virtual Special Issue “Young Scientists” 2019
		Featured in Chemistry-A European Journal Young Chemists Special Issue 2018
8	Dr. Nishant K T	Visiting Professorship, Osaka University, June 30- July 31, 2018
		Jury member for Inspiring Science Award for the best published scientific paper in the Life Sciences from India (Cell Press, 2019).
9	Dr. Ramanathan Natesh	Invited Reviewer for Biochemical Journal
10	Dr. Reji Varghese	Community Board Member at Materials Chemistry Frontiers, RSC (2019)
		Invitation from ACS Applied Bio Materials to contribute an article for a Forum on “Biomaterials Research in India”
		Executive member, Indian Society of Nanomedicine (ISNM)

11	Dr. Sabari Sankar Thirupathy	India Alliance DBT Wellcome Basic Biomedical Intermediate Research Fellowship
12	Dr. Soumen Basak	Recipients of Gruber Cosmology Prize 2018 awarded to Planck team and its principal science team leaders Nazzareno Mandolesi (INFN, Italy) and Jean-Loup Puget (IAS, France)
		Received travel grants of 1500 EURO from "ESA-Gruber fund" to visit Jet Propulsion Laboratory (JPL), NASA, USA. JPL has approved funds to support my stay in Pasadena for a month during May/June 2020.
13	Dr. Stalinraj V	Croucher Foundation award ($2000) for attending keystone meeting on Framing the Response to Emerging Virus Infections, Oct 14 - Oct 18, 2018, in Lee Shau Kee Lecture Centre, Centennial Campus, The University of Hong Kong, Hong Kong.
14	Dr. Viji Z Thomas	Offered a Visiting Assistant Professor Position at Cleveland State University, OH, USA, 2018-2019

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.	Name of Faculty	Name of Conference/ Workshop/ Symposia	Venue	Date	International/ National
1	Dr. Ajay Venugopal	Dalton 2018	Warwick, United Kingdom	Apr 3-5, 2018	International
		International Conference on Organometallic Chemistry	Florence, Italy	Jul 15-20, 2018	International
		Main Group Molecules to Materials	Bangalore	Oct 28-31, 2018	International
2	Dr. Bikas C Das	International Symposium of Advanced Functional Materials (ISAFM)	IISER TVM	Jul 12-14, 2018	International
3	Dr. Bindusar Sahoo	AdS/CFT@20 and Beyond	ICTS, Bangalore	May 21-Jun 2, 2018	International
		Indian Strings Meeting-2018 (Celebrating 10 years of IISER-TVM)	IISER TVM	Dec 16-21, 2018	International
4	Dr. D V Senthil Kumar	SERB school on Nonlinear Dynamics	Dept. of Physics, Guru Nanak Dev University, Amritsar, Punjab	Dec 20-21, 2018	National
5	Dr. Devaraj P	Range of convolution operators in LCA groups on Mathematical Analysis and Computing	SSN College, Chennai	Dec 13-14, 2018	National

6	Dr. Gokulnath Sabapathi	Career expo-'DISHA'	Thrissur	Jan 6-10, 2018	National
		Vignan Fest 2018	Christu Jyothi Senior Secondary School, Chulimanoor, Kerala	Nov 29-30 to Dec 1, 2018	National
7	Dr. Harilal Madhavan	Health system workshop	Health System Platform, Tata Trust, New Delhi	Mar 18-19, 2019	International
8	Dr. Joy Mitra	15th Near Field Optics and Photonics Conference	Troyes, France	Aug, 2018	International
		14th FICCI Higher Education Summit	New Delhi	Oct, 2018	International
9	Dr. Kumaragurubaran Somu	National Symposium on Functional Nanomaterials	Madurai Kamaraj University, Madurai	Jan 4-5, 2019	National
10	Dr. M M Shaijumon	MRS Fall meeting 2018	Boston	Nov 25-30, 2018	International
		International Meeting on Energy Storage Devices (IMESD) –2018	IIT Roorkee	Dec 10-12, 2018	International
		ICMST 2019	Thiruvananthapuram	Oct 10-12, 2018	International
		International Conference on 'Supercapacitor, Energy storage and Applications (ICSEA-2019)	Trissur	Mar 10-12, 2019	International
		The International conference on optoelectronic and nano materials for advanced technology (icONMAT2019)	CUSAT, Kochi	Jan 3-5, 2019	International
		First Indian Materials Conclave 2019	IISc Bangalore	Feb 12-15, 2019	National
11	Dr. M Suheshkumar Singh	Digital optical microscope (housing inside biosafety cabinet): a promising imaging technology for micro-and cell-biology, and histopathology, SPIE Medical Imaging 2019: Physics of Medical Imaging	California	Feb 16-21, 2019	International
		Enhancement of photoacoustic signal from contrast agent with pre-illumination, Photons Plus Ultrasound: Imaging and Sensing	California	Feb 2-7, 2019	International
		Determining elastic contrast in tissue-mimicking phantoms using frequency resolved photoacoustic imaging, SPIE Photons Plus Ultrasound: Imaging and Sensing	California	Feb 2-7, 2019	International

12	Dr. Manoj A G Namboothiry	MRSI AGM 2019	IISc Bangalore	Feb 12-15, 2019	National
		NCEE 2019	Sree Ayyappa College, Eramallikkara, Chengannur	Feb 16, 2019	National
13	Dr. Mithun Mukherjee	Recent Advances in Operator Theory and Operator Algebra	Indian Statistical Institute, Bangalore	Dec 13-19, 2018	National
		Conference on Inter IISER/ NISER Math Meet (IINMM.	IISER Bhopal	Jul 7-8, 2018	National
14	Dr. N Sadananda Singh	IANCON (Indian Academy of Neurology Conference)	Raipur	Sept 29, 2018	National
		Workshop on MALDI-TOF/ TOF	Bruker Daltonics, Bremen, Germany	Jul 16-23, 2018	International
15	Dr. Nisha N Kannan	Frontiers in insect chronobiology and physiology	Okayama University, Japan	Feb 20-24, 2019	International
16	Dr. Nishant K T	4th International conference on Chromosome Stability	JNCASR, Bangalore	Dec 14-18, 2018	International
		7th meeting of the Asian forum for Chromosome and Chromatin Biology	JNCASR, Bangalore	Nov 15-17, 2018	International
		87thAnnual Conference of Society of Biological Chemists (India)	MAHE, Manipal	Nov 25-27, 2018	International
17	Dr. Rajendar Goreti	Sustainable Chemistry for Health, Environment and Materials (SuCHEM-2018)	CSIR-IICT, Hyderabad	Aug 6–8, 2018	International
18	Dr. Ramanathan Natesh	International Conference on Microscopy and Allied Techniques and XXXIX Annual Meeting of Electron Microscope Society of India (EMSI-2018)	MAYFAIR Convention Centre, Bhubaneswar, Odisha, India	Jul 18-20, 2018	International
19	Dr. Ramesh Rasappan	Recent Advances in Chemistry (CHEM-RAC-2018)	Holy Cross College, Nagercoil	Aug 29, 2018	National
20	Dr. Ravi Maruthachalam	International conference on Genome Biology and Host Defence: Bacteria to Mammals (GBHD-2019)	Madurai Kamaraj University, Madurai	Feb 28 – Mar 1, 2019	International

21	Dr. Reji Varghese	Annual Chemistry Symposium	CMS college	Mar 20-21, 2019	National
		First Indian Materials Conclave	IISc, Bangalore	Feb 12-15, 2019	International
		International Conference on Recent Trends in Materials Science and Technology	IIST, Thiruvananthapuram	Oct 10-13, 2018	International
		NANOBIOTEK 2018	AIIMS, Delhi	Oct 24–27, 2018	International
		SAIS Symposium 2019	IACS, Kolkatta	Mar 8-9, 2019	International
		National workshop on magnetic resonance spectroscopy and Imaging	Kerala University	Feb 25-28, 2019	National
		National Conference on Advanced Functional Materials	S.T. Hindu College, Nagercoil	Feb 25-27, 2019	National
		3rd International Conference on Optoelectronic and Nanomaterials for Advanced Technology	CUSAT, Kochi	Jan 3-5, 2019	International
		Seminar on Nanoscience and Nanotechnology	Fathima Matha College, Kollam	Jan 16-17, 2019	National
		International Conference on Recent Trends in Materials Science and Technology - ICMST 2018	Thiruvananthapuram	Oct 12, 2018	International
22	Dr. Sabari Sankar Thirupathy	National Conference on Recent Advances in Virology and Bacteriology	Kochi	Oct 25-26, 2018	National
		Chromosome Stability 2018	Bengaluru	Dec 14-17, 2018	International
23	Dr. Sachindranath Jayaraman	ICMAA-2018 (International Conference on Matrix Analysis and Applications)	Japan	Jun 2018	International
24	Dr. Sainul Abideen P	Invited talk in the Workshop on Practical Librarianship in Advanced Library Technique	State Central Library, Thiruvananthapuram	Mar 23, 2019	National
25	Dr. Satish Khurana	EMBL hematopoiesis meeting	Heidelberg, Germany	Jun 7-9, 2018	International
		Frontiers in development and molecular medicine	Kolkata	Mar 1-3, 2019	International

26	Dr. Sheetal Dharmatti	Discussion Meeting on "Equations of Fluid models : Control, Homogenization and numerics "	TIFR CAM Bangalore	May 17 - 18, 2018	National
		Mathematical Analysis of Incompressible Fluids (MathFluids)	Seville Spain	Jun 12- 15, 2018	Internatinal
		SMACS 2018 – Special Materials and Complex Systems	Gargnano, Italy	Jun 18-22, 2018	International
		International Conference on Numerical Analysis, Scientific Computing and Analysis	MCET, Trivandrum	Dec 17-20, 2018	International
		Compact Course on Mathematical Aspects of Euler Equations	TIFR CAM	Jan 21 – 26, 2019	International
27	Prof. Srinivasa Murty Srinivasula	3rd PAN IIT Biotech International Conference on Cancer Precision Medicine and Personalized Therapeutics,	IIT Madras	Jan 31– Feb 2, 2019	International
		8th Annual Conference of Indian Academy of Biomedical Sciences	NIIST Thiruvananthapuram	Feb 25 – 27, 2019	International
		10th DAE – BRNS LSS – 2019	BARC, Mumbai	Mar 28-30, 2019	National
28	Dr. Stalinraj V	Keystone Symposia on Framing the Response to Emerging Virus Infections.	The University of Hong Kong, Hong Kong	Oct 14—18, 2018	International
29	Dr. Subrata Kundu	Science Talent Enrichment Programs (STEP)	IISER Thiruvananthapuram	May 13-17, 2019	National
30	Dr. Sukhendu Mandal	121st General meeting of the Korean Chemical Society	Jeju Island, South Korea	Apr 18-20, 2018	International
31	Dr. Tapas Kumar Manna	Conference on 'Chromosome Stability', 2018	JNCASR, Bangalore	Dec 14-18, 2018	International
		Conference on 'Cancer Precision Medicine and Personalized Therapeutics'	IIT Madras	Jan 31- Feb 02, 2019	International
32	Dr. Thirumurugan Alagarsamy	International Symposium on Advanced Functional Materials 2018	Thiruvananthapuram	Jul 12-14, 2018	International
		14th JNC conference on the Chemistry of Materials	Thiruvananthapuram	Oct 03-05, 2018	National

		Chemistry and Physics of Materials: Glorious Past and Exciting Future	Bangalore	Feb 20-22, 2019	International
		International Conference on Structural and Inorganic Chemistry-II	Pune	Mar 18-19, 2019	National
33	Dr. Vinayak B Kamble	Conference on Modern Concepts and New Materials for Thermoelectricity	Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, Italy	Mar 11-15, 2019.	International
34	Dr. Vinesh Vijayan	NMR meets biology	Khajuraho MP	Dec 16-21, 2019	International
		25th conference of national magnetic resonance society of India	AIIMS Delhi	Feb 16-19, 2019	International

Invited Lectures and Seminars Delivered

Sl.No.	Name of Faculty	Title of Lecture	Venue
1	Dr. A Muthukrishnan	Mechanistic investigation of ORR on Fe-containing Nitrogen-doped Carbon Catalysts	JNCASR, Bangalore
2	Dr. Ajay Venugopal	Lewis Acidic Bismuth Compounds	Universität Bremen, Germany
		Lewis Acidic Bismuth Compounds	Universität Bielefeld, Germany
		Distinct Reactivity of cationic magnesium and zinc alkyls	RWTH Aachen, Germany
3	Dr. Bikas C Das	Exchange Meeting for India-Japan Universities	Japan Science and Technology Agency (JST), Tokyo
4	Dr. Bindusar Sahoo	New multiplets in N=2 conformal supergravity	TIFR Mumbai
5	Dr. Deepshikha Jaiswal Nagar	Vortex phase diagram of a high temperature superconductor $YBa_2Cu_{3x}Al_xO_{6+\delta}$	Christian College, Kattakada
6	Dr. Gokulnath Sabapathi	Institute Outreach	S. N. College Kannur, Kerala
		SoC Outreach	Nehru College, Kasargod, Kerala
		SoC Outreach	St. Joseph College, Trichy, Tamilnadu
		Institute Outreach	Holy Cross College, Nagecoil, Tamilnadu
		Unnath Bharath Abhiyan, UBA	Meenankal Tribal Govt. High School, Aryanad, Thiruvananthapuram
7	Dr. Harilal Madhavan	The emerging Sowa Rigpa Industry in South Asia: Initial Reflections	Institute of Social Anthropology, Austrian Academy of Sciences, AAS, Vienna, Austria
8	Dr. Joy Mitra	Luminescence	Advanced Technology Institute, University of Surrey, UK

9	Prof. K George Thomas	Invited talk "Plasmonic Platforms: Dependence of Size of Ag@SiO_2 Nanoparticle and Interparticle Separation on SERS"	Jeju Island, Korea
		Institute colloquium "Excitons and plasmons: A tale of two elementary excitations and their interaction"	Indian Association for the Cultivation of Science, Kolkata
		Plenary lecture in the Departmental Symposium "Excitons and plasmons: A tale of two elementary excitations and their interaction"	Indian Institute of Science Education and Research, Kolkata
		Invited talk at the National Conference on Frontiers of Chemical Sciences 2019 "Coupling of Elementary Excitations: Drawing Parallels Between Excitons and Plasmons"	University of Calicut
10	Dr. K Srilakshmi	IISER-NISER math meeting Title of lecture : On Gao-Thangadurai's conjecture	IISER Bhopal
		The Eisenstein elements of modular symbols of square-free Level	NISER Bhubaneswar
		Problems on Additive Number Theory & Elliptic curves and modular forms	Bharathidasan University, Tiruchirappalli
11	Dr. Kalika Prasad	ISDB, Dev Biology meeting	IIT Kanpur
12	Dr. Kana M Sureshan	Synthesis of biopolymer mimics via topochemical reactions	Technical University Dortmund, Dortmund, Germany
		Synthesis of biopolymer mimics via topochemical reactions	Eindhoven University of Technology, Eindhoven, The Netherlands
		Total Syntheses of Carbasugar Natural Products and Rare Sugars/Cyclitols	Max Planck Institute for Colloids and Interfaces, Potsdam, Germany
		Synthesis of biopolymer mimics via topochemical reactions	Humboldt University, Berlin, Germany
		Topochemical reactions in crystals and gels	University of Potsdam, Potsdam, Germany
		Topochemical reactions in crystals and gels	University of Duisburg-Essen, Essen, Germany
		Synthesis of biopolymer mimics via topochemical reactions	University of Heidelberg, Germany
		Synthesis of biopolymer mimics via topochemical reactions	ETH Zurich, Switzerland
		Synthesis of biopolymer mimics via topochemical reactions	Johannes Gutenberg-Universität Mainz, Germany
		Synthesis of biopolymer mimics via topochemical reactions	Technical University Braunschweig, Germany

		Synthesis of biopolymer mimics via topochemical reactions	Ehime University, Japan
		Syntheses of Triazole-linked Biopolymer Mimics via TAAC Reaction	International Conference on Co-ordination Chemistry (ICCC-2018),Sendai, Japan
		Synthesis of biopolymer mimics via topochemical reactions	International Conference on Materials Science and Technology (ICMST-2018), Thiruvananthapuram
		Synthesis of biopolymer mimics via topochemical reactions	14th International Symposium on Macrocyclic and Supramolecular Chemistry (ISMSC 2019), Lecce, Italy
		Synthesis of biopolymer mimics via topochemical reactions	University of Rennes 1, France
		Synthesis of biopolymer mimics via topochemical reactions	University of Strasbourg, France
		Contemporary Crystal Engineering and Solid-State Chemistry, International symposium commemorating the 100th birth anniversary of Gerhard M. J. Schmidt	Weizmann Institute of Technology, Israel
13	Dr. Kumaragurubaran Somu	Diamond for power electronics devices	Madurai Kamaraj University
14	Dr. M M Shaijumon	2-Dimensional Layered Nanomaterials: Controlled synthesis & Applications	Amrita University, Coimbatore
		Functional hybrid materials for rechargeable batteries	CUSAT, Kochi
		Layered 2-Dimensional Nanomaterials: Controlled synthesis & Applications	ICMST 2019
		Controllable synthesis of 2-Dimensional Layered Nanomaterials	CSIR-CECRI
		Functional hybrid materials for rechargeable batteries	IIT Roorkee
		Functional Materials for Hybrid Ion Capacitors	India – Norway Energy Storage Seminar
		Functional Materials for Hybrid Ion Capacitors	C-MET Trissur
		Functional Materials for Rechargeable batteries	TIFR Hyderabad
		Nanomaterials for Energy Applications	Womens College, Thiruvananthapuram
		2-Dimensional Layered Nanomaterials: Controlled synthesis & Electrocatalytic Applications	MRSI medal lecture, IISc Bangalore
		2-Dimensional Layered Nanomaterials: Graphene & Beyond	M G University
		Engineered 2 Dimensional materials for Electrocatalytic Applications	IISER Pune

15	Dr. M Suheshkumar Singh	Photoacoustic (PA) imaging: A boon to healthcare imaging technology	Holy Cross College, Nager Coil, Tamil Nadu
16	Dr. Mahesh Hariharan	Strategies to Reduce the Rate of Charge Recombination	Department of Chemistry, University of Sheffield
		Strategies to Reduce the Rate of Charge Recombination	The Royal Society at Chiechley Hall, London
		Modulation of Rate of Charge Recombination in DNA	International Centre for Theoretical Physics, Trieste, Italy
		Recent Developments in Photoinduced Electron Transfer	NTU, Taipei
17	Dr. Manoj A G Namboothiry	Organic Semiconductors Fundamentals and Applications	Sree Ayyappa College, Eramallikkara, Chengannur, Kerala
18	Dr. N Sadananda Singh	Application of new generation tools for better disease diagnosis and to understand molecular mechanism of biological systems	Seminar hall, BITS-Pilani, Hyderabad
		Molecular genetics of HDL - and LDL - Cholesterol disorder	Institute of bioresources and sustainable development, IBSD, seminar hall
19	Dr. Nisha N Kannan	Circadian clock gene timeless regulates triglyceride metabolism in *Drosophila*	Chaudhary Charan Singh University, Meerut
20	Dr. Nishant K T	Meiotic recombination: mechanisms, distribution and role in chromosome segregation	Department Of Biosciences & Bioengineering, IIT Bombay
		Meiotic recombination: mechanisms, distribution and role in chromosome segregation	Department of Biotechnology, IIT Madras
21	Dr. R S Swathi	Continuum and Atomistic Modeling of Carbon Nanostructures	IIT, Bombay
		Overwhelming Analogies between Plasmon Hybridization Theory and Molecular Orbital Theory Revealed: The Story of Plasmonic Heterodimers	Farook College, Calicut
		Selective Permeation Through Carbon Membranes: Quantum Mechanics Guides Design Principles	JNCASR-FCBS Workshop for College Chemistry Students and Teachers, Hotel Residency Towers, Thiruvananthapuram
		Tunneling-driven Selective Permeation of He Isotopes through Graphene Crown Ethers	IIT, Guwahati
		Selective Permeation Through Carbon Membranes: Quantum Mechanics Guides Design Principles	IISER-TVM
		Carbon Membranes for Separating Mixtures: What can Theory Reveal?	Vigyan Jyoti Residential Camp for the Empowerment of Girl Students, IIT, Palakkad

		Selective Permeation through One-Atom-Thick Nanoporous Carbon Membranes: Theory Reveals Excellent Design Strategies!	Institute of Molecular Sciences, Okazaki, Japan
		Theoretical Investigations on Carbon-based Nanostructures: Towards Sensing, Separation and Storage	Osaka University, Japan
		Theoretical Investigations on Carbon-based Nanostructures: Towards Sensing, Separation and Storage	University of Parma, Italy
22	Dr. Rajeev N Kini	Facets of Photonics 2018	IISER Pune
		First Indian Materials Conclave	IISc Bangalore
		DAE-BRNS Theme Meeting on Ultrafast Science	RRCAT, Indore
		Indo-Japan Symposium on Structural Dynamics at Different Time and Length Scale	IIT Kanpur
23	Dr. Ramanathan Natesh	The field that came in from the cold. The resolution revolution in single particle cryo electron microscopy, that led to the Nobel Prize in Chemistry 2017	Department of Biochemistry, Bharathidasan University, Tiruchirapalli
24	Dr. Ramesh Chandra Nath	International Conference On Magnetism and Magnetic Material -2018	NISER, Bhubaneswar, Odisha
		National Symposium on Functional Nano-Materials (NSFM-2019)	Madurai Kamaraj University, Tamil Nadu
		Ground State Properties of Alternating spin-1/2 Chain Compound $AgVOAsO_4$	University of Birmingham, UK
25	Dr. Ramesh Rasappan	Organic Synthesis	Holy Cross College, Nagercoil
26	Dr. Ravi Maruthachalam	Engineering centromeres to produce haploids in plants	ICAR- Sugarcane Breeding Institute (SBI), Coimbatore, Tamil Nadu
		Manipulating centromeres to produce *in vivo* haploids in plants	Madurai Kamaraj University, Madurai, Tamil Nadu
		Engineering Centromeres to Produce haploids in plants	Central University of Rajasthan (CURAJ)
27	Dr. Reji Varghese	Supramolecular chemistry: general perspective and applications	CMS college, Kottayam
		DNA-Decorated Soft Nanostructures	IISc, Bangalore
		DNA-Decorated Soft Nanostructures	Thiruvananthapuram
		DNA-Decorated Soft Nanostructures	IACS, Kolkata
		Basics and applications of NMR spectroscopy	Kerala University

		DNA-Decorated Soft Nanostructures	S.T. Hindu College, Nagercoil
		Supramolecular Chemistry	St. Michel's College, Cherthala
		DNA-Decorated Soft Nanostructures	CUSAT, Kochi
		Supramolecular chemistry: general perspective and applications	Fathima Matha College, Kollam
		DNA-Decorated Soft Nanostructures	Trivandrum
28	Dr. Sachindranath Jayaraman	Nonsingular subspaces of M_n(F), F a field	ICMAA-2018, Japan
29	Dr. Sarbeswar Pal	Constancy of the second coordinate of the gonality sequence	KSOM
30	Dr. Satish Khurana	Invited lecture at FDMM meeting	IICB, Kolkata
31	Dr. Sheetal Dharmatti	Control of Cahn Hilliard Navier Stokes' Equations	TIFR CAM, Bangalore
		Optimal control problems for Cahn Hilliard Navier Stokes' system	MCET, Thiruvananthapuram
32	Dr. Sreedhar B Dutta	Langevin dynamics	TIFR, Hyderabad
		Microscopic reversibility	TIFR, Hyderabad
		Critical dynamics	TIFR, Hyderabad
		Martin Siggia Rose formalism	TIFR, Hyderabad
33	Dr. Stalinraj V	MERS Coronavirus: From discovery to intervention	CUSAT, Kochi
		Emergence of a novel human coronavirus: From discovery to intervention	Inter University Centre for Biomedical Research and Super Speciality Hospital (IUCBR & SSH), Kottayam, Kerala, India
		Middle East respiratory syndrome coronavirus (MERSCoV): From discovery to intervention	IIT Kharagpur, Kolkata
		Chimeric camel-human heavy chain antibodies protect mice from MERS-CoV infection	The University of Hong Kong, Hong Kong
		Discovery and characterization of Novel viruses	CIBA, Chennai, Tamil Nadu
34	Dr. Subrata Kundu	Chemistry: The Molecular View of Life	St. Teresa's College Ernakulam
		Strategies Towards Bio-inspired Materials (STBM)	IISER TVM
35	Dr. Sukhendu Mandal	Structure-Property correlation in MOFs and Metal Nanocluster	UNSIT, South Korea
		Ferromagnetic semiconductor two-dimensional materials	University Korea, Seoul, South Korea

		Aggregation Induced Behavior of Molecular Platinum Cluster's	Gachon University, South Korea
		Atom-Precise Metal Nanoclusters: Tale of Two Compounds	University of Birmingham, UK
		Metal-Organic Frameworks and Atom-Precise Metal Nanocluster: Tale of Two Compounds	Department of Physics, Madurai Kamraj University
		Transformation Chemistry at Nanoscale	IISER Pune
		Transformation Chemistry at Nanoscale	Shiv Nadar University, Noida, Delhi
		Transformation Chemistry at Nanoscale	Oxford University, UK
		Transformation Chemistry at Nanoscale	University of Birmimgham, UK
36	Dr. T Geetha	Schur Algebras of Alternating Groups	University of Stuttgart, Germany
		Semi-simple algebras and representation theory	IISER-TVM
37	Dr. Tapas Kumar Manna	New Horizons of Microtubule-Chromosome Interaction	Okohama Univ., Japan
		New Horizons of Microtubule-Chromosome Interaction	Kanazawa Univ., Japan
38	Dr. Thirumurugan Alagarsamy	Materials Chemistry for Energy Applications	St. Xavier's College, Palayamkottai
39	Dr. Ullasa Kodandaramaiah	Evolution of phenotypic plasticity	IIT Bombay
40	Dr. Viji Z Thomas	Schurs Exponent Conjecture	State University of New York, Binghamton NY USA
		Schurs Conjecture	University of South Florida, FL USA
		Schurs Conjecture	Kent State University, OH, USA
		Schurs Conjecture	Texas A & M International University, TX, USA
41	Dr Vinayak B Kamble	Nanoscience of Thermoelectrics : *Meeting Global Energy Needs*	St Berchman College, Chenganassery
42	Dr. Vinesh Vijayan	2 D NMR, 3 D NMR pulse sequences: Approach, scope and pathways (ii) NMR of Nucleic acid and Proteins	Thiruvananthapuram
		NMR Spectroscopy of Biomolecules	Ghandigram University, Dindigul, Tamil Nadu

Conferences and Workshops Organized

Sl. No.	Name of Faculty	Name of Sem./Wor./Conf.	Funded By	Date	International/ National
1	Dr. A Muthukrishnan	Electrochemical Energy – Conversion and Storage	IISER TVM	Nov 16, 2018	National
		Innovations at Frontier Areas of Chemistry	IISER TVM	Dec 7, 2018	National
2	Dr. Alagiri Kaliyamoorthy	Organized a One Day Workshop for School and College Students	IISER TVM	Nov 8, 2018	National
3	Dr. Bindusar Sahoo	Indian Strings Meeting-2018 (Celebrating 10 years of IISER-TVM)	From Registration fees and partially from IISER TVM	Dec 16-21, 2018	International
4	Dr. Devaraj P	International conference on Number Theory	NBHM & IISER TVM	Mar 11-13, 2019	International
5	Dr. Gokulnath Sabapathi	Joint workshop between UoB and IISER TVM	IISER TVM & UoB, UK	Dec 17-19, 2018	International
		International Symposium on Advanced Functional Materials	IISER TVM Under Deccenial Celebrations of IISER TVM	Jul 12-14, 2018	National
6	Dr. Joy Mitra	Surface Science and Probes	Swissnex, India, RAEng, UK, IISER TVM	Feb 4-7, 2019	International
7	Prof. K George Thomas	Asian and Oceanian Photochemistry Association Tutorial on Advances in Photosciences (APA-TAP)	Edinburgh Instruments and Hamamatsu Photonics	Dec 16, 2018	International
8	Dr. K Srilakshmi	International conference on Number Theory	NBHM & IISER TVM	Mar 11-13, 2019	International
9	Dr.Kumaragurubaran Somu	International symposium on combinatorial materials synthesis and wide bandgap semiconductors	IISER TVM	Jan 21-22, 2019	International
10	Dr. Mahesh Hariharan	Theme Symposium on Photonic Materials, First Indian Materials Conclave	MRSI	Feb 12-15, 2019	National
		Symposium on Chemical Sciences, 31st Kerala Science Congress, Quilon, 2019	KSCSTE	Feb 02-03, 2019	National

11	Dr. Nishant K T	4th international conference on Chromosome Stability	IISER- TVM, JNCASR Bangalore, company sponsorships and PloS Genetics	Dec 14-18, 2018	International
12	Dr. Rajendar Goreti	Innovations at Frontier Areas of Chemistry	IISER TVM	Dec 7, 2018	National
13	Dr. Reji Varghese	IISER-RSC Symposium on Functional Supramolecular Chemistry, 2018	RSC and IISER	Mar 06, 2019	International
		Symposium on Supramolecular Functional Nanomaterials	IISER	Dec 17, 2018	International
14	Dr. Stalinraj V	Workshops on Proteomics and Data Analysis,	IISER-TVM	Jan 25, 2019	National
15	Dr. Sukhendu Mandal	Joint workshop between UoB and IISER TVM	IISER TVM & UoB, UK	Dec 17-19, 2018	International
		International Symposium on Advanced Functional Materials	IISER TVM Under Deccenial Celebrations of IISER TVM	Jul 12-14, 2018	National
16	Dr. Sumit Mohanty	Algebras, Combinatorics and Representation Theory	IISER TVM	Dec 5-8, 2019	International
17	Dr. T Geetha	Algebras, Combinatorics and Representation Theory	IISER TVM	Dec 5-8, 2019	International
18	Dr. Tapas Kumar Manna	Workshops on Proteomics and Data Analysis,	IISER TVM	Jan 25, 2019	National
19	Dr. Thirumurugan Alagarsamy	Electrochemical Energy – Conversion and Storage	IISER TVM	Nov 16, 2018	National
20	Dr. Ullasa Kodandaramaiah	8th International Conference on the Biology of Butterflies	N/A	Jun 11-14, 2018	International
		Evolution of Butterflies	IISER TVM	Jun 8, 2018	International
21	Dr.Vinayak B Kamble	Surface Science and Probes	Swissnex, India, RAEng, UK, IISER TVM	Feb 4-7, 2019	International

Colloquia

Sl.No.	Speaker	Institute	Title	Date
1.	Prof. Gagandeep Kang	Translational Health Science Technology Institute(THSTI), Faridabad, Haryana, India	Worm wars: Control or eliminate?	11.01.2019
2.	Prof. Dr. rer. nat. Michael Knop	Zentrum für Molekulare Biologie der Universität Heidelberg (ZMBH) and Bridging affiliation with the German Cancer Research Center (DKFZ), Heidelberg	Quantitative insights into cells at work	08.02.2019
3.	Dr. Jennifer M. Heemstra	Department of Chemistry, Emory University, Atlanta, Georgia, United States	Harnessing molecular recognition for specific RNA modification and capture	15.02.2019
4.	Prof. Jean-Paul Gaudillière	National Institute for Medical Research - France) and Professor at Ecole des Hautes Etudes en Sciences Sociales, Paris	From chemical screening to global biotech: how can we understand the changing patterns and putative crisis of drug innovation	15.03.2019
5.	Prof. Jean-Paul Gaudillière	Cermes 3/ INSERM, Paris	From chemical screening to global biotech: how can we understand the changing patterns and putative crisis of drug innovation	15.03.2019
6.	Dr. Samiran Mahapatra	Unilever R&D Bangalore	Innovations for a Sustainable World	05.04.2019
7.	Prof. Tarun Souradeep	Inter University for Astronomy and Astrophysics (IUCAA), Pune	Hearing aids and polarized glasses for space – time murmurs	12.10.2018

Short Term Courses Organised

Sl.No.	Name of Faculty	Name of the Programme	Duration	Venue
1	Dr. Viji Z Thomas	Workshop for teachers and Assistant Professor.	2 weeks	Instructional School for Teachers (IST funded by NCM)

Patent Filed

1. **Kana M Sureshan**, R. Mohanrao, Fully Organic Polymer for water harvesting and as a Desiccant material (Patent Application No. 201841027913)
2. **M M Shaijumon**, D. Gopalakrishnan and D. Damien, "Method for the synthesis of layered luminescent transition metal dichalcogenide quantum dots" (US Patent No: 20170029962A1**)**

Summer Programme

(a) IISER Thiruvananthapuram Summer Visiting Programme(SVP) – IISER TVM Fellowship

1440 online applications were received for 2018 IISER TVM Summer visiting programme. School wise distribution of applications are :

- Biology 650
- Chemistry 307
- Mathematics 91
- Physics 392

A total of **37** students were selected by individual schools, based on merit out of which **30** students reported and **29** have successfully completed the project.

(b) IISER Thiruvananthapuram SVP - Own Fellowship

A total of **4 (No waiting List)** students were selected by individual schools, based on merit out of which **3** students reported and have successfully completed their project.

(c) IISER Thiruvananthapuram SVP - Prathibha Scholars

A total of **7** students were selected by individual schools, based on merit out of which **5** students reported and have successfully completed the project.

(d) IASc-INSA-NASI Project Fellowship

19 selected students from Indian Academy of Science (IASc-INSA-NASI) have been allotted to IISER Thiruvananthapuram for the Academy summer programme and **15** have completed their project.

(e) External students from other institutions

According to present record, various individual laboratories from IISER Thiruvananthapuram selected **8** External Students from other institution and have carried out or are carrying out their project.

ANVESHA the science club of IISER TVM

As an institute dedicated to science it would be no wonder that IISER TVM has its own science fest, which goes by the name Anvesha. Anvesha was held in the last week of October 2018, with various inter and intracollegiate events, including an open quiz hosted by Major Chandrakant Nair, an inter collegiate quiz as well as Utsuk, the school quiz, for the first time. Over 40 teams consisting of school students from different

parts of Kerala participated and the quiz was a grand success. There were also weekend activities held under the name of Ripples.

A scientific expo with active participation from the student body was a highlight of Anvesha. Competitions included a paper presentation event, debate, crime scene investigation and other events. Weekly activities were also held, and a sky watch, in collaboration with IIST was also held. Students from the Govt. HSS, Vithura, were invited as part of the Unnat Bharat Abhiyan, and were shown various scientific experiments.

Year round activities

IISER strongly believes in giving back to the community, hence organises outreach programmes. Last year, our students visited and showcased experiments at Meenankal Govt school, and also provided scholarship coaching classes to the students. A career options stall was set up at the State School Cultural Festival (Kalolsavam) at Thrissur. Another outreach event was held in Mar Ephraem College of Engineering and Technology, Marthandam, in October 2018, and had a footfall of over 15000 school students. Other events included activities for the National Science Day, with talks given by Prof. Vidyanand Nanjundiah and Prof. Tanusri Saha Dasgupta, and UNESCO International Day for Girls and Women in Science, and the World Environment Day, with Padma Shri Prof. G Shankar giving a talk.

IISER being a culturally diverse institute celebrates the diversity that unites us all. Independence day and Republic Day celebrations were held with great fervour. The institute is also an active participant of the Ek Bharat Shreshth Bharat event, and there were two cultural evenings dedicated for the same, in the last year. With this, IISER Thiruvananthapuram also became the first institute to perform events of all 29 states and 7 union territories of the nation.

The institute student magazine Sopanam, that showcased the work of those who excelled in the literary department, was published after a hiatus of four years, and was well received by everyone.

The quizzing scene in IISER TVM is quite active with at least one quiz held per month, and active participation in all of the quizzes held, including one held by our alumnus, Mr. Jyothishraj Nambisan, when he visited the institute.

Any action for the sake of the people is always appreciated, and IISER makes a huge effort to provide to society in all ways possible. During the 2018 floods in Kerala, relief essentials were collected and many students volunteered to help those who had seeked refuge due to the catastrophe. The PhD charity initiative, Team Kiran worked in close collaboration with the same. As part of the Unnat Bharat Abhiyan, Gandhi Jayanti was commemorated, with a cleanliness drive within the institute. The student charity wing, Muskaan, held multiple visits throughout the year to various shelters, with an aim to bring joy to the inmates. The Welfare committee organised a Blood Donation camp in April, and the turnout from the student and staff quarters was exceptional. The welfare committee also heads the student run cooperative mess (SCoM) that provides nutritional meals at nominal rates for the students as well as staff.

The student community believes in moving forward, and takes steps to better itself in all possible fronts.

Counseling Center

Mental health continues to be an increasingly urgent issue that needs to be addressed and here at the IISER Thiruvananthapuram Counseling center, we offer mental health services to the students in order to reduce their psychological problems and distress and enhance their mental health, well being, and quality of life. The center consists of a psychologist (Dr. Neelima Gopinath) and a psychiatrist (Dr. Mary P R) who provide effective counseling services to students who come to them with a wide range of problems.

Overall, the functioning of counseling center IISER Trivandrum for the last one year (April 2018- March 2019) was good as per the student turn over and response. Student satisfaction seems to be adequate and

majority of students are coming for regular follow-ups. There is an increase in the number of students who came for counseling compared to the previous year, which shows that more students are aware of the center and is willing to come forward seeking help.

In total, 135 students came for counseling in the specified period. There were 92 new students and 43 students who had already come before had to be seen again. Some of them had to be seen more number of times as per their requirement. This past year 274 counseling/psychotherapy sessions was conducted. There were in total 103 BS-MS students and 32 others that included Ph.D., IPHD, Post Doc, and Project students. Out of the total 92 new students, 9 have been referred to the psychiatrist for further evaluation and treatment.

As per the statistics of students who consulted the psychiatrist there were in total 27 students and 171 sessions were conducted. Detailed case files are being maintained for every student who comes for counseling/ psychiatric consultation with at most confidentiality.

The predominant problems faced by students were stress related to academic and non-academic issues, relationship problems, adjustment issues, sleep disorders and primary psychiatric illness. Students are given supportive counseling, psychotherapy, stress management programs as well as medication in indicated cases.

The counseling center conducted a talk on “The skill of establishing healthy Interpersonal relationships” by Dr. Arun B Nair, Assistant Professor of Psychiatry, Medical College, Trivandrum, on 19th February 2019. The talk was well received by the students and there was good number of participation. There are plans for conducting further workshops and talks by prominent people in the field in the coming academic year.

In the beginning of the semester an orientation program were conducted for the new comers in which the importance of counseling were briefed. Also a brochure for counseling center has been given to them so as to give them an overall idea about the functioning of the center and how they can make use of the facilities being provided to them.

A counseling web page made with the idea to share information that promote mental health and bring awareness among students has been well received and more students are aware of our services and it has helped reduce stigma in seeking help.

Outreach activities 2018-19

1. Interaction program with Scientists

Interaction program with scientists aimed at enabling the college students to interact with the faculty members of IISER TVM with a view to improve their scientific knowledge. Interaction programs with scientists were held as one-day symposium at various colleges. The details are as follows

Sl.No.	Name of the college	Name of the Faculty from IISER TVM	Date	Coordinator from the college
1	Holy Cross College, Nagercoil, Tamilnadu	Dr. Ramesh Rasappan Dr. M Suheshkumar Singh Dr. K T Arun Dr. N Sadananda Singh	17.10.2018	Dr. Shermila

2. Outreach program at Schools

Scientists and BS-MS students of IISER TVM conducted outreach programs at various schools to nurture scientific thinking and research skills in children at the school level.The details are as follows.

Sl.No.	Name of the School	Name of the faculty from IISER TVM	Date
1	Meenankal Tribal Govt. High School, Aryanad, Thiruvananthapuram (Part of Unnath Bharath Abhiyan)	Dr. Gokulnath Sabapathi Dr. Vinesh Vijayan	04.08.2018
2	Represented IISER TVM at Vignan Fest 2018 held at Christu Jyothi Senior Secondary School, Chulimanoor	Dr. Gokulnath Sabapathi One Ph.D. scholar 14 BS-MS students	29.11.2018, 30.11.2018 and 01.12.2018

3. Department outreach program

Each department of IISER TVM conducted outreach program at various colleges to improve the knowledge of students in specific field of science. Details are as follows.

Sl.No.	Name of the college	Name of the Faculty from IISER TVM	Date	Name of the school from IISER TVM
1	S.B.College, Changanacherry (SoP)	Dr. Vinayak B Kamble	06.09.2018	School of Physics
2	St. Joseph College, Trichy, Tamilnadu (SoC)	Dr. Gokulnath Sabapathi Dr. Alagiri Kaliyamoorthy Dr. A Muthukrishnan	28.09.2018	School of Chemistry
3	St. Teresa's College, Ernakulam (SoC)	Dr. Subrata Kundu Dr. Vinesh Vijayan	26.10.2018	School of Chemistry

4. Institution visit by college students and college teachers as a part of the walk with scholar program

Institution visit to IISER TVM by various college students from Kerala is facilitated to provide students an overview about the current research ongoing at IISER TVM. During the last Vasanth semester, we had twenty three visitors, mostly the college students from Kerala visited our institution. We also had few visitors from outside Kerala. Every visit was organized with a short presentation followed by a tour to our central instrumentation facility (CIF). Based on the students specialization, the visitors were also taken to the respective schools and a tour was arranged to visit every school's instrument facility and research labs. Depends on the visitor's requirement breakfast and lunch were also arranged on payment basis. List of institution visit is placed below.

Sl.No.	Name of the college	Date
1	Mar Athanasios College For Advanced Studies Tiruvalla (MACFAST), Kerala	04-10-2018
2	Dept. of Zoology, Periyar University, Salem,Tamilnadu	11-10-2018
3	Govt. College Teachers, Kerala through Govt. College for Women, Thiruvananthapuram	21.11.2018
4	Sigaram Academy of Excellence, Marthandam, Tamilandu	03-12-2018
4	The American College, Madurai, Tamilnadu	11-01-2019

6	Catholicate College, Pathanamthitta, Kerala	16-01-2019
7	MG College Iritty, Kannur	18-01-2019
8	SN College for Women, Kollam	18-01-2019
9	Krishnan Menon Memorial Govt. Women's college, Kannur, Kerala	24-01-2019
10	Government Arts And Science College, Malappuram, Kerala	29-01-2019
11	Govt.Arts & Science College, Calicut, Kerala	31-01-2019
12	Nirmalagiri college, Koothuparamba, Kannur, Kerala	01-02-2019
13	Govt. College For Women, Thiruvananthapuram, Kerala	07-02-2019
14	NSS College, Manjeri, Malappuram, Kerala	19-02-2019
15	NSS College, Pandalam, Pathanamthitta, Kerala	19-02-2019
16	PSGR Krishnammal College for Women, Coimbatore, Tamil Nadu	19-02-2019
17	Thiruvalluvar College, Tirunelveli, Tamil Nadu	01-03-2019
18	Government Arts College, Thiruvananthapuram, Kerala	22-03-2019
19	SDM Post Graduate Center, Dakshina Kannada, Karnataka	22-03-2019
20	St. Berchmans College, Kottayam, Kerala	22-03-2019
21	St. Joseph's College For Women, Alappuzha, Kerala	04-04-2019
22	Rural Educational-Social Empowerment Trust, Kozhikode, Kerala	30-04-2019

5. Kerala State Higher Secondary Education Department organized a Course and Career expo-'***DISHA'***, 2018-19 from **06-09th December 2018** at Alappuzha, Kerala.Thrissur. Around **6 BSMS** students from IISER TVM participated in this programme and show cased the mandate and opportunities of IISER TVM. Participated at Higher Studies Expo organized by DISHA

6. Two IISER TVM faculties **(Dr. Mithun Mukherjee and Dr. K Shadak Alee)** participated in Regional Children's Science Congress of Navodaya Group of Schools at RGCB, Thiruvananthapuram and interacted with the students from 12.12.2018 to 16.12.2018.

8. Facilities

Laboratory

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

Biology Teaching Laboratory

The BS-MS Biology laboratories of IISER TVM are located in the Permanent Campus at Vithura where students of I year (approximately 194) & II year (approximately 214) are trained in doing projects and experiments related to Biological Diversity and Evolution (I Sem), Biological structure and Function (II Sem), Genetics (III Sem) and Cell Biology and Signalling (IV Sem). The topics for the project work are given by the concerned faculties. Experiments related to Ecology and Evolution (I Sem) are mostly performed in a field setting, while the students of II, III and IV semesters do their experiments in the undergraduate teaching lab. They are guided by faculties and well trained technical assistants. Substantial amount of time is spent on preparation as well as standardization of the experiments before the arrival of the students. The students

do the experiments in the lab with the help of manuals prepared and supplied to them in advance. In the lab they get an opportunity to test theoretical concepts studied in the class experimentally, and confirm the facts related to the designed experiments critically and analytically through actual observation. In order to work systematically and to perform experiments efficiently students are directed to follow certain rules in the lab like proper laboratory attire, punctuality, maintaining record, active participation in doing the experiments, awareness of safety measures etc.

Lab sessions are also conducted for 3rd & 4th year Biology Major Students (approximately 40 students each year) as well as Integrated Ph.D. students at the Advanced Biology Lab in the permanent campus at Vithura. The experiments are of high standards and are designed to complement their theory courses and ongoing research in the Institute. These measures encourage the students to have a better understanding of biological concepts laying emphasis on scientific planning, analysis and interpretation of data. The syllabi has been prepared in consultation with various experts in Advanced Biology teaching and also by incorporating experiments from MS lab courses offered at reputed International Universities/Research Centers. The advanced course covers broad areas on Advanced Genetics, Advanced Cell and Molecular biology, Microbiology, Immunology, Biochemistry etc. Apart from a team of well-trained technical assistants the students are also assisted by PhD students under the concerned faculties in charge. The students work hand in hand with research labs of the institute and are exposed to sophisticated instruments such as Real Time PCR, Spectrophotometer, Microplate Reader, FPLC, Confocal microscopy, Stereomicroscopy, Flow Cytometry, Gel electrophoresis and techniques like PCR, quantitative real time PCR (qRT-PCR), Western Blotting, SDS-PAGE, Animal cell culture, In vitro transcription and translation, Chromatography, Microbiological and Immunological techniques.

Physics Teaching laboratory

Experiments in the BS-MS teaching lab are arranged such that students are able to attain knowledge in both basic and advanced concepts in Physics. In the first two years, students are given experiments based on the topics Mechanics, Optics, Electricity & Magnetism and Heat & Thermodynamics. From third year onwards, students are also trained to handle advanced and sophisticated instruments. Some of the advanced instruments include Atomic force Microscope(AFM), Scanning Tunneling Microscope(STM), X-Ray Diffractometer, SQUID, Vacuum Coating Unit etc. Students are also trained in designing and analyzing the electronic circuits. Some experiments are software based so that students are trained in latest version of the software. Each student is given individual equipment as far as possible so that they can get extensive hands on training in order to achieve proficiency in laboratory techniques and also experience in modern laboratory instrumentation.

Chemistry Teaching Laboratory

The first and second year students are given training in the fundamental aspects of inorganic, organic and physical chemistry experiments which help them to understand the basic concepts of chemistry. This include both qualitative and quantitative analysis. Ten to twelve experiments are done in each semester. The course covers principles and application of chemical laboratory techniques including safety, preparation, detection and estimation of chemical compounds. The students get accustomed in the measurement of pH, paper chromatography, thin layer chromatography, column chromatography, visible-ultraviolet spectrophotometery, infrared spectroscopy, chemical kinetics, data analysis, and elementary analysis. Experiments were done from refractometry, conductometry, potentiometry, and cryoscopy. Physical properties like surface tension, viscosity, dipole moment were measured and recorded for various organic compounds. Extensive hands-on laboratory training was provided to each student. This help them to gain proficiency in basic laboratory techniques and experience in modern laboratory instrumentation. Some of the experiments done during the advanced courses were: Isolation and analysis of natural products and preparation of their derivatives, multi-step organic synthesis (Benzoin condensation, Perkin reaction, Grignard reaction etc.) for fifth semester. 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 were undertaken during sixth semester. This helps them to acquire practice in multistep inorganic synthesis of metal complexes and

also to understand the magnetic and spectral properties of complexes aid in the determination of structure. Advanced physical chemistry experiments in polarimetry, conductometry, potentiometry, cyclic voltammetry, study of the rotational barrier using NMR, solvatochromism, single crystal XRD measurements, life-time measurements study by TCSPC, verification of adsorption isotherm by volumetric titration etc. are practiced in the seventh semester. The courses enable the students to analyse, interpret and solve problems in chemistry, to integrate chemical knowledge in the successful conduct of research as well as work in team-based research.

Library

The central library of the institute supports the academic and research needs of the Institute community. The state of the art library facilitates access to online and print resources to its users. Reputed international journals and online resources in science and allied areas have been made available. The 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 50 international scientific publishers and societies includes full-text e-journal databases, e-journal archives, video journal, e-books, bibliographic and review databases, etc. Major online full-text databases including AACR, ACS Web Edition, AIP, AMS, Annual Reviews, APS, ASM, Electro Chemical Society Digital Library, IEEE ASPP+POP, IOP, JSTOR, Nature, OpticsInfobase, OUP, Project Euclid, RSC Gold, Science Online, Science Direct, SIAM, Wiley Online Library, etc. are notable among them.

Major bibliographic databases including, MathSciNet, SciFinder, Web of Science, J-Gate, Reaxys, etc. are also made available. Apart from the online resources, the library possesses print books, CD ROMs, thesis, etc. in core and allied subjects. OpenAthens remote login facility is being extensively utilized by the faculty and student community for off-campus access of the online resources.

The library started ‘Turnitin’ internet-based plagiarism detection and originality checking service during this period. Library also provides access to ‘Grammarly’ online grammar checking and document authentication tool.

The library’s working hours were extended to 10 PM since Aug 2018. The library is equipped with advanced RFID based Self Service Kiosk, which provides self-check-in and check-out of books. Library orientation program and several group-wise training to students on online/offline library services were also held during this period.

The library added 562 books during this period, including 83 books which were complimentary copies. 180 new users took library membership during this period. The Digital library of Ph.D. Thesis and Dissertations was enhanced with 96 theses during this period.

IISER Thiruvananthapuram Library has membership/affiliation in major library consortium/ network including e-Shod Sindhu Consortium, IISER Library Consortium, and the Developing Library Network (DELNET). Dr. Sainul Abideen P, Asst. Librarian attended the *11th Meeting of the IISER Library Consortium* held in IISER Mohali during 9-10 January 2019. Mr. Jayaraj JR (Library Information Assistant) participated in the *International Conference on Changing Landscape of Science & Technology Libraries,* held in IIT Gandhinagar, from 28 February to 02 March 2019.

Computing and Networking Facility

National Knowledge Network (NKN) is providing Internet connection with speed of 1Gbps. In addition to this, M/s BSNL is providing a 100Mbps ILL. Department buildings, hostels, residential blocks, guest house and all other buildings are interconnected using fibre cable and covered by Wireless and wired network. IP Phones are provided to faculty and staff for voice communication.

There are 02 computer labs for providing common computing facility. One is a 70 seater computer lab and the other is 63 seater. The computational cluster and several other servers provide instructional and research

support including high performance computing, Moodle course management, DNS, DHCP and other services. The IT personnel of the institute provide both hardware and software support to the faculty, staff and students in addition to making computational software like GAUSSIAN, MATLAB, QCHEM etc. available for use. The LAN of the institute has over 450 PCs. Licences are available for the software like Windows, Office, EndNote, Adobe Acrobat Pro, Origin, Mathematica, Matlab and Seqrite Antivirus.

All class rooms in the institute are provided with state of the art audio visual equipment. The institute has a fully functional virtual classroom funded by the NKN project. The classroom has been in use for course exchange 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

The hostels are furnished and have provisions for amenities like Washing machine, Television, News papers and Internet Facilities.

There are 09 hostel buildings that are functional in the permanent campus and 01 hostel building in transit campus.

There are 05 hostel buildings in the transit campus. Being the Mentor Institute of Indian Institute of Information Technology-Kottayam, 04 of the hostels were allotted to IIITK.

9. Sports and Cultural Activities

The student community of IISER excel not only in academia, but also are talented in non-academic extracurricular activities and sports. IISER Thiruvananthapuram provides all necessary amenities for the students to hone their cultural and extracurricular talents, and even learn new skills. With the formation of the Student Affairs Council in the last academic year, the requirements of the student community are being met in a more systematic manner.

ITSAV'18

The student body of IISER Thiruvananthapuram actively participate in sports activities, and the enthusiasm may be seen if one look at the amount of participation for ITSAV, the annual Sports Meet of the institute. Held in the Varsha semester, right after the monsoon has receded from the state, Itsav is the first of many events in the academic calendar that offer the students the opportunity to get out and show their athletic talents. IISER Thiruvananthapuram offers world class facilities for the same, which include a basketball court, badminton facilities, squash and tennis courts. There are also staff dedicated to train the students in the sports. IISER also has a fitness centre with dedicated trainers and yoga professionals. The institute hosts various sports activities almost every weekend, with a sizable turnout for each event.

Student participation for events held within the state are huge, with the institute bagging the maximum participation trophy for TrivandRun for the 3rd consecutive year, Our students, Mr. Satya Prakash (Batch '17) and Mr. Kedar Sharma (Batch '14) came 3rd and 4th in the 10km run, respectively.

IISM'18

The students excelling in the ITSAV events have a larger platform to showcase their skills and talent identification for IISM, the Inter IISER Sports Meet. IISM 2018 was held in NISER Bhubhaneswar, and our contingent consisting of over 130 students were one of the 10 teams which participated. With 8 Golds, 6 Silvers and 6 Bronze medals, our athletes became champions in athletics and 4th overall. A list of medal winners is given below

Name of the Student	Event	Medal
Kedar Sharma	10000 Metre	Gold
Kedar Sharma	5000 Metre	Gold
Satya prakash	1500 Metre	Gold
Satya prakash	800 Metre	Gold
Akshai K T	800 Metre	Silver
Akshay Raj	400 Metre	Gold
Akshai K T	400 Metre	Silver
B Kalyan Singh	200 Metre	Silver
Sanjay M S	200 Metre	Bronze
B Kalyan Singh	100 Metre	Bronze
Sreya N	800 Metre (Girls)	Silver
Sreya N	400 Metre (Girls)	Gold
Sanjay M S	Long Jump (Boys)	Gold
Satya Prakash Akshai K T Akshay Raj Ahammed Hussain	4*400m Relay (Boys)	Gold
Sreya N Nafia Shahla Rizwana	4*400m Relay (Girls)	Bronze
Varun Girish M Lithin M B Maby John Sreehari Sourav Kumar Govind Krishna Albert Sanjay Sunny Amit kumar	Volleyball (Boys)	Silver
Nikhita Snehal Nimisha	Lawn Tennis (Girls)	Silver
Vijay Pathak Arun Kumar Mourya Amit Kumar Arun Kumar Surya Sourav Samantaray Rohit Anand Akash Aashirvad Ankit Sankalp Subrabalan Subhajit Tuhin Sahan Chandan Mehta	Cricket (Boys)	Bronze

Probal Nag Akshay Kaslod Bilal Sabuj Mandal B Kalyan Singh Kiran Reddy Abhay Kumar Arya Ahammed Hussain Ritwik Ravi Prakash Aman Akshai Krishnan Kedar Sharma Surya	Kho-Kho(Boys)	Bronze
Tina Akhila Kamalini Tessy Nimisha Nikita	Badminton (Girls)	Bronze

Other activities

Yoga/Meditation

Yoga/meditation practice was conducted on 5 days a week to integrate the physical and mental elements of students. On the occasion of INTERNATIONAL DAY OF YOGA, 21 June, 2018, a Talk cum Demonstration titled "Importance of YOGA" was organized on 21 June 2018 in the indoor stadium, Vithura campus. The inaugural-address was delivered by our director, Prof. V Ramakrishnan, and Shri. Shyju Krishnan delived a talk on Yoga. Around 50 participants from IISER TVM took part in the program. Shri. Shyju Krishnan conducted yoga practice for the participants.

Hindi Week Celebration-2018

Hindi Week Celebrations of IISER Thiruvananthapuram for the year 2018 was celebrated from 10 September to 14 September, 2018.

During Hindi Week Celebrations, competitions like speech, story writing, debate, translation, short films etc. were organized for students and employees from 10-13 September 2018.

The valedictory function and cultural evening was held on September 14, 2018 at 2.00 pm at PSB Seminar Hall. Eminent Hindi writer and journalist Shri. Madhusudan Anand was the chief guest and he inaugurated the valedictory function. Dr. Sheetal Dharmatti, Assistant Professor Grade I delivered the welcome speech. Hindi recitation and singing competitions were organized during the valedictory function which was evaluated by Shri. Madhusudan Anand. Cash prizes were distributed to the winners by the chief guest. Vote of thanks was given by Dr. Tapas Kumar Manna, Associate Professor during the valedictory function. Students had shown power point presentation of photos of last ten years Hindi Fortnight Celebration and many cultural events were also organized.

Vigilance Awareness Week

The Vigilance Awareness Week 2018 was held on 29th October to 03rd November 2018 and the theme of the programme was “Eradicate Corruption – Build a New India”. It was observed with an aim to encourage all stakeholders to collectively participate in the prevention of and to fight against corruption and to raise public

awareness regarding the existence, causes and gravity of the threat posed by corruption. Accordingly, various programmes were arranged to spread the above message among Students, Faculty, Staff of IISER TVM and to common public.

Institute gave wide publicity about the Vigilance week by displaying banners and posters at various walkways, notice boards in the Institute; through Institute website and through group e-mails to the staff, students, contractors etc. An integrity pledge was administered to all the staff and students by the Director of the Institute during the inaugural function of Vigilance Awareness Week. The link of e-pledge was included in the Institute website and also forwarded through e-mail to all, for encouraging them to take the e-pledge.

An awareness programme was arranged for the vendors/contractors associated with the Institute which encouraged them to take the pledge. Workshop, Seminar, Quiz, Skit and Songs were conducted for the staff and students followed by distribution of cash prizes. An awareness programme was conducted for the students of Govt. High School, Vithura and the integrity pledge was also administered where in the students pledged that they will be vigilant and commit highest standards of honesty and integrity at all times and support the fight against corruption.

Run for Unity

02km Run for Unity was conducted on 31 October, 2018 in connection with the birth anniversary of Sardar Vallabai Patel. Director flagged off the event, starting from the IISER main gate to Physical Science Block (PSB). 30 students and several staff members participated in the celebrations. Sathya Prakash came in the first position and Kedar Sharma came in the second position.

Marathon

05 athletes from the institute participated in the Trivandrum Marathon mega event and exhibited excellent performance by completing the race of 21 km. 02 students participated in Kannur Half Marathon in Feb 19.

National Sports Day

Institute organised friendly matches on 29 Aug 2018 in connection with National Sports Day.

Awards

Sports Color: It recognizes a student's extraordinary contribution towards institute sports. The praise worthy performances of the following students in the ITSAV'18 and IISM'18 has landed them this year's Sports Color. They are

SATYA PRAKASH, AKSHAY K T, AKSHAY RAJ, NAFIA V K, NIKITHA S, ARUN KUMAR MAURYA, RIZWANA R, NIMISHA B, PROBAL NAG, GIRISH M, ROHIT ANAND

Sports Citation: The another prestigious award of Institute Sports, given only to the students of our passing out batch in recognition of a student's consistent and remarkable performance in sports throughout the years for their unswerving dedication, admirable talent and sincerity to the games. They are

KALYAN SINGH, AMIT KUMAR, SAURAV KUMAR, SUBHAJIT DAS, SANKALP KUMAR, AKSHAY ANKUSH YADAV

Special Mention: People who have performed extremely well but narrowly missed this year’s sports color deserve a special mention

ANAKHA ANSON, C L DHEERAJ, PRAJAKTA, SNEHAL NEWARE, ANJU MARIA JOSE, RAVI PRAKASH, AKASH ASHIRBAD PANDA, KAMALINI S, ALBERT MATHEW, RIGZIN NOORBU, SHAHLA YASMIN

Sports Streak: People who have consistently performed in their respective fields. They are

SURYAKANT TANTY, MABY JOHN, ANAGHA SIVADAS, VIJAY PATHAK

Emerging Player:

SANJAY M S, ANKIT, VARUN M K, AYSHA FASNA, AKHILAN E M

Sports Man of the Year : KALYAN SINGH and **Sports woman of the Year** : SREYA N

Best Athlete : SATYA PRAKASH

Roll of Honor: The "Roll of Honor" is awarded to a student who has performed exceptionally well in Sports and Athletics at every platform and brought glory to the Institute. This year it goes to KEDAR SHARMA who has been an integral part of almost all the sports in IISER-TVM.

Ek Bharat Shrestha Bharat Programme

The program in this sequel which covers the pairing states Punjab-Andra Pradesh, Haryana-Telangana, Uttar Pradesh-Arunachal Pradesh, Chandigarh-Dadra and Nagar Haveli, Gujarat-Chattisgarh, Uttarkhand-Karnataka, Goa-Jharkahand, Bihar-Mizoram, Lakshadeep-Andaman Nikhobar, Delhi-Sikkim and Rajasthan-Assam was conducted on 28th October, 2018. The program was presided by Director Prof. V Ramakrishnan and he inaugurated the program by lightning the lamp along with other faculty members and student representatives of the cultural club. The program was covered by Doordharshan.

Date: Sunday**,** 28th October 2018 and **Venue:** Indoor Stadium
Duration: 3 hrs (3.30pm to 06:30pm)
Total audience: 400 approxiamtely
No of programs: 9, and an photography exhibition
Total no. of participants:52

The program details with participant list are as follows:

Program details

1. **Kodava: (Karnataka)** 1. Ganga Mohan 2. Aleena P Benny 3. Sreelakshmi EH 4. Deepika V 5. Anagha V Nair 6. Anupama Babu Lal	**2. Bathakamma song: (Telangana)** 1. Namitha VS 2. Suha 3. Krishna KS 4. Irin Elizabeth Eby
3. Arunachal song: (Arunachal Pradesh) 1. Midhun Mohan 2. M Devanand Mallaya 3. Vesaj Singh	**4. Rajasthani Dance: (Rajasthan)** 1. Avanija V B 2. Madhu Mishra 3. Shalin Jose 4. Hrudya P P 5. BINCY C 6. Anjusree S 7. Sanusha M G 8. Litty Thomas

<table>
<tr>
<td>5. Hariyanvi Dance: (Haryana)
1. Indulekha MS
2. Anagha Rajeev
3. Haritha M
4. Aparna PK
5. Aqil suhaib DR
6. Aslam AP
7. Harishankar CS
8. Arjun S Nair</td>
<td>6. Punjabi: (Punjab)
1. Anakha Anson
2. Akhila S Kumar
3. Devika Radhakrishnan
4. Sowbarnika
5. Godwin Paul
6. Akshay Raj
7. Rejith Raj Kannan
8. Anandhakrishnan</td>
</tr>
<tr>
<td rowspan="2">7. Garba dance: (Gujarat)
1. Malavika Ajayjaghosh
2. Riya Sheokand
3. Goutami Nayak
4. Shradha Ajith
5. Gayatri Soman
6. Asaithambi Madhivadhani
7. Anjali Kumari
8. Hariny R</td>
<td>8. Kuchupidi: (Seemandhra)
1. Gayatri M Kartha</td>
</tr>
<tr>
<td>9. Ramleela Drama: (Uttar Pradesh)
1. Siddharth bhatt
2. Akash ghadwal
3. Prince yadav
4. Shreshth S
5. Seetha Lakshmi
6. Vidya Jose</td>
</tr>
<tr>
<td colspan="2">Along with cultural programmes, there was also a photography exhibition with close to 30 photos showcasing states' heritage, culture, cuisine and people. Following states were included.

Andaman, Lakshadweep, Goa
Dadra, Jharkhand, Chattisgarh
Chandigarh, Uttarakhand, Sikkim
Mizoram, Assam</td>
</tr>
</table>

Ishya

The major attraction for the student communities both of IISER and outside comes in the form of Ishya, the annual cultural fest. Ishya 2019 was the 10th iteration of the cultural festival, and added a lot of intercollegiate events into its repertoire. Put Funda, the open quiz was held for a 3rd time, on March 17th, with Major Chandrakant Nair being the Quiz master. The other highlights include Jigyasa, the intercollegiate quiz, Bon Mot, the debate, Awaaz, the solo singing competition, Unplugged, the acoustic cover competition, Vyaktitva, the personality competition, as well as Mudra, the intercollegiate dance competition. Over Rs. 1.5 lakhs were given away as prize money. In addition to this, we had two pro night events, with a DJ performance by DJ Nevin, and a musical night, with Pineapple Express performing live on stage.

Ishya also offered a lot of intra collegiate events, which catered to the cultural cravings of the students of IISER. Students also actively participated in events held by other colleges, with huge participation for CET's Dhwani, IIST's Dhanak, and IITB's Mood Indigo. In the first edition of the Inter IISER Cultural Meet held in IISER Kolkata, in December 2018, the IISER TVM contingent with 40 students, came 3rd overall, bagging the first prize in Battle of Bands, and receiving rave reviews from the judges, and 2nd place in five other competitions.

10. Permanent Campus

A. General & Master Plan

The permanent campus of IISER has been set up in an area of 200 acres of land at Vithura in the valley of scenic Ponmudi hills. The site at Vithura is 40km from Thiruvananthapuram. The land was handed over by Govt. of Kerala to the institute on 15.10.2008. The campus is highly uneven 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 has been 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 students' hostels have been located towards the south east periphery of the campus with covered pedestrian connectivity to all the academic complex.
- The residential zone of faculty members and staff is set up 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 has been done as per the plans with minimum foot print and retaining maximum green cover.

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

- The Campus has been developed taking into account green building concepts and is aiming to achieve four star rating as per GRIHA (Green Rating for Integrated Habitat Assessment).
- The Campus area falls within the high rain fall zone of South Kerala. The total average annual rain fall is 300 mm and with 8 months of the year having rain fall 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 Campus. Taking the average rainfall of 300 mm, the total water annually passing through the campus is 90 lakh m^3 while the annual water requirement for the Campus is only 3.65 lakhs m^3 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^3) has already been constructed in the Vattakuzhy thodu on the southern part near the entrance to the Campus.
- A very good rain water harvesting system has been constructed for collecting water from roof of buildings for recharging the ground water.

The major facilities available includes

I. **Academic Complex**

Administrative Block, Computer Centre, Lecturer 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**

Directors 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 & 4 other substations, Sewage Treatment Plant – 2 Nos, Effluent Treatment Plant – 1 No.

The total plinth area of academic complex proposed is 40523 sqm and residential complex is 76477 sqm totaling to 1,17,000 sqm Out of this, in the first phase Academic Complex with a plinth area of 31183 sqm and the Residential complex and other services with an area of 38188 sqm totaling 69371 m² are in the verge of completion. 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

The 26th meeting of Buildings & Works Committee held on 14.11.2014 decided to recommend, entrusting the remaining works of Phase I and Phase II works to Central Public Works Department (CPWD). The MoU was entered with CPWD by IISER TVM on 15.01.2015.

The balance works undertaken by CPWD mainly comprises the following

Construction of Primary School, 4 No. Hostel Blocks (SB3, SB4, SB5, DB1), Indoor Stadium, Substation II, Overhead Tank-II, Entrance Gate, 5 Nos. Housing Blocks (C1, C2, C3, D1 & D2), Roads, Overhead Tank-III, Substation Building III, Physical Science Block, Biological Science Block, Animal House, Concourse, Health Centre, Shopping Complex, Community Welfare Centre has been completed by CPWD and has become functional.

In addition to the above, the works of Guest House, Administrative building, Lecture Hall, Academic Block and landscaping works are progressing under CPWD.

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 has started work on 05.05.2015. The work is monitored by the Project Engineering Department and is progressing steadily. Out of the 05 hostel blocks 03 blocks (A, B, C & D) along with the CDH has been completed amd occupied by students.

The scheduled date of completion of the entire work is fixed as August 2019.

11. STATEMENT OF ACCOUNTS

The Annual Statement of Accounts of IISER Thiruvananthapuram for the year 2018-19 consists of Balance Sheet with Schedules 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 01.04.2018: Rs. 84.34 crore
- The grants received from MHRD during the year: Rs.157.00 crore

Capital Grant: *Rs. 93 crore*

Revenue Grant: *Rs. 64 crore*

- Total fund available for the year 2018-19: Rs. 241.34 crore

Revenue Receipts

The revenue of the institute from Annual Fees & Others for the year is Rs. 3.67 crore.

II. Expenditure

- The amount utilised for acquiring Capital Assets during the year:

Construction, Lab Equipment & Other Assets : Rs. 62.65 crore

- The amount utilised for Revenue Expenditure during the year:

Revenue Expenses : Rs. 63.38 crore

- Total expenditure for the year 2018-19 : Rs.126.03 crore

III. External Projects & Fellowships

- Total grant available during the year: Rs. 28.80 crore
- Utilisation: Rs. 15.54 crore
- Unutilised balance: Rs. 13.26 crore

SEPARATE AUDIT REPORT OF THE COMPTROLLER & AUDITOR GENERAL OF INDIA ON THE AUDIT OF ACCOUNTS OF THE INDIAN INSTITUTE OF SCIENCE, EDUCATION AND RESEARCH (IISER), THIRUVANANTHAPURAM FOR THE YEAR ENDED 31 MARCH 2019

We have audited the attached Balance Sheet of the Indian Institute of Science, Education and Research, Thiruvananthapuram as at 31 March 2019, 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 the 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; and

   iv. We further report that :

A BALANCE SHEET.

A.1 SOURCES OF FUNDS

A.1.1 Corpus/ Capital Fund: ₹ 850.43 crore (Schedule 1)

This includes an amount of `₹ 115.31 crore being unutilized grant, which should have been shown as current liability in the Balance Sheet. This has resulted in overstatement of Capital Fund to the tune of ₹ 115.31 crore with corresponding understatement of Current Liability.

A.1.2 Current Liabilities and provisions (Schedule 3)

(ii) 6 Other Current Liabilities

(d) Unutilised Grants

This is understated by ₹ 0.58 crore (savings account - ₹ 0.30 crore and term deposit - ₹ 0.28 crore) due to non-inclusion of interest earned on deposits of grant-in-aid which should have been remitted back to the Consolidated Fund of India or included as part of Unutilised grant in Current Liability immediately after finalization of accounts vide Rule230(8) of GFR 2017. This has also resulted in overstatement of income to the same extent in Income and Expenditure statement.

(ii) Expenditure relating to 2018-19 for which payment was made in April 2019 on account of purchase of lab consumables and other disposable items worth ₹ 40.2 lakh was not accounted for under Current Liabilities and Provisions for the year 2018-19.

This has resulted in understatement of Current Liabilities & Provisions amounting to ₹ 40.20 lakh with understatement of Expenditure to the same extent in the Income and Expenditure Accounts.

(iii) Sponsored Fellowships & Scholarships ₹ (-) 0.94 crore (Schedule 3B)

Above amount represents the expenditure incurred in excess of the amount received from the external agencies or set aside by the Institution for specific purposes. The excess amount utilized amounting to ₹ 0.94 crore should have been shown as amount receivable under current assets, loans and advances. This has resulted in understatement of liabilities for ₹ 0.94 crore and understatement of Current Asset to the same extent.

A.2 Application of Funds

A.2.1 Fixed Assets

Capital work in progress - ₹ 260.02 crore (Schedule 4)

Out of ₹ 337.15 crore deposited with CPWD for executing six works, CPWD had spent ₹ 333.13 crore towards construction of civil structure and there is a balance of ₹ 4.02 crore with CPWD as on 31.03.2019 vide Expenditure statement (Form 65). Buildings worth ₹ 184.69 crore has already been completed and taken over by IISER.

However, an amount of ₹ 152.46 crore is shown as Advance to CPWD under Loans, Advances and Deposits (Schedule 8, sub-schedule 9) in Application of funds. Out of this, works amounting to ₹ 148.44 crore was under various stages of construction and hence should have been shown under Fixed Assets – Capital Work-in-progress.

This has resulted in understatement of Capital-Work in Progress amounting to ₹ 148.44 crore and overstatement of Loans, Advances, Deposits to the same extent.

B. General

1. The addition to Roads and Bridges during 2018-19 amounting to ₹ 5.18 crore was incorrectly included under the heading 'Buildings'. As there is separate heading for 'Roads and Bridges' in the prescribed format of Accounts, this should have been shown under 'Roads & Bridges' instead of under 'Buildings'.
2. Physical verification of Inventories in hand with user departments/ schools as on 31st March 2019 has not been conducted. The Laboratory chemicals, glassware and other consumables are accounted as expenses at the time of issue to user departments. Inventories in hand with user departments/ schools as at Balance Sheet date has to be verified and value thereof accounted under Current Asset – Stock in the Annual accounts.

C. Grant-in-Aid

IISER TVM received a grant-in-aid of ₹ 157.00 crore from MHRD, Govt. of India during 2018-19. Out of the total grant of ₹ 241.34 crore (including ₹ 84.34 crore being the unspent grant carried forward from previous year) the IISER TVM utilized ₹ 126.03 crore during the year, leaving a balance of ₹ 115.31 crore as on 31.03.2019.

D. Management Letter

The 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.

v. 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.

vi. 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 I 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 2019; and

   b. In so far as it relates to Income & Expenditure Account of the deficit for the year ended on that date.

For and on behalf of the C& AG of India

Sd/-
Principal Director of Audit (C), Chennai

Place : Chennai
Date : 05 March 2020

Annexure I

1. Adequacy of Internal Audit System :

The Internal Audit System is not adequate, as Internal Audit Wing has not been constituted in the Institute. The Internal Audit is done by Chartered Accountants on quarterly basis. However, it does not cover all the activities/ wings of the Institute and therefore not comprehensive.

2. Adequacy of Internal Control System :

There is no internal Audit Wing in the Institute. Institute has not prepared an Audit manual. There is shortfall in conducting meetings of BOG, only two committees were held during 2018-19 against the required four.

3. System of Physical Verification of Assets :

Physical verification of fixed assets has been conducted only up to 2017-2018.

4. System of Physical Verification of Inventory :

Physical verification of stationery items has been completed up to 31.03.2019. However, other inventory items like lab consumables, chemicals etc. were not verified and closing stock value has not been arrived at.

5. Regularity in Payment of Statutory Dues :

The Institute is regular in payment of statutory dues and no dues are pending.

Sd/-

Deputy Director (DT) II

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
BALANCE SHEET AS AT 31st MARCH 2019

(Amount-Rs.)

SOURCES OF FUNDS	Schedule No	2018-19	2017-18
Unrestricted Fund			
Corpus/ Capital Fund	1	8,50,43,61,871	7,92,90,67,480
Designated/ Earmarked Funds	2	-	-
Current Liabilities and Provisions	3	59,33,05,491	59,31,83,655
Unspent Balance of External Projects	3A	13,26,28,379	18,32,24,936
Sponsored Fellowships & Scholarships	3B	(93,63,980)	
Total		**9,22,09,31,761**	**8,70,54,76,071**
Application of Funds			
Fixed Assets	4		
Tangible Assets		4,06,24,20,799	3,79,23,14,866
Intangible Assets		4,07,36,766	5,89,19,113
Capital Work- in-Progress		2,60,02,38,026	2,69,00,66,302
Investments from Earmarked / Endowent Funds	5	-	-
Long Term Investment		-	-
Short Term Investment		-	-
Investment - Others	6	-	-
Current Assets	7	73,22,75,413	92,67,03,525
Loans, Advances & Deposits	8	1,78,52,60,757	1,23,74,72,265
Total		**9,22,09,31,761**	**8,70,54,76,071**
Significant Accounting Policies	23	-	-
Contingent Liabilities And Notes To Accounts	24	-	-

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR ENDED 31st MARCH 2019

(Amount-Rs.)

PARTICULARS	Schedule	2018-19	2017-18
INCOME			
Academic Reciepts	9	3,66,97,980	2,42,69,175
Grants & Subsidies	10	63,37,82,143	72,43,92,535
Income from Investments	11	-	-
Interest Earned	12	30,23,308	39,69,737
Other Income	13	2,38,69,868	4,86,54,563
Prior Period Income	14	-	-
Depreciation Added Back due to change in adopting depreciation rates from Income Tax Act to Companies Act			
TOTAL (A)		**69,73,73,299**	**80,12,86,010**
EXPENDITURE			
Staff Payments & Benefits	15	31,60,49,267	32,73,55,922
Acadamic Expenses	16	11,06,50,799	20,45,51,790
Administrative & General Expenses	17	14,82,00,788	15,20,54,756
Transportation Expenses	18	1,57,04,697	1,84,11,402
Repairs & Maintanence	19	4,17,75,921	2,19,07,983
Finance cost	20	14,00,671	1,10,682
Other Expenses	21	-	-
Depreciation	4	30,26,02,466	23,24,76,169
Prior Period Expenses	22	16,18,08,148	
TOTAL (B)		**1,09,81,92,757**	**95,68,68,704**
Balance being excess of Income over Expenditure (A-B)		**(40,08,19,458)**	**(15,55,82,694)**
Transfer to/ from Designated Fund		-	-
Building Fund		-	-
Others (Specify)		-	-
BALANCE BEING SURPLUS/(DEFICIT) CARRIED TO CAPITAL FUND		**(40,08,19,458)**	**(15,55,82,694)**
Significant Accounting Policies	23	-	-
Contingent Liabilities & Notes on Accounts	24	-	-

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 1- CORPUS/CAPITAL FUND:

(Amount-Rs.)

	2018-19		2017-18	
Balance as at the beginning of the year		7,92,90,67,480		6,36,59,76,822
Add: Contributions towards Corpus/Capital Fund	1,59,96,35,801		2,43,89,59,510	
Add: Grant from UGC, Government of India and State Government to the extent utilised for capital expenditure	62,65,05,924		2,90,97,49,172	
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	1,02,60,191		41,06,377	
Add: Excess of income over expenditure transferred from income and expenditure account	(40,08,19,458)		(15,55,82,694)	
Total		**9,76,46,49,938**		**11,56,32,09,187**
Less: Deficit transferred from the income and expenditure account				
Less: Utilised during the year		1,26,02,88,067		3,63,41,41,707
BALANCE AT THE YEAR-END		**8,50,43,61,871**		**7,92,90,67,480**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDUEL 2-DESIGNATED/ EARMARKED FUNDS

(Amount-Rs.)

	FUND-WISE BREAK UP				TOTAL	
	Fund AAA	Fund BBB	Fund CC	Endowment Funds	2018-19	2017-18
A						
a) Opening balance of the funds						
b) Additions to the Funds:						
c) Income from investments made on account of funds						
d) Accrued interest on investments of the funds						
e) Interest on savings Bank Account						
f) Other additions (specify nature)						
Total (A)	-	-	-	-	-	-
B						
Utilisation/Expenditure towards objectives of funds						
i. Capital Expenditure						
ii. Revenue Expenditure						
Total (B)						
CLOSING BALANCE AS AT THE YEAR-END (A-B)	-	-	-	-	-	-
Represented by						
Cash and bank balances						
Investment						
Interest accrued but not due						
Total	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 2 (A)-ENDOWMENT FUNDS

(Amount-Rs.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Sl. No	Name of the Endowment	Opening Balance		Additions during the year		Total		Expenditure on the object during the year	Closing Balance		Total
		Endowment	Accumulated Interest	Endowment	Interest	Endowment	Accumulated Interest		Endowment	Accumulated Interest	
						(3)+(5)	(4)+(6)				(10)+(11)
1											
	Total	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 3- CURRENT LIABILITIES AND PROVISIONS (Amount-Rs.)

	Sub Sch No.	2018-19	2017-18
A. CURRENT LIABILITIES			
1. Deposits from staff			
2. Deposits from students			
3. Sundry Creditors:			
a) For Goods & Services	1	5,04,817	58,87,247
b) Others	2	13,43,28,169	11,98,66,840
4. Deposits Others (including EMD, Security Deposits)	3	4,64,08,821	5,85,03,805
5. Statutory Liabilities(GPF,TDS,WC TAX, CPF, GIS,NPS) :			
a) Overdue		-	-
b) Others	4	30,36,887	27,06,991
6. Other current Liabilities	5	40,90,26,797	40,62,18,772
a) Salaries		-	-
b) Receipts against sponsored projects		-	-
c) Receipts against sponsored fellowships and scholorships		-	-
d) Unutilised Grants		-	-
e) Grants in advance		-	-
f) Other Funds		-	-
g) Other liablities		-	-
Total (A)		**59,33,05,491**	**59,31,83,655**
B. PROVISIONS			
1. For Taxation		-	-
2. Gratuity		-	-
3. Superannuation/Pension		-	-
4. Accumulated Leave Encashment		-	-
5. Trade Warranties/Claims		-	-
6. Others (Specify)		-	-
Total (B)		-	-
Total (A+B)		**59,33,05,491**	**59,31,83,655**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 3 (a)-ENDOWMENT FUNDS (Sponsored Projects)

(Amount-Rs.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Sl. No	Name of the Project	Opening Balance 2018-19		Receipts / Recoveries during the year	Total	Expenditure during the year	Closing Balance 2018-19	
		Credit	Debit				Credit	Debit
1	CEFIPRA-DR.ARCHANA PAI-IFC/A/5504-1/2016-11	4483	0	158	4641	0	4641	0
2	CSIR-DR.AJAY VENUGOPAL-SB/FT/CS-007/2012	0	16048	16048	0	0	0	0
3	CSIR-DR.D.V.SENT.KUM-03(1400)/17/EMR-11	1489949	0	42510	1532459	1082130	450329	0
4	CSIR-DR.SUKHENDU MANDAL-01(2778)/14/EMR-II	0	0	138209	138209	138209	0	0
5	DAE-DR.M.M.SHAIJUMON-2012/20/34/5/BRNS	0	77482	77482	0	0	0	0
6	DAE-DR RAMESH CHANDRANATH-37(3)/14/26/2017	1247249	0	27496	1274745	1001640	273105	0
7	DAE-DR.TAPAS K MANNA-2013/37B/68/BRNS	182321	0	-182321	0	0	0	0
8	DAE-NBHM-DR.UTPAL MANNA-2/62(1)/2014/ICM	116386	0	-116386	0	0	0	0
9	DBT-A1-DR.HEMASOMANATHAN-BT/PR12720/ COE/34/21/2015	40583	0	393062	433645	350234	83411	0
10	DBT-A2-DR.HEMASOMANATHAN-BT/PR12720/ COE/34/21/2015	451529	0	487251	938780	594010	344770	0
11	DBT-A3-DR.ULLASA.K-BT/PR12720/COE/34/21/2015	391855	0	931868	1323723	532753	790970	0
12	DBT-DR.KALIKA PRASAD-BT/PR3632/BRB/10/977/2011	0	861080	861080	0	0	0	0
13	DBT-DR.MAHESH HARIHARAN-BT/PR/5761/ NNT/28/599/2012	0	616403	1159361	542958	416000	126958	0
14	DBT-DR.NONG.SADAN-BT/RLF-RE-ENTRY/17/2015	961673	0	758914	1720587	988672	731915	0

15	DBT-DR.REJI VARGHESE-BT/PR7030/NNT/28/636/2012	0	209737	209737	0	0	0	0
16	DBT-DR.ULLASA.K-BT/PR7713/NDB/39/261/2013	0	157458	809200	651742	277949	373793	0
17	DBT -IISC-MOHAMMED AIYAZ	583869	0	626000	1209869	565472	644397	0
18	DBT-NER-DR.M.M.SHAIJUMON-BT/350/NE/TBP/2012	0	324324	324324	0	0	0	0
19	DBT-RAMA.LIN.-DR.RAVI.M-BT/RLF/RE-ENTRY/02/2011	20877	0	-20877	0	0	0	0
20	DBT-RICE DR KALIKAPRASAD RESEARCH ASSOCIATESHIP PRG	959446	0	1651138	2610584	1695450	915134	0
21	DBT-SRINIVASAMURTY-BT/PR21325/BRB/10/1554/2016	2898400	0	46260	2944660	1590961	1353699	0
22	DBT-TAPASKUMAR-BT/PR12514/BRB/10/1352/2014-(NEW)	928699	0	1051808	1980507	1478727	501780	0
23	DST-DR.ARCHANA PAI-SR/FTP/PS-041/2010 (G)	18	0	-18	0	0	0	0
24	DST-DR.TAMIL SEL-SR/WOS-A/CS-105/2016(G)	528154	0	457246	985400	913882	71518	0
25	DST-DR.TAPAS K MANNA-SR/SO/BB-45/2010(G)	593059	0	-593059	0	0	0	0
26	DST-FIST-DR MAHESH-5751/IFD/2016-2017	35630178	0	944300	36574478	0	36574478	0
27	DST-FT-DR.ANIL SHAJI(SR/FTP/PS-009/2010)	36605	0	-36605	0	0	0	0
28	DST-INSPIRE FACULTY AWARD-DR.AJAY V-IFA13-CH-88	289307	0	0	289307	289307	0	0
29	DST-INSPIRE FACULTY AWARD-DR.ULLASA.K-IFA13-LS-BM-92	0	1055440	1705440	650000	43190	606810	0
30	DST INSPIRE FACULTY AWARD MAMTHA SAHOO -/2013/PH-66	0	981649	1531643	549994	549994	0	0
31	DST-INSPIRE FACULTY-DR.S.GOKULNATH-FA12-CH-74	0	109417	3543	-105874	1298	0	107172
32	DST-INSPIRE FACULTY-DR.VINAYAK.K-04/2015/002111	0	443738	3215227	2771489	1603209	1168280	0
33	DST-INSPIREFACULTY-MITHUN MUKHER -2012/MA-20/18.10.13	127378	0	4278	131656	73546	58110	0
34	DST-JSPS-DR.NISHANT.K.T(DST/INT/JSPS/EXP-VISIT/13)	37350	0	-37350	0	0	0	0

35	DST-MPG-DR.SHANKARNARAYANAN-IGSTC/MPG/PG(SS)/2011	9257	0	-9257	0	0	0	0
36	DST(NANOMISSION)K GEORGE THOMAS /SR/NM/NS-23/2016-C	42514955	0	6148661	48663616	43491302	5172314	0
37	DST-RAMANUJAN-DR.ANIL SHAJI-SR/S2/RJN-01/2009	827747	0	-827747	0	0	0	0
38	DST-RAMANUJAN-DR.JISHY VARGHESE-SR/S2/RJN-140/2011	1294432	0	45008	1339440	103668	1235772	0
39	DST-RAMANUJAN-DR.K.M.SURESHAN-SR/S2/RJN-23/2009	0	1780476	1780476	0	0	0	0
40	DST-RAMANUJAN-DR.RAMESH RASAPPAN-SB/S2/RJN-059/2015	0	475658	1007006	531348	801428	0	270080
41	DST-RAMANUJAN-DR.RAVI PANT-SB/S2/RJN-069/2014	0	62667	927631	864964	358432	506532	0
42	DST-RAMANUJAN-DR.REJI VARGHESE-SR/S2/RJN-75/2010(G)	73707	0	-53707	20000	20000	0	0
43	DST-RAMANUJAN-DR.SHANKARNARAYANAN-SR/S2/RJN-50/2009	488526	0	-488526	0	0	0	0
44	DST-RAMANUJAN-RAJEN.GORETI-SB/S2/RJN-071/2015	137540	0	769621	907161	784692	122469	0
45	DST-RFBR-DR.ULLASA.K-INT/RUS/RFBR/P-155	0	1482757	1482757	0	0	0	0
46	DST SERB-ANIL SHAJI-EMR/2016/007221	864500	0	27775	892275	739663	152612	0
47	DST- SERB-DR.ALA.KALIYAMOORTY-EEQ/2016/000231	210394	0	585310	795704	647676	148028	0
48	DST-SERB -DR.DEEPSHIKA JAISWAL NAGAR-YSS/2015/001743	0	124742	709693	584951	522180	62771	0
49	DST-SERB-DR.GOKULNATH--SB/FT/CS-094/2014	271357	0	805734	1077091	711498	365593	0
50	DST SERB-DR.M.M.SHAIJUMON-EMR/2017/000484	1758493	0	526392	2284885	2158965	125920	0
51	DST-SERB-FT-DR.AYAN DATTA (SR/FT/CS-038/2008)	136490	0	-136490	0	0	0	0
52	DST SERB PROJECT -RAJENDAR GORETI/ECR/2016/001580	0	413695	1516684	1102989	869449	233540	0
53	DST-SERI-DR.MANOJ.A.G.N-DST/TM/SERI/2K11/73(C)	26641	0	-21901	4740	4740	0	0
54	DST-SERI-DR MANOJ NAMB-DST/MD/SERI/S15(C&G)	3758747	0	1547219	5305966	1239452	4066514	0

55	DST-SJF-DR.K.M.SURESHAN-DST/SJF/CSA-02/2012-13	9542410	0	1337388	10879798	7675037	3204761	0
56	DST-SJF-DR.SUNISH.K RADHAKRISH-DST/SJF/LSA-01/14-15	17034598	0	649884	17684482	1960310	15724172	0
57	DST-TMD-MES-DR.M.M SHAIJUMON-2K16/114(G)	4229920	0	2527743	6757663	5466788	1290875	0
58	DST-UKIERI-DR.HEMA SOMANATHAN-DST/INT/UK/P-99/2014	104792	0	-104792	0	0	0	0
59	DUPONT YOUNG PROFESSOR PROGRAM-DR.RAVI.M	1260031	0	0	1260031	9917	1250114	0
60	INDO-ITLIAN-DR.MAHESH HARI-INT/ITALY/P-2016(ER)	150071	0	196545	346616	198563	148053	0
61	ISRO-DR DEEPSHIKA -DS-2B-13012(2)/42/2017	1586900	0	18118	1605018	1698135	0	93117
62	ISRO-DR. DEEPSHIKHA JAISWAL NAGAR. / 19012/35/2016-II	1826860	0	36622	1863482	1737862	125620	0
63	IUSSTF-DR.M.M.SHAIJUMON-IUSSTF/JC/22-2012/2013-14	285757	0	-285757	0	0	0	0
64	JC BOSE-DR.K.GEORGE THOMAS-SB/S2/JCB-64/2013	0	808783	2700000	1891217	1647291	243926	0
65	KSCSTE-DR.MAHESH HARIHARAN-007/KSYSA-RG/2014/CSTE	2450228	0	1508672	3958900	3653183	305717	0
66	KSCSTE(KSYSA)-DR.REJI VARG-008/KSYSA-RG/2015/CSTE	629660		864481	1494141	1049886	444255	
67	MHRD-COE-DR.AMAL MEDHI-(FN.NO.5-5/2014-TS.VII)	15172162	0	247477	15419639	15527200	0	107561
68	NISSAN-RNTBCI-DR.M.M.SHAIJUMON	0	100046	100046	0	0	0	0
69	RAENG-DR.JOY MITRA	2019636	0	0	2019636	239939	1779697	0
70	SERB-BIKAS.C.DAS-ECR/2017/000630 (NEW)	1565000	0	234724	1799724	1670559	129165	0
71	SERB-BIKAS CHANDRADAS-EEQ/2016/000045	3827877	0	409658	4237535	4014304	223231	0
72	SERB-CHIRANJEEVI.P-SERB/F/7728/2016-17	440418	0	15579	455997	0	455997	0
73	SERB-DR.AJAY VENUGOPAL-SB/FT/CS-007/2012	212479	0	-212479	0	0	0	0
74	SERB-DR.A.KALIAMOORTHY-ECR/2016/000202	488093	0	1312191	1800284	1338844	461440	0

75	SERB-DR JISHY VARGHESE-EMR/2016/004978	800000	0	12037	812037	850641	0	38604
76	SERB-DR.JOY MITRA-SR/S2/CMP-0139/2012	0	93172	93172	0	0		0
77	SERB-DR.MADHU THALAKULAM-SB/S2/CMP-008/2014	1864649	0	1548229	3412878	873162	2539716	0
78	SERB-DR.MAHESH HARIHARAN-SR/FT/CS-67/2011	21000	0	-21000	0	0	0	0
79	SERB-DR.RAJEEV.N.KINI-SR/FTP/PS-173/2011	0	573811	573811	0	0	0	0
80	SERB-DR.RAMESH RASAPPAN-EMR/2015/001103	191042	0	205599	396641	238426	158215	0
81	SERB-DR.RAVI PANT-EMR/2015/000363	0	128518	195082	66564	325	66239	0
82	SERB-DR.R.S. SWATHI/SB/WEA-14/2016	0	134763	708023	573260	129695	443565	0
83	SERB-DR.SUKHENDUMANDAL-EMR/2016/007501(NEW)	0	49000	6380893	6331893	1088955	5242938	0
84	SERB-DR.SUKHENDU MANDAL-SB/S1/IC-14/2013	0	1118265	1118265	0	0	0	0
85	SERB-DR.TAPAS K MANNA-EMR/2016/001562	2326201	0	44074	2370275	2407812	0	37537
86	SERB-DR.VINESH VIJAYAN-EMR/2015/000111	363520	0	207859	571379	444834	126545	0
87	SERB-DR.V.SIVARANJANA-ECR/2016/000226	784604	0	45574	830178	214511	615667	0
88	SERB-HEMA SOMANATHAN/EMR/2014/000705	731569	0	14086	745655	220960	524695	0
89	SERB-IMPRINT DR GEORGE THOMAS SR/S9/Z-05/2015	7929072	0	4530016	12459088	6992952	5466136	0
90	SERB PROJECT DR.SUHESH KUMAR/ECR/2016/001232	13900	0	761718	775618	524361	251257	0
91	SERB PROJECT-SAIKAT CHATTERJEE/YSS/2015/001687	170477	0	6514	176991	52960	124031	0
92	SERB-THIRUMURUGAN.A-EMR/2016/002637	686032	0	565508	1251540	775832	475708	0
93	UGC-UKEIRI-JOYMITRA-184-16/2017(IC)-NEW	878700	0	15380	894080	425145	468935	0
94	UGC-UKIERI-DR.JOY MITRA-184-26/2014(IC)	0	197743	0	-197743	0	0	197743

95	WT-DBT-DR.SATISH KHURANA-IA/1/15/2/502061	10810661	0	4333816	15144477	9372651	5771825	0
96	WT-DBT-NISHA KANNAN/1A/E/15/1/502329	1609190	0	3035243	4644433	3172797	1471636	0
97	GE INDIA INDUSTRIAL PVT LTD PROJECT-DR.RAJEEV KINI	0	0	380901	380901	12345	368556	0
98	CSIR-CCMB-DR.RAVI MARUTHACHALAM	0	0	1200000	1200000	0	1200000	0
99	CSIR- DR.TAPAS K MANNA-37(1433)/10/EMR-II	0	0	460930	460930	268025	192905	0
100	DBT-DR.REJI VARGHESE-BT/PR30172/ MNT/28/1593/2018NEW	0	0	1586976	1586976	23344	1563632	0
101	DBT-DR.ULLASA-BT/PR27535/2018	0	0	903581	903581	277711	625870	0
102	DST-INSPIRE FACULTY AWARD-DR.SRILAKSHMI-2013/ MA-23	0	0	424786	424786	389273	35513	0
103	DST-NM-DR.VINAYAK KAMBLE-DST/NM/NT/2018/124	0	0	2000218	2000218	258535	1741683	0
104	ICAR-DR.RAVI M-NASF/GT-7024/2018-19	0	0	1140015	1140015	958314	181701	0
105	IUSSTF-SHAIJUMON-JC-071/2017	0	0	363558	363558	356055	7503	0
106	KSCSTE(KSYSA)RAJEEV N KINI-KSCSTE-431/2018-KSYSA-RG	0	0	2699717	2699717	2318442	381275	0
107	KSCSTE-SWATHI-430/2018	0	0	1798752	1798752	110670	1688082	0
108	NBHM-PDF-DR.T.KATHIRAVAN	0	0	465422	465422	324000	141422	0
109	SERB-DR.BINDUSAR SAHOO-CRG/2018/002373	0	0	981500	981500	0	981500	0
110	SERB-DR.DEVARAJ-MTR/2018/000559	0	0	220000	220000	0	220000	0
111	SERB-DR.GEETHA T -MTR/2017/000424	0	0	224370	224370	20000	204370	0
112	SERB-DR.K.M.SURESHAN-CRG/2018/000577	0	0	1366300	1366300	0	1366300	0
113	SERB-DR-NISHANT K T-CRG/2018/000916	0	0	1220000	1220000	0	1220000	0
114	SERB-DR.N.SADANANDA SINGH-ECR /2016/000979	0	0	1405370	1405370	861030	544340	0

115	SERB-DR.SAIKAT-MTR/2018/000528	0	0	220063	220063	0	220063	0
116	SERB-DR.SARBESWAR PAL-EMR/2015/002172	0	0	215420	215420	162206	53214	0
117	SERB-DR.SRINIVASA MURTY/EMR/2016/008048	0	0	1397746	1397746	847305	550441	0
118	SERB-DR.SUBRATAKUNDU-ECR/2017/003200	0	0	2745551	2745551	2648831	96720	0
119	SERB-DR.SUMIT MOHANTY/MTR/2017/000458	0	0	224091	224091	42163	181928	0
120	SERB-DR.MADHU THALAKULAM - CRG/2018/004213-NEW	0	0	3778000	3778000	0	3778000	0
121	SERB-DR.SADANADA-EEQ/2018/001090	0	0	2125000	2125000	0	2125000	0
122	SERB-UTPAL MANNA-MTR/2018/000034	0	0	220000	220000	0	220000	0
123	SERB-VINAYAK KAMBLE-EEQ/2018/000769-NEW	0	0	3086396	3086396	0	3086396	0
124	SERB-WOS-A-SMITHA VISHNU-LS-457/2017(G)	0	0	1055000	1055000	0	1055000	0
125	UGC-UKIERI-BIKAS CHANDRA DAS-4(I)/P-3Y-42/C	0	0	805856	805856	424860	380996	0
126	OTHERS	3722146	0	1346349	5068495	2801007	2267488	0
	Total	**19,56,21,809**	**1,23,96,872**	**10,48,21,173**	**28,80,46,110**	**15,54,17,731**	**13,34,80,193**	**8,51,814**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 3 (b)-SPONSORED FELLOWSHIPS AND SCHOLARSHIPS

(Amount-Rs.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Sl. No	Name of the Sponsor	Opening Balance as on 01.04.2018		Transactions during the year		Closing Balance as on 31.03.2019	
		Credit	Debit	Credit	Debit	Credit	Debit
1	DST - INSPIRE - BSMS/PHD	-	2,97,60,304	4,20,33,089	2,14,18,625	-	91,45,840
2	CSIR (Ph D Research Scholars)	2,33,333	-	3,69,185	45,486	5,57,032	-
3	KVPY (BSMS)	-	4,40,686	9,06,000	18,98,000	-	14,32,686
4	UGC (Ph D Research Scholars)	6,58,562	-	75,000	9,976	7,23,586	-
5	DBT (Ph D Research Scholar)	-	3,50,800	3,39,000	78,366	-	90,166
6	ICMR (Ph D Research Scholar)	24,094	-	-	-	24,094	-
	Total	**9,15,989**	**3,05,51,790**	**4,37,22,274**	**2,34,50,453**	**13,04,712**	**1,06,68,692**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 3(c)-UNUTILIZED GRANTS FROM UGC, GOVERNMENT OF INDIA AND STATE GOVERNMENTS

(Amount-Rs.)

	2018-19	2017-18
A. Plan grants: Government of India (MHRD)		
Balance B/F	84,34,04,958	2,00,38,71,438
Add: Receipts during the year	1,57,00,00,000	2,42,53,00,000
Total (a)	2,41,34,04,958	4,42,91,71,438
Less Refunds		
Less: Utilized for Revenue Expenditure	63,37,82,143	67,60,17,308
Less: Utilized for Capital Expenditure	62,65,05,924	2,90,97,49,172
Total (b)	1,26,02,88,067	3,58,57,66,480
Unutilized carried forward (a-b)	1,15,31,16,891	84,34,04,958
B. UGC Grants: Plan		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (c)	NIL	NIL
Less Refunds		
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (d)	NIL	NIL
Unutilized carried forward (c-d)		
C. UGC Grants Non-Plan		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (e)	NIL	NIL
Less Refunds		
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (f)	NIL	NIL
Unutilized carried forward (e-f)		
D. Grants from State Govt.		
Balance B/F	-	-
Add: Receipts during the year	-	-
Total (g)	NIL	NIL
Less Refunds		
Less: Utilized for Revenue Expenditure	-	-
Less: Utilized for Capital Expenditure	-	-
Total (h)	NIL	NIL
Unutilized carried forward (g-h)		
Grand Total (A+B+C+D)	**1,15,31,16,891**	**84,34,04,958**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4 - FIXED ASSETS (PLAN) (Amount-Rs.)

	DESCRIPTION	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
	TANGIBLE ASSETS											
1	LAND:	-	-	-	-	-	-	-	-	-	-	-
	a) Freehold	-	-	-	-	-	-	-	-	-	-	-
	Land obtained from Govt	1	-	-	1	0.00%	-	-	-	-	1	1
	Vithura	9,54,506	-	-	9,54,506	0.00%	-	-	-	-	9,54,506	9,54,506
2	Site Development	-	-	-	-	-	-	-	-	-	-	-
3	BUILDINGS:	2,30,66,09,164	18,28,13,622	-	2,48,94,22,786	2.00%	5,93,23,755	4,97,88,456	9,85,488	11,00,97,699	2,37,93,25,087	2,24,72,85,409
4	Roads & Bridges	-	-	-	-	2.00%	-	-	-	-	-	-
5	Tubes & Water Supply	-	11,28,215	-	11,28,215	2.00%	-	84,616	-	84,616	10,43,599	-
6	Sewage & Drainage	-	-	-	-	2.00%	-	-	-	-	-	-
7	Electrical Installation and equipment	1,94,38,553	1,89,44,715	-	3,83,83,268	5.00%	53,05,251	19,19,163	8,07,885	80,32,299	3,03,50,969	1,41,33,302
8	Plant and Machinery	5,39,03,468	-	-	5,39,03,468	5.00%	1,03,22,062	26,95,173	14,67,970	1,44,85,205	3,94,18,263	4,35,81,406
9	Scientific & Laboratory Equipment	1,69,85,86,172	33,35,39,470	-	2,03,21,25,642	8.00%	39,31,56,371	16,25,70,051	11,08,43,030	66,65,69,452	1,36,55,56,190	1,30,54,29,801
10	Office Equipment	-	68,04,321	-	68,04,321	7.50%	-	5,10,324	-	5,10,324	62,93,997	-
11	Audio Visual Equipment	-	44,997	-	44,997	7.50%	-	3,375	-	3,375	41,622	-
12	Computers & Peripherals	16,26,12,002	1,05,38,524	-	17,31,50,526	20.00%	7,00,22,509	1,72,49,936	1,68,78,336	10,41,50,781	6,89,99,745	9,25,89,493
13	Furniture, Fixtures and Fittings	9,80,79,439	10,68,74,058	2,90,680	20,46,62,817	7.50%	2,53,85,663	1,53,49,711	57,92,560	4,65,27,934	15,81,34,883	7,26,93,776
14	VEHICLES	31,52,898	-	-	31,52,898	10.00%	7,00,890	2,45,185	2,48,423	11,94,498	19,58,400	24,52,008
15	Library Books & Scientific Journals	2,45,87,971	43,36,788	-	2,89,24,759	10.00%	1,13,92,807	27,90,937	43,97,478	1,85,81,222	1,03,43,537	1,31,95,164
16	Small Value Assets	-	-	-	-	-	-	-	-	-	-	-
	Total (A)	**4,36,79,24,174**	**66,50,24,710**	**2,90,680**	**5,03,26,58,204**		**57,56,09,308**	**25,32,06,927**	**14,14,21,170**	**97,02,37,405**	**4,06,24,20,799**	**3,79,23,14,866**
17	CAPITAL WORK-IN PROGRESS - Construction	2,42,77,40,482	26,54,98,166	20,67,61,600	2,48,64,77,048	-	-	-	-	-	2,48,64,77,048	2,42,77,40,482
17	CAPITAL WORK-IN PROGRESS - Lab Equipment	26,23,25,820	13,32,39,328	28,18,04,170	11,37,60,978	-	-	-	-	-	11,37,60,978	26,23,25,820
	CAPITAL WORK IN PROGRESS (B)										**2,60,02,38,026**	**2,69,00,66,302**
	Total A+B										**6,66,26,58,825**	**6,48,23,81,168**

S. No.	INTANGIBLE ASSETS	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Amortization for the year	Deductions / Adjustment	Total Amortization / Adjustments	31.03.2019	31.03.2018
18	Computer Software	1,91,72,607	59,000	-	1,92,31,607	40.00%	1,68,71,225	12,85,800	6,38,797	1,87,95,822	4,35,785	23,01,382
19	E-Journals	33,33,02,195	5,13,64,670	-	38,46,66,865	40.00%	27,66,84,464	4,80,90,128	1,97,48,181	34,45,22,773	4,01,44,092	5,66,17,731
20	Patents	-	1,76,500	-	1,76,500	9 Years	-	19,611	-	19,611	1,56,889	-
	Total -(C)	**35,24,74,802**	**5,16,00,170**	**-**	**40,40,74,972**	-	**29,35,55,689**	**4,93,95,539**	**2,03,86,978**	**36,33,38,206**	**4,07,36,766**	**5,89,19,113**
	Grand Total (A+B+C)	**7,41,04,65,278**	**1,11,53,62,374**	**48,88,56,450**	**8,03,69,71,202**	-	**86,91,64,997**	**30,26,02,466**	**16,18,08,148**	**1,33,35,75,611**	**6,70,33,95,591**	**6,54,13,00,281**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4 B FIXED ASSETS (NON PLAN) (Amount-Rs.)

	DESCRIPTION	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
	TANGIBLE ASSETS											
1	LAND:											
	a) Freehold											
	Land obtained from Govt Vithura											
2	Site Development											
3	BUILDINGS:											
4	Roads & Bridges											
5	Tubes & Water Supply											
6	Sewage & Drainage											
7	Electrical Installation and equipment											
8	Plant and Machinery											
9	Scientific & Laboratory Equipment											
10	Office Equipment											
11	Audio Visual Equipment											
12	Computers & Peripherals											
13	Furniture, Fixtures and Fittings											
14	VEHICLES											
15	Library Books & Scientific Journals											
16	Small Value Assets											
	Total (A)	-	-	-	-	-	-	-	-	-	-	-
17	**CAPITAL WORK-IN PROGRESS (B)**											

S. No.	INTANGIBLE ASSETS	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Amortization for the year	Deductions / Adjustment	Total Amortization / Adjustments	31.03.2019	31.03.2018
18	Computer Software											
19	E-Journals											
20	Patents											
	Total-(C)	-	-	-	-		-	-	-	-	-	-
	Grand Total (A+B+C)	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4 A - FIXED ASSETS (PLAN+NON PLAN) (Amount-Rs.)

	DESCRIPTION	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
	TANGIBLE ASSETS											
1	LAND:	-	-	-	-	-	-	-	-	-	-	-
	a) Freehold	-	-	-	-	-	-	-	-	-	-	-
	Land obtained from Govt	1	-	-	1	0.00%	-	-	-	-	1	1
	Vithura	9,54,506	-	-	9,54,506	0.00%	-	-	-	-	9,54,506	9,54,506
2	Site Development	-	-	-	-	-	-	-	-	-	-	-
3	BUILDINGS:	2,30,66,09,164	18,28,13,622	-	2,48,94,22,786	2.00%	5,93,23,755	4,97,88,456	9,85,488	11,00,97,699	2,37,93,25,087	2,24,72,85,409
4	Roads & Bridges	-	-	-	-	2.00%	-	-	-	-	-	-
5	Tubes & Water Supply	-	11,28,215	-	11,28,215	2.00%	-	84,616	-	84,616	10,43,599	-
6	Sewage & Drainage	-	-	-	-	2.00%	-	-	-	-	-	-
7	Electrical Installation and equipment	1,94,38,553	1,89,44,715	-	3,83,83,268	5.00%	53,05,251	19,19,163	8,07,885	80,32,299	3,03,50,969	1,41,33,302
8	Plant and Machinery	5,39,03,468	-	-	5,39,03,468	5.00%	1,03,22,062	26,95,173	14,67,970	1,44,85,205	3,94,18,263	4,35,81,406
9	Scientific & Laboratory Equipment	1,69,85,86,172	33,35,39,470	-	2,03,21,25,642	8.00%	39,31,56,371	16,25,70,051	11,08,43,030	66,65,69,452	1,36,55,56,190	1,30,54,29,801
10	Office Equipment	-	68,04,321	-	68,04,321	7.50%	-	5,10,324	-	5,10,324	62,93,997	-
11	Audio Visual Equipment	-	44,997	-	44,997	7.50%	-	3,375	-	3,375	41,622	-
12	Computers & Peripherals	16,26,12,002	1,05,38,524	-	17,31,50,526	20.00%	7,00,22,509	1,72,49,936	1,68,78,336	10,41,50,781	6,89,99,745	9,25,89,493
13	Furniture, Fixtures and Fittings	9,80,79,439	10,68,74,058	2,90,680	20,46,62,817	7.50%	2,53,85,663	1,53,49,711	57,92,560	4,65,27,934	15,81,34,883	7,26,93,776
14	VEHICLES	31,52,898	-	-	31,52,898	10.00%	7,00,890	2,45,185	2,48,423	11,94,498	19,58,400	24,52,008
15	Library Books & Scientific Journals	2,45,87,971	43,36,788	-	2,89,24,759	10.00%	1,13,92,807	27,90,937	43,97,478	1,85,81,222	1,03,43,537	1,31,95,164
16	Small Value Assets	-	-	-	-	-	-	-	-	-	-	-
	TOTAL (A)	**4,36,79,24,174**	**66,50,24,710**	**2,90,680**	**5,03,26,58,204**	-	**57,56,09,308**	**25,32,06,927**	**14,14,21,170**	**97,02,37,405**	**4,06,24,20,799**	**3,79,23,14,866**
17	CAPITAL WORK-IN PROGRESS - Construction	2,42,77,40,482	26,54,98,166	20,67,61,600	2,48,64,77,048	-	-	-	-	-	2,48,64,77,048	2,42,77,40,482
17	CAPITAL WORK-IN PROGRESS - Lab Equipment	26,23,25,820	13,32,39,328	28,18,04,170	11,37,60,978	-	-	-	-	-	11,37,60,978	26,23,25,820
	CAPITAL WORK IN PROGRESS (B)										**2,60,02,38,026**	**2,69,00,66,302**
	Total A+B										**6,66,26,58,825**	**6,48,23,81,168**

S.No.	INTANGIBLE ASSETS	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Amortization for the year	Deductions / Adjustment	Total Amortization / Adjustments	31.03.2019	31.03.2018
18	Computer Software	1,91,72,607	59,000	-	1,92,31,607	40.00%	1,68,71,225	12,85,800	6,38,797	1,87,95,822	4,35,785	23,01,382
19	E-Journals	33,33,02,195	5,13,64,670	-	38,46,66,865	40.00%	27,66,84,464	4,80,90,128	1,97,48,181	34,45,22,773	4,01,44,092	5,66,17,731
20	Patents	-	1,76,500	-	1,76,500	9 Years	-	19,611	-	19,611	1,56,889	-
	Total -(C)	**35,24,74,802**	**5,16,00,170**	**-**	**40,40,74,972**	-	**29,35,55,689**	**4,93,95,539**	**2,03,86,978**	**36,33,38,206**	**4,07,36,766**	**5,89,19,113**
	Grand Total (A+B+C)	**7,41,04,65,278**	**1,11,53,62,374**	**48,88,56,450**	**8,03,69,71,202**		**86,91,64,997**	**30,26,02,466**	**16,18,08,148**	**1,33,35,75,611**	**6,70,33,95,591**	**6,54,13,00,281**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4 C - INTANGIBLE ASSETS

(Amount-Rs.)

Sl No	DESCRIPTION	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
1	Computer Software											
2	E-Journals											
3	Patents											
	Total -(C)	-	-	-	-		-	-	-	-	-	-
	Grand Total (A+B+C)	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4C (i)- PATENTS AND COPYRIGHTS

(Amount-Rs.)

Description	Op. Balance	Addition	Gross	Amortization	Net Block 2018-19	Net Block 2017-18
A. Patents Granted						
1. Balance as on 31.03.18 of patents obtained in (Original value- Rs. ……/-						
2. Balance as on 31.03.18 of patents obtained in Original value- Rs. ……/-						
3.. Balance as on 31.03.18 of patents obtained in (Original value- Rs. ……/-						
4. Patents granted during the Current Year						
Total	-	-	-	-	-	-
Description	**Op. Balance**	**Addition**	**Gross**	**Patents Granted/ Rejected**	**Net Block 2018-19**	**Net Block 2017-18**
B. Patents Pending in respect of Patent applied for						
Total	-	-	-	-	-	-
C. Grand Total (A+B)	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 4 D FIXED ASSETS (OTHERS)

(Amount-Rs.)

No.	DESCRIPTION	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
	TANGIBLE ASSETS											
1	LAND:											
	a) Freehold											
	Land obtained from Govt											
	Vithura											
2	Site Development											
3	BUILDINGS:											
4	Roads & Bridges											
5	Tubes & Water Supply											
6	Sewage & Drainage											
7	Electrical Installation and equipment											
8	Plant and Machinery											
9	Scientific & Laboratory Equipment											
10	Office Equipment											
11	Audio Visual Equipment											
12	Computers & Peripherals											
13	Furniture, Fixtures and Fittings											
14	VEHICLES											
15	Library Books & Scientific Journals											
16	Small Value Assets											
	Total (A)	-	-	-	-	-	-	-	-	-	-	-
17	**CAPITAL WORK-IN PROGRESS (B)**											

S.No.	INTANGIBLE ASSETS	GROSS BLOCK				DEPRECIATION					NET BLOCK	
		Opening Balance as on 01.04.2018	Additions	Deductions	Closing Balance	Rate of Depreciation	Opening Balance	Depreciation for the year	Deductions / Adjustment	Total Depreciation	31.03.2019	31.03.2018
18	Computer Software											
19	E-Journals											
20	Patents											
	Total -(C)	-	-	-	-		-	-	-	-	-	-
	Grand total (A+B+C)	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 5- INVESTMENTS

(Amount-Rs.)

INVESTMENTS FROM EARMARKED/ENDOWMENT FUNDS	2018-19	2017-18
1. In Central Government Securities		
2. In State Government Securities		
3. Other approved Securities		
4. Shares		
5. Debentures and Bonds		
6. Term Deposits with bank		
7. Others (to be specified)		
Total	**NIL**	**NIL**

SCHEDULE 5 (A)- INVESTMENTS FROM EARMARKED/ ENDOWMENT FUNDS (FUND WISE)

(Amount-Rs.)

	2018-19	2017-18
1. Endowment Fund Investment		
Total	**NIL**	**NIL**

SCHEDULE 6 - INVESTMENTS OTHERS

(Amount-Rs.)

	2018-19	2017-18
1. In Central Government Securities		
2. In State Government Securities		
3. Other approved Securities		
4. Shares		
5. Debentures and Bonds		
6. Others (to be specified)		
Total	**NIL**	**NIL**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 7- CURRENT ASSETS

(Amount-Rs.)

	Sub Sch. No.	2018-19	2017-18
1. Stock			
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	-	-	-
2. Sundry Debtors:			
a) Debts Outstanding for a period exceeding six months	-	-	-
b) Others	-	-	-
3. Cash balances in hand (including cheques/drafts and imprest)	6		
4. Bank Balances:			
Institute balance			
a) With Scheduled Banks:			
-On Current Accounts	7	47,56,656	26,49,258
-On Term Deposit Accounts (includes margin money)	7	56,87,37,129	58,02,54,370
-On Savings Accounts	7	5,59,74,106	15,04,52,453
b) With non-Scheduled Banks:			
-On Current Accounts	-	-	-
-On Term Deposit Accounts	-	-	-
-On Savings Accounts	-	-	-
Project Balance			
a) With Scheduled Banks:			
-On Current Accounts	-	-	-
-On Term Deposit Accounts (includes margin money)	7	32,50,000	39,92,000
-On Savings Accounts	7	9,95,57,522	18,93,55,444
b) With non-Scheduled Banks:			
-On Current Accounts	-	-	-
-On Term Deposit Accounts	-	-	-
-On Savings Accounts	-	-	-
5. Post Office- Savings Accounts			
Total		**73,22,75,413**	**92,67,03,525**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

SCHEDULE 8- LOANS, ADVANCES & DEPOSITS

(Amount-Rs.)

	Sub Sch. No.	2018-19	2017-18
1. Advances to employees: (Non interest bearing)			
a) Salary	-	-	-
b) Festival	-	-	-
c) Medical Advance	-	-	-
d) Other (to be specified)	-	-	-
2. Long Term Advances to employees: (Interest bearing)			
a) Vehicle Loan	-	-	-
b) Home Loan	-	-	-
c) Others (to be specified)	-	-	-
3. Advances and other amounts recoverable in cash or in kind or for value to be received			
a) On Capital Account	-	-	-
b) To suppliers	-	-	-
c) Others	9	1,62,25,96,771	81,05,18,612
4. Prepaid Expenses			
a) Insurance	-	-	-
b) Other Expenses	8	1,76,36,931	1,48,04,293
5. Deposits			
a) Telephone	-	-	-
b) Lease Rent	-	-	-
c) Electricity	-	-	-
d) AICTE, if applicable	-	-	-
e) Others (to be specified)	-	-	-
6. Income Accrued:			
a) On Investments from Earmarked/Endowment Funds	-	-	-
b) On Investments-Others	-	-	-
c) On Loans and Advances	-	-	-
d) Others (includes income due unrealized-Rs……)	10	2,76,40,730	3,88,15,024
7. Other Current Assets Recievables			
a) Debit balances in sponsered projects	-	-	-
b) Debit balances in fellowship & scholarships	-	-	-
c) Grants recoverable	-	-	-
d) Other recievables	-	-	-
e) TDS	-	3,34,675	-
8. Claims Receivable	11	11,70,51,650	37,33,34,336
Total		**1,78,52,60,757**	**1,23,74,72,265**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/ YEAR ENDED 31st MARCH 2019

SCHEDULE 9 - ACADEMIC RECEIPTS

(Amount-Rs.)

	2018-19	2017-18
FEE FROM STUDENTS		
Academic		
a) Tuition fee	3,08,92,325	2,06,37,930
b) Admission fee	-	-
c) Enrolment fee	-	-
d) Library fee	6,19,875	5,30,800
e) Laboratory fee	-	-
f) Art & Craft fee	-	-
g) Registration fee	5,06,250	3,82,050
h) Syllabus fee	-	-
i) Other Receipts	7,46,955	8,90,550
j) Alumini Fee	2,35,500	2,20,500
Total(A)	**3,30,00,905**	**2,26,61,830**
Examinations		
a) Admission test fee	-	-
b) Annual examination fee	7,32,575	6,65,345
c) Mark sheet, Certificate fee	-	-
d) Entrance Examination fee	-	-
Total (B)	**7,32,575**	**6,65,345**
Other Fee		
a) Identity Card fee	-	-
b) Fine/ Miscellaneous fee	-	-
c) Medical fee	-	-
d)Transportation fee	-	-
e)Hostel Fee	17,51,850	1,57,000
f)Mess Establishment	12,12,650	7,85,000
Total(C)	**29,64,500**	**9,42,000**
Sale of publications		
a) Sale of admission forms	-	-
b) Sale of syllabus and question paper	-	-
c) Sale of prospectus including admission forms	-	-
TOTAL (D)	-	-
Other Accademic Receipts		
a) Registration fee for workshops programmes	-	-
b) Registration fees (Academic Staff College)	-	-
Grand Total (A+B+C+D)	**3,66,97,980**	**2,42,69,175**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/ YEAR ENDED 31st MARCH 2019

SCHEDULE 10 - GRANTS/ SUBSIDIES

(Amount-Rs.)

(Irrevocable Grants & Subsidies Received)		2018-19	2017-18
Balance B/F		**81,37,69,158**	**2,00,89,51,355**
ADD: Receipts During the Year			
Capital Grant		1,57,00,00,000	2,42,53,00,000
General	76,27,23,900		
SC	11,17,17,400		
ST	5,55,58,700		
Revenue Grant		-	-
General	53,56,59,750		
SC	7,00,16,000		
ST	3,43,24,250		
DST - INSPIRE (BSMS)		-	-
CSIR (Ph D Research Scholars)		-	95,03,919
KVPY (BSMS)		-	35,82,000
UGC (Ph D Research Scholar)		-	33,600
DBT		-	3,55,000
ICMR		-	1,84,991
Other Adjustments		2,96,35,801	-
		2,41,34,04,959	**4,44,79,10,865**
Less: Capital Expenses Incurred during the year		62,65,05,924	2,90,97,49,172
Less: Closing Unspent balance of grant		1,15,31,16,892	81,37,69,158
		63,37,82,143	**72,43,92,535**
Total		**63,37,82,143**	**72,43,92,535**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF INCOME AND
EXPENDITURE ACCOUNT FOR THE PERIOD/YEAR ENDED
31st MARCH 2019

SCHEDULE 11 - INCOME FROM INVESTMENTS (Amount-Rs.)

	Earmarked or Endownment funds		Other investments	
	2018-19	**2017-18**	**2018-19**	**2017-18**
1) Interest				
a) On Govt. Securities				
b) Other Bonds/Debentures				
2) Interest on term deposits				
3) Income Accrued but not due on term deposits or interest bearing advances to employees				
4) Interest on Savings Bank Accounts				
5) Others (Specify)				
Total	**NIL**	**NIL**	**NIL**	**NIL**
TRANSFERRED TO EARMARKED/ ENDOWMENT FUNDS				
Balance	NIL	NIL	NIL	NIL

SCHEDULE 12- INTEREST EARNED (Amount-Rs.)

Particulars	**2018-19**	**2017-18**
1) On Savings Accounts with scheduled banks	30,23,308	39,69,737
2) On Loans		
a. Employees/ Staff	-	-
b. Others	-	-
3) On debtors and others receivables		
Total	**30,23,308**	**39,69,737**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/ YEAR ENDED 31st MARCH 2019

SCHEDULE 13 - OTHER INCOME

(Amount-Rs.)

	2018-19	2017-18
A. Income from Land & Building		
a) Hostel room rent	53,80,180	39,36,050
b) License fee	2,79,295	8,47,485
c) Hire charges of Auditorium/ Play ground/ Convention Centre, Etc	-	-
d) Electricity Charges recovered	12,10,482	-
e) Water Charges recovered	-	-
Total	**68,69,957**	**47,83,535**
B. Sale of Institutes Publications		
Total	-	-
C. Income from Holding Events		
a) Gross reciepts from annual function/ sports carnival	-	-
Less: Direct expenditure incurred on the annual function/ sports carnival	-	-
b) Gross reciepts from fetes	-	-
Less: Direct expenditure incurred on fetes	-	-
c) Gross reciepts on educational tours	-	-
Less: Direct expenditure incurred on tours	-	-
d) Others (to be specify and separately disclosed)	-	-
Total	-	-
D. Interest On Term Deposits:		
a) With Scheduled Banks	87,10,286	3,14,25,235
b) With Non-Scheduled Banks	-	-
c) With Institutions	-	-
d) Others	-	-
Total	**87,10,286**	**3,14,25,235**
E. Interest On Savings Accounts:		
a) With Scheduled Banks	-	-
b) With Non-Scheduled Banks	-	-
c) With Institutions	-	-
d) Others	-	-
Total	-	-
F. On Loans:		
a) Employees/Staff	-	-
b) Others	7,74,299	40,36,664
Total	**7,74,299**	**40,36,664**

G.Interest on Debtors and Other Receivables		
Total	-	-
H. Others		
a) Income from consultancy	-	-
b) RTI Fees	70	40
c) Income from royalty	-	-
d) Sale of application form	7,78,000	3,49,544
e) Misc. reciepts (Sale of tender form, waste paper, etc.)	67,37,256	80,59,545
f) Profit on sale/ disposal of Assets	-	-
1. Owned asset	-	-
2. Assets aquired out of grants, or received free of cost	-	-
g) Other Incomes	-	-
Total	75,15,326	84,09,129
Grand total (A+B+C+D+E+F+G+H)	**2,38,69,868**	**4,86,54,563**

SCHEDULE 14 - PRIOR PERIOD INCOME (Amount-Rs.)

Particulars	2018-19	2017-18
1. Academic Receipts		
2. Income from investments		
3. Interest earned		
4. Other Income		
Total	**NIL**	**NIL**

SCHEDULE 15 - STAFF PAYMENT & BENEFITS (Amount-Rs.)

	2018-19	2017-18
a) Salaries and Wages	26,96,20,620	28,31,07,080
b) Allowances and Bonus	58,93,751	51,97,925
c) Contribution to Provident Fund	-	-
d) Contribution to Other Fund (Leave Salary & NPS Employer Share)	1,74,17,954	1,48,38,783
e) Staff Welfare Expenses	-	6,85,230
f) Retirement and Terminal Benefits	-	-
g) LTC facility	43,59,662	21,14,112
h) Medical facility	25,80,523	17,82,972
i) Children Education Allowance	9,34,750	13,08,901
j) Honorarium	-	-
k) Others (Leave Salary)	1,52,42,007	1,83,20,919
Total	**31,60,49,267**	**32,73,55,922**

SCHEDULE 15 A - EMPLOYEES RETIREMENT AND TERMINAL BENEFITS (Amount-Rs.)

	Pension	Gratuity	Leave Encashment	Total
Opening balance as on …….				
Additions: Capitalized value of contributions Received from other Organizations				
Total (a)				
Less: Actual Payment during the Year (b)				
Balance available as on 31.03…. C (a-b)				
Provision required on 31.03…. As per Actuarial Valuation (d)				
A. Provision to be made in the curent year (d-c)				
B. Contribution to New Pension Scheme				
C. Medical Reimbursement to Retired Employees				
D. Travel to Home town on Retirement				
E. Deposit Linked Insurance Payment				
Total (A+B+C+D+E)	**NIL**	**NIL**	**NIL**	**NIL**

SCHEDULE 16 - ACADEMIC EXPENSES (Amount-Rs.)

Particulars	2018-19	2017-18
a) Laboratary Expenses	5,44,17,587	10,98,28,171
b) Field Work/ Participation	2,44,109	10,22,388
c) Expenses on Seminar/ Workshop	-	-
d) Payment to visiting faculty	-	-
e) Examination	-	-
f) Student welfare expense	-	-
g) Admission expenses	-	10,550
h) Convocation expense	8,40,051	8,14,014
i) Publication	-	-
j) Stipend/ means-cum-merit scholarship	5,51,49,052	9,28,76,667
k) Subscription Expense	-	-
l) Others (Specify)	-	-
Total	**11,06,50,799**	**20,45,51,790**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF INCOME AND EXPENDITURE ACCOUNT FOR THE PERIOD/ YEAR ENDED 31st MARCH 2019

SCHEDULE 17 - ADMINISTRATIVE AND GENERAL EXPENSES (Amount-Rs.)

Particulars	2018-19	2017-18
A. Infrastructure		
a) Electricity and power	5,57,36,834	4,72,18,354
b) Water charges	1,93,653	11,48,838
c) Insurance	-	-
d) Rent, Rates and Taxes	79,28,750	3,82,52,680
B. Communication		
e) Postage & Telegram	5,62,361	11,71,415
f) Telephone and Internet Charges	37,05,337	37,59,656
C. Others		
g) Printing and Stationary	29,66,783	46,02,814
h) Travelling and Conveyance Expenses	97,77,889	54,78,084
i) Expenses on Seminar/Workshops	69,16,678	70,53,161
j) Hospitality	-	-
k) Auditors Remuneration	1,42,960	4,48,721
l) Professional Charges	-	-
m) Advertisement and Publicity	25,53,971	38,24,754
n) Magazine & Journals	-	-
o) Others (specify)	-	-
Sports / Cultural Festival / Celeberation expense	17,79,520	20,37,787
Consumables	1,47,81,890	81,97,509
Contingencies	-	1,13,39,601
Cable TV Charges	20,954	3,035
Newspaper & Periodicals	1,24,655	1,71,361
Office contingencies	31,39,790	1,08,41,032
Software License fees	7,99,443	8,76,024
Photography Charges	961	-
Publication charges	7,67,191	18,32,965
Guest house and other expenses	87,057	1,94,252
Gardening & Landscaping Chages	-	-
Other Adminstrative / Miscellaneous Expenses	1,58,94,503	12,58,222
Legal and consultancy charges	87,03,951	16,28,000
Anvesha Programme Expenses	1,92,338	1,52,599
Permananent Campus Inaguration expenses	-	-
Medical Centre - Consumables & Medicines	3,36,670	5,63,892
Running of Generator Set	16,34,758	-
IT recurring expenses for service	94,51,891	-
Total	**14,82,00,788**	**15,20,54,756**

SCHEDULE 18 - TRANSPORTATION EXPENSES (Amount-Rs.)

	2018-19	2017-18
1. Vehicles (owned by educational institution)		
a) Running expense	3,80,159	5,62,919
b) Repairs & Maintanence	1,10,203	18,992
c) Insurance Expenses	10,22,930	55,309
2. Vehicles taken on rent		
a) Rent/ Lease expenses	1,41,91,405	1,77,74,182
3. Vehicle (Taxi) Hiring expenses		
Total	**1,57,04,697**	**1,84,11,402**

SCHEDULE 19 - REPAIRS & MAINTANENCE (Amount-Rs.)

	2018-19	2017-18
a) Building	-	-
b) Furniture & Fixtures	-	-
c) Plant & Machinary	4,17,75,921	2,19,07,983
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)	-	-
Total	**4,17,75,921**	**2,19,07,983**

SCHEDULE 20 - FINANCE COSTS (Amount-Rs.)

	2018-19	2017-18
a) Bank Charges	14,00,671	1,10,682
b) Others (specify)	-	-
Total	**14,00,671**	**1,10,682**

SCHEDULE 21 - OTHER EXPENSES (Amount-Rs.)

	2018-19	2017-18
a) Provision for Bad and Doubtful debts/ Advances		
b) Irrecoverable Balances Wrtitten off		
c) Grants/ Subsidies to other institutions/ Organisations		
c) Others (Specify)		
Total	**NIL**	**NIL**

SCHEDULE 22 - PRIOR PERIOD EXPENSES (Amount-Rs.)

	2018-19	2017-18
1. Establishment Expenses	-	-
2. Academic Expenses	-	-
3. Administration Expenses	-	-
4. Transportation Expenses	-	-
5. Repair & Maintenance	-	-
6. Other Expenses	16,18,08,148	-
Total	**16,18,08,148**	**NIL**

Schedule 23

Significant Accounting Policies

1. Basis for preparation of Accounts:

The Annual Accounts of the institute are prepared on the basis of revised format and guidelines issued by the Ministry of Human Resource Development, Government of India and approved by the C&AG of India for all Central Educational Institutes w.e.f. FY 2014-15 (Communicated vide Lr.No.29-4/2012-IFD dated 17.04.2015 of MHRD, GOI).

2. Accounting Convention:

The financial statements are prepared on the basis of Historical Cost Convention and ongoing concern concept unless otherwise stated. The institute follows accrual method of accounting.

3. Revenue Recognition

The institute is significantly funded by the Ministry of Human Resource Development (MHRD), Government of India. The Government release the Grants-in-Aid under two major heads i.e., Capital and Revenue. Grants-in-Aid from GOI is accounted for in the same financial year for which it is sanctioned by the MHRD.

Government Grants to the extent utilized for meeting revenue expenditure on accrual basis are treated as revenue income of the year and depicted in the Income and Expenditure Account.

Admission fees, Tuition Fees and other fees received from students are accounted on accrual basis.

Interest on Fixed Deposits has been credited in the accounts on accrual basis.

No interest bearing advances for House Building, Purchase of Vehicles etc., has been sanctioned to staff to the said period.

4. Fixed Assets and Depreciation

The fixed assets are valued at cost of acquisition and inclusive of inward freight, duties, taxes, incidental and direct expenses related to acquisition.

No fixed asset has been received directly by way of non-monetary grant during the year under consideration.

The land at Jersey Farm, Vithura Nedumangad Taluk, Thiruvananthapuram District has been given by the Government of Kerala at no cost, hence the same has been shown at nominal value of Rs.1/- in Annual Account.

No gifted / donated assets and Books have been received during the year under consideration.

Fixed Assets are valued at cost less accumulated depreciation. No change has been made in the method and depreciation on fixed assets has been provided on Straight Line Method at the following rates:

Tangible Assets:

1.	Land	0%
2.	Site Development	0%
3.	Buildings	2%
4.	Roads and Bridges	2%
5.	Tube wells and water supply	2%
6.	Sewerage and Drainage	2%
7.	Electrical installation and equipment	5%
8.	Plant and Machinery	5%
9.	Scientific and Laboratory Equipment	8%

10.	Office Equipment	7.5%
11.	Audio Visual Equipment	7.5%
12.	Computer and Peripherals	20%
13.	Furniture, Fixtures and Fittings	7.5%
14.	Vehicles	10%
15.	Library Books and Scientific Journals	10%

Intangible Assets (Amortization)

1.	E-Journals	40%
2.	Computer Software	40%
3.	Patents and Copyrights	9 Years

Depreciation is provided for the whole year on additions during the year for acquisition period of six months and above and for half year on additions for acquisition period of less than six months.

Where an asset is fully depreciated, it will be shown at a residual value of Re.1/- in the Balance Sheet and will not be further depreciated.

Method of computing of depreciation has been changed from Written Down Value Method to Straight Line Method to comply with MHRD guidelines. The effect of change in depreciation method for the past years are quantified as 16,18,08,148/- and the same is accounted as prior period expense in the current year.

Assets created out of Earmarked Funds and Funds of Sponsored Projects where the ownership of such assets vests in the Institution will be setup by credit in Capital Fund and merged with the Fixed Assets of the institution. Depreciation will be charged at the rates applicable to the respective assets. However no such assets are there at present.

Patents, copyrights and E Journals are grouped under intangible assets.

Electronic Journals (E-Journals) are separated from Library Books in view of the limited benefit that could be derived from the on-line access provided. E-Journals are not in a tangible form, but temporarily capitalized in view of the magnitude of expenditure and the benefit derived in terms of perpetual knowledge acquired by the Academic and Research Staff. Depreciation is provided in respect of E-Journals at a higher rate of 40% as against depreciation of 10% provided in respect of Library Books.

Software and Computer Peripherals are being shown under the Fixed Assets.

Stocks:

Expenditure on purchase of Chemicals, Lab ware, Office Consumables, Publications and other consumable items are accounted as revenue expenditure. Such items issued to Labs are treated as consumed and hence closing stock is taken as NIL.

Retirement Benefits:

All employees of the Institute are covered under the New Pension Scheme. As such no provision has been made for pension, however suitable provision on the basis of actuarial valuation has been made for the Earned Leave Encashment.

No long term or Short Term Investments are made by the institute in Government Securities, Bonds, Debentures and Shares.

Corpus / Earmarked / Designated Endowment Funds:

The funds of the institute are classified into following categories:

1. Corpus / Capital Fund: It refers to fund contributed by Government for establishment and activities of the institute. Corpus fund is the main fund of the institute and it denotes a permanent fund kept for the existence of the institute. The additions to this fund are Grants from Government to the extent utilised for Capital Expenditure. Assets purchased out of earmarked funds and sponsored project funds and excess of income over expenditure transferred from Income and Expenditure account.

Government Grants:

Plan grants received from Government are accounted on accrual basis.
To the extent utilised towards capital expenditure, Government Grants are transferred to the Capital Fund.
Unutilised Government Grants are carried forwarded and depicted under Current Liability in the Balance Sheet.

Capital Work-In Progress:

Deposit works are accounted for as Capital Work-in-Progress on the basis of statements received from Works Wing. Running Bills of Contractors are also accounted for as construction work in progress till completion. No depreciation is charged on Capital work in progress. Secured advances and Mobilization advances and Deposit work with CPWD are disclosed separately under the heads Loans and Advances.

Sponsored Projects:

The amount received under Sponsored Projects has been separately shown in Schedule 3 A.
The fellowships and scholarships funded by the UGC, CSIR, DST INSPIRE etc., are also shown separately in Schedule 3B
The Fellowships and Scholarships provided by the institute itself are accounted as Academic expenses.

Income Tax:

The income of the institute is exempt from Income Tax under Section 10 23 (C) (iii ab) of the Income Tax Act 1961. No provision for tax is therefore made in the accounts.

Foreign Currency transactions:

Foreign Currency transactions are accounted for at the rate of exchange prevailing on the dates of such transactions.

Schedule 24

Contingent Liabilities and Notes on Accounts

The financial statement of the institute is prepared in three parts:

i. Receipt and Payment Account
ii. Income and Expenditure Account
iii. The Balance Sheet.

The Receipts and Payments Account consists of the figures of actual receipts and payments of the institute during the financial year 2018-19 as per Cash Book. The total receipts from the different sources as shown in Receipt and Payment Account comes to Rs.320.35 cr. which inter alia includes grant of Rs.182.35 cr. received from Ministry of Human Resource Development and the total receipts towards Fees, interests and other resources of Rs. 45.73 cr.

The Income and Expenditure Account is prepared on accrual basis.

In Balance Sheet the acquired fixed assets, current assets are taken as assets while the Corpus Fund, Designated Fund, Endowment Funds, balance of Sponsored Projects and Grants received from Government and Current Liabilties etc are shown in respective Schedules under Sources of Funds/ Liabilities.

Figures in Final Accounts have been rounded off to the nearest rupee.

Schedule 1 to 22 are annexed and they form an integral part of Annual Accounts.

Method of computing of depreciation has been changed from Written Down Value Method to Straight Line Method to comply with MHRD guidelines. The effect of change in depreciation method for the past years are quantified as 16,18,08,148/- and the same is accounted as prior period expense in the current year.

The details of balances in Saving Bank, Current Accounts and in Fixed Deposit Accounts are given in Schedule 7 of the Balance Sheet.

The unutilized grant shown under Schedule 3(C) Plan Grants from MHRD is Rs. 115.31 cr. out of which advance payment made to CPWD as Deposit work for construction of IISER Permanent Campus vide Balance Sheet Sub Schedule 7.

An appeal was filed against M/s. Consolidated Construction Consortium Ltd. (CCCL) before the Hon'ble High Court of Kerala challenging the award of arbitrator vide O.P(Arb.) No.446/2018. Institute have deposited B.G for 1/4th of the award amount in the court on 01.01.2019. and the matter is posted for further hearing.

Sponsored Project Accounts:

The institute has received grants from DST, DBT, Wellcome Trust DBT Alliance Fellowships, DAE, ISRO, CSIR, UGC etc., in Research and Development (R&D) Projects. A separate bank account is maintained for Sponsored R & D Projects. The transactions of Sponsored Projects and Project wise closing balances are being shown in Schedule 3(A) of the Balance Sheet. From the financial year 2016-17, as per the funding agencies guidelines project wise bank account(s) are being maintained with IDBI Bank.

The treatment of Project Grant and its Utilisation is on Cash Basis.

Capital Works-in-Progress:

The construction work of institute's permanent campus situated at Jersey Farm, Vithura is under progress and expenditure related to the same is shown under Schedule 4 (Fixed Assets) of the Balance Sheet.

The expenditure on capital work-in-progress as at 31.03.2019 was of Rs. 2,60,02,38,026/-. Out of which

construction is Rs. 2,48,64,77,048/- and uninstalled equipment procured during the period is Rs. 11,37,60,978/-.

The **NPS** subscription recovered from employees and employers contribution are remitted to NPS Trust Account regularly. NPS Accounts are maintained by NSDL. Hence separate schedule has not been prepared.

GPF is not applicable to the institute employees. Hence GPF accounts schedule has not been prepared.

Other Additions

The deduction/ adjustments depicted in negative balance under depreciation shown in Schedule 4 of tangible assets head Electrical Installation and Equipment is reversal of last year's depreciation account erroneously taken into account of capital work-in-progress.

As per the institute's policy, the overhead generated from the Externally Funded Projects have been segregated into four parts vis-a-vis, (i) 45% - income from overheads to institute, (ii) 5% - Staff Welfare Fund, (iii) 25% - School Departmental Fund and (iv) 25% - Project Investigator Fund. The said figures (ii) to (iv) have been depicted as other additions in Schedule 1 of Annual Accounts.

The grant received for fellowships were treated as income and expenses in the previous years; hence the unspent/ overspent balances of each grant are included in the unspent balance of institute.

In the year 2018-19, institute has accounted the grant receipt against fellowship as current liability. To arrive at the actual balances of each grant as on 31.03.2019. It is necessary to brought forward opening balances. Since balances as on 31.03.2018 are included in unspent balances of institute as on that date, respective amounts are transferred to grant accounts.

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM
RECEIPTS AND PAYMENTS FOR THE PERIOD/YEAR ENDED 31.03.2019

(Amount Rs.)

RECEIPTS	2018-19	2017-18	PAYMENTS	2018-19	2017-18
I. Opening Balance			I. Expenses		
a) Cash in hand	-	-	a) Establishment Expenses	30,55,91,188	28,68,95,754
b) Bank Balances	-	-	b) Academic Expenses	11,31,99,839	26,02,10,369
i) In current accounts			c) Administrative Expenses	14,67,89,850	15,07,68,185
a) Canara Bank A/c	34,002	2,17,35,457	d) Transpotation Expenses	1,68,57,880	1,81,91,587
b) IDBI Bank A/c	2,14,556	38,72,785	e) Repair & Maintanence Expenses	4,02,03,640	2,09,46,294
c) SBI Bank A/c	18,00,104	9,500	f) Prior period Expenses	-	-
ii) Deposit/Savings accounts					
a) SBT	-	-	II. Payments made against earmarked endowement funds	-	-
b) Canara Bank	42,52,61,706	23,07,19,282			
c) SBI	30,60,45,714	20,58,37,857	III. Payment against Sponsored Projects		3,49,84,800
d) Canara Bank Project A/c	1,17,74,065	52,62,454			
e) IDBI Bank Project A/c	17,75,81,379	14,78,10,377	IV. Payment against sponsored fellowships	-	-
			V. Investments and deposits made	-	-
			a) Out of Earmarked/ Endowment funds	-	-
II. Grants Received			b) Out of Own Funds (Investments-Others)	-	-
a) From Government of India	1,82,35,00,000	2,17,18,00,000			
b) From State Government	-	-	VI. Term Deposits with Scheduled Banks	-	-
c) From other sources (details)	-	-			
DST	-	-			
CSIR	-	85,51,233			
KVPY	-	35,82,000	VII. Expenditure on Fixed Assets &Capital	40,88,72,997	-
UGC	-	33,600	Work-in-Progress	-	-
DBT	-	3,30,000	Purchase of Fixed Assets and	-	76,46,10,733
ICMR	-	1,59,991	Expenditure on Capital Work-in-progress	-	-
External Projects (including interest)	10,18,42,813	10,34,33,763			

			VIII. Other payment including Statutory payment	7,67,00,669	8,55,88,459
III. Academic Receipts	3,85,09,261	2,98,48,725			
			IX. Refunds of Grants	-	-
IV. Receipts against Earmaked/ Endowment Fund	-	-			
			X. Deposits & Advances	1,19,05,45,852	1,24,12,36,030
V. Receipts against sponsered projects	-	-	XI. Other payments	5,39,617	-
			Other payments-External projects	17,51,59,012	-
VI. Receipts against Sponsered Fellowships and Scholarships	-	-	VIII. Closing Balances		
			a) Cash in hand	-	-
VII. Income on Investments from	-	-	b) Bank Balances	-	-
a) Earmarked/Endow. Funds	-	-	i) In current accounts		
b) Own Funds (()th. Investment)	-	-	a) Canara Bank A/c	31,257	34,002
			b) IDBI Bank A/c	2,29,556	2,14,555
			c) SBI Bank A/c	44,95,844	18,00,104
VIII. Interest Received					
a) On Bank deposits	1,96,46,698	1,26,99,579	ii) In deposit /savings accounts		
b) Loans. Advances etc.	-	-	a) SBT	-	-
c) Savins Bank Account	30,23,308	39,69,737	b) Canara Bank	35,07,94,919	42,52,61,706
			c) SBI	27,39,16,316	30,60,45,714
			d) Canara Bank Project A/c	80,36,152	1,17,74,065
			e) IDBI Bank Project A/c	9,15,21,369	17,75,81,379
IX. Investment encashed					
X. Term Deposits with Schedule bank encashed	-	70,91,51,822			
XI. Other Income (Incuding prior period income)	1,98,09,600	2,94,31,841			
XII. Deposits & Advances	27,38,65,033	9,79,03,733			
XIII. Miscellaneous receips including Statutory receipts	-	-			
XIV. Any other receipts	5,77,719	-			
	3,20,34,85,957	**3,78,61,43,736**		**3,20,34,85,957**	**3,78,61,43,736**

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount in Rs.)

SUB SCH No.	PARTICULARS	2018-19	2017-18
	CURRENT LIABILITIES AND PROVISIONS		
1	**Sundry Creditors for Goods & Services:**		
	American Chemical Society	-	4,72,776
	Asst. Engineer ,KSEB Kulathoor	-	1,44,590
	Asst.Executive Engineer, KWA, Pongumoodu	77,733	35,066
	Bruker India Scientific Pvt Ltd	-	3,30,400
	Cambridge Crystallographic Data Centre	-	59,619
	Clean & Clean	-	3,01,134
	Dr.Bindusar Sahoo	-	10,000
	Dr.D.V.Senthilkumar	-	10,000
	Elseveir.B.V, Singapore	-	2,44,620
	Fedex Express Transportation And Supply Chain Services	-	10,855
	Garden Fresh Interior Furnishing	-	61,090
	HBA Periodicals Services	-	7,546
	Hues Advertising And Marketing	-	31,140
	IISER Staff	-	25,500
	Integrated Travels & Tours	-	1,41,617
	International Subscription Agency	-	2,56,198
	IOP Publishing Ltd, UK		8,61,417
	Jintech Solution Ltd	-	1,99,750
	J.Rajan		1,05,000
	Madurai Kamaraj University	-	16,440
	Meeguards Info Services	2,84,472	1,66,496
	Mels Impex America Inc, USA	-	3,61,988
	Muhammed Rafi	-	35,000
	N.Muraleedharan & K.Prasanna	-	1,10,000
	Pavithran Sreedharan	-	65,000
	Pfeiffer Vaccum GMBH, Germany	-	2,15,677
	Prasanth R S	-	1,920
	Railtel Corporation Of India Ltd	-	5,87,050
	Sahil	-	30,000
	Santhosh Sankaran	-	26,000
	Sreya Suresh IMS12113	-	4,244
	The Registrar, GIFT	-	2,37,445
	Technical Bureau India Private Limited	-	1,31,940
	The Principal, Mar Ivanios College	-	7,200
	Thermo Fisher Scientific Hongkong	-	2,69,134
	Thermo Fisher Scientific India Pvt Ltd	-	90,288

	V.T. Thomas	-	2,23,109
	Dr. Sunish Radhakrishnan	1,41,541	-
	Ashinraj	4,550	-
	Dr. Nisha N Kannan	(672)	-
	Dr. P Chiranjeevi	(1,552)	-
	Dr. Ullasa Kodandaramaiah	(212)	-
	Dr. Vinayak Kamble	(672)	-
	Fi-Tec Power Solutions Pvt Ltd	(91)	-
	Sudeep S	(280)	-
		5,04,817	**58,87,247**
2	**Sundry Creditors for expenses:**		
	Advertisement Charges Payable	5,765	1,96,707
	Audit fees payable	1,43,960	1,44,960
	Consumables Payable	8,70,095	20,65,968
	Convocation Expenses Payable	-	5,750
	Computer & Peripheral Expenses Payable	31,613	-
	Electricity Charges Payable	48,76,411	55,17,256
	E-Journal Susbscription Charges Payable	14,67,668	--
	Equipment Expenses Payable	33,19,777	
	Fellowship Payable	54,62,334	48,95,279
	Fuel Expense Payable	43,044	-
	LWF Payable	3,69,006	5,48,532
	Furniture & Fixtures Payable	11,95,445	-
	Insurance Charges Payable	2,832	-
	IT Consumables Payable	1,18,581	-
	Leave Salary Payable	6,92,84,878	5,58,97,395
	Library Books & scientific Journal Exp Payable	31,56,696	-
	Manpower security charges payable	30,03,640	21,22,373
	Meeting & Seminar Payable	6,570	77,342
	Manpower Charges payable	1,65,250	46,80,497
	Loan From IISER TVM Cooperative Society	22,672	4,742
	IISERTVM Employees Co-operative Society	4,000	-
	Membership For Employees Cooperative Society	7,000	3,000
	Medical Insurance Payable	64,056	-
	Newspaper payable	9,595	35,755
	NPS Employee contribution payable	13,76,849	20,88,222
	NPS Employer contribution payable	13,76,849	20,88,222
	NITC- NPS & NIIST Payable	-	-
	Other Scholarships payable	-	22,93,000
	Pension Contribution Payable	-	-
	Printing & Stationery payable	1,40,525	1,42,210
	Publication Charges Payable	-	-
	Rent Payable	82,500	11,97,281

	Salaries & Allowances Payable	3,29,45,005	3,04,71,546
	Telephone / Internet Charges Payable	31,177	58,673
	Travel Expense Payable	8,128	1,67,314
	Vehicle Hire Charges Payable	11,91,920	14,24,733
	Water Charges Payable	-	19,900
	Guest House & other expense payable	-	-
	Other miscellaneous payable	4,79,509	3,13,899
	Catering Charges Payable	-	-
	Testing & Analysis Charges Payable	-	-
	Transportation Expenses Payable	55,486	
	Sports / Cultural Meet Expenses Payable	18,000	26,654
	Office/Contingency expenses Payable	1,39,065	25,76,113
	Field Assistance Charges Payable	-	17,701
	R&M -DG Set Maitenance Payable	-	1,30,530
	R&M AMC for Equipment & Machineries payable	9,03,881	4,46,221
	Research & Teaching Exp Payable	11,43,775	
	Postage Courier Charges Payable	1,25,983	1,25,422
	Repairs and Maintenance Payable	6,78,629	83,643
		13,43,28,169	**11,98,66,840**
3	**EMD & Caution Deposit**		
	EMD	69,78,292	1,36,09,459
	Caution Deposit- Institute	13,76,700	12,56,700
	Caution Deposit- Hostel	27,45,983	24,89,983
	Caution Deposit- Library	13,44,000	12,16,000
	Caution Deposit-Mess	34,07,500	30,87,500
	Security Deposits	3,05,56,346	3,68,44,163
		4,64,08,821	**5,85,03,805**
4	**Statutory Liabilities- Others**		
	TDS & Cess (Cont, Sal, Prof, Rent, Adv)	19,66,889	24,14,018
	VAT	1,485	1,485
	WCT & Cess	-	2,62,368
	GIS	-	120
	Professional Tax	1,250	29,000
	TDS-CGST	3,87,441	-
	TDS-SGST	3,87,442	-
	TDS-IGST	2,24,880	-
	GST	67,500	
		30,36,887	**27,06,991**
5	**Other current Liabilities**		
	Advances from CCC Ltd	33,67,28,015	33,67,28,015
	Fee received in advance	-	-
	Advance from MHRD for Gian Programme	77,108	1,01,108

	Loan from Project	3,00,00,000	--
	Payable to JAC	46,15,368	46,15,368
	PhD Students	45,000	-
	Inspire Fellowship to Phd Students		-
	IISER NISER Meeting outstanding	4,06,783	4,06,783
	Monthly Deposit Scheme (Society)	2,19,697	92,500
	Payable to Project	51,43,785	1,00,49,324
	Payable to Institute	-	-
	Payable to Institute by IDBI A/c's	6,10,358	2,03,67,437
	Payable to IDBI by Institute	76,322	1,87,366
	Payable To WT Project Dr Sunish K Radhakrishnan	-	4,04,579
	Payable to Canara Bank by IDBI A/c's	-	-
	Payable to DBT Nanobiotech Meeting Dr. Reji Varghese	-	-
	Payable to SC/ST Students	-	-
	Payable to International Conference on Number Theory	1,40,550	-
	Payable to DST (Reshma Raveendran)	3,500	-
	Payable to STEP Programme	2,62,500	-
	Payable to Jammu & Kashmir Scholarship to Students	1,700	-
	Payable to MTTS 2019 Conference	7,50,000	
	Payable to Sateesh Raghavan	2,060	2,060
	Payable to We Build	60,292	60,292
	Performance Guarantee	48,68,438	64,79,839
	Withheld from CCC Ltd.	2,37,74,101	2,37,74,101
	Withheld from Crescent Construction Company	-	20,00,000
	Withheld from We Build Private Limited	4,00,000	4,00,000
	Withheld from R. Rajan-BRK Construction	-	5,50,000
	Receivable from District Tribal Welfare Dept	10,900	-
	Medical Insurance Preminum Students	4,26,921	-
	Group Term Life Insurance (GTLI)	(36,601)	-
	Loan from Institute to SERB (Sukhendhu Mandal)	3,00,000	-
	Loan from Institute to Ramanujan Project	1,40,000	-
		40,90,26,797	**40,62,18,772**
	Total Current Liabilities	**59,33,05,491**	**59,31,83,655**
6	**FELLOWSHIP/ SCHOLARSHIP FROM OTHER SOURCE**		
	ICMR FELLOWSHIP	24,094	-
	DST SHE INSPIRE FELLOWSHIP-BSMS	(90,29,051)	-
	KVPY BSMS	(14,32,686)	-
	DST INSPIRE PHD FELLOWSHIP	(1,16,789)	-
	CSIR PHS FELLOWSHIP	5,57,032	-
	UGC PHD FELLOWSHIP	7,23,586	-
	DBT PHD FELLOWSHIP	(90,166)	-
		(93,63,980)	-

INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH
THIRUVANANTHAPURAM
SCHEDULES FORMING PART OF BALANCE SHEET AS AT 31st MARCH 2019

(Amount Rs.)

SUB SCH No.	PARTICULARS	2018-19	2017-18
	CURRENT ASSETS, LOANS AND ADVANCES		
6	**Cash Balance**		
	Institute Balance	-	-
7	**Bank Balances**		
	Institute Balance	-	-
	Canara Bank - Current A/c	31,257	34,002
	SBI - SBI Collect	31,35,361	2,73,599
	Term Deposits with Canara Bank	32,40,59,144	23,41,61,128
	Term Deposits with Canara Bank - LC	1,60,72,000	10,34,30,719
	Term Deposits with SBI	14,49,91,835	15,90,48,373
	Canara Bank - SB A/c	1,06,63,775	8,76,69,859
	Fixed Deposits with SBI- Vithura SB A/c	8,36,14,150	8,36,14,150
	IDBI Bank LTD (current A/c 3766)	2,29,556	2,14,556
	IDBI Bank LTD (SB A/c 89195)	-	-
	SBI Current A/c- Vithura	66,150	15,26,505
	SBI - WCT (32647762525)	12,94,333	6,00,597
	SBI Power Jyoti	-	-
	SBI Vitura SB A/C	11,69,174	27,38,208
	SBI - SB A/c	4,41,41,157	6,00,44,387
	Project Balance -Canara Bank Term Deposit -LC	-	15,10,000
	Project Balance -IDBI Term Deposit	32,50,000	24,82,000
	Project Balance -Canara Bank SB A/c	80,36,152	1,17,74,065
	Project Balance -IDBI Bank Various A/c's	9,15,21,369	17,75,81,379
		73,22,75,413	**61,52,47,712**
8	**Prepayments**		
	Vehicle Insurance	94,737	97,125
	Annual maintenance Charges	-	2,68,565
	Office/Contingency Expense	810	9,110
	Water Charges	-	-
	Software License Fees	6,90,779	8,44,154
	Library Journal	1,65,75,297	1,35,85,339
	GTLI	2,75,308	
		1,76,36,931	**1,48,04,293**
9	**Deposits and Advances**		
	Rent	1,09,000	1,09,000

	KSEB	33,600	33,600
	Gas Connection Deposit	47,377	1,12,077
	Foreign Consumables Supplies Advance	2,001	-
	KSEB Deposit	61,48,568	61,48,568
	Techies Park	32,872	32,872
	Advance to CCC Ltd	-	2,98,12,530
	Advance to CPWD	1,52,45,92,663	62,45,92,663
	Advance for Plant and Mechinery	22,71,451	22,71,451
	Advances for Mobilisation	6,40,93,878	8,58,86,091
	Advance - Capital	2,48,82,011	6,07,03,364
	Advance- Recurring	3,83,350	8,16,396
		1,62,25,96,771	**81,05,18,612**
10	**Interest Accrued**		
	Interest from Flexi /Fixed Deposit with Canara Bank	1,63,66,455	74,66,266
	Interest from Term Deposit with Canara Bank for LC	11,28,837	64,88,841
	Interest from Fixed Deposit with SBI	-	2,19,956
	Interest from Term Deposit with SBI	-	1,85,84,433
	Interest from Term Deposit with SBI	1,01,45,438	60,55,528
	Interest from Advance Life insurance Premium -SBI	-	-
		2,76,40,730	**3,88,15,024**
	Claims Receivable		
	Temporary Advance		
	Ashinraj D	-	- 45,000
	Dr. Ramanathan Natesh	-	40,000
	Dr Satish Khurana	15,000	15,000
	Dr Viji Z Thomas	-	24,000
	Dr Sadananda Singh	-	508
	Dr S Gokulnath	-	25,000
	Dr Sadak Alee	-	44
	Dr Stalin Raj	-	20,000
	Dr. Sunish Radhakrishnan	(10,000)	-
	Dr. Bikas Chandra Das	15,000	-
	Dr. Madhu Thalakula,	25,000	-
	Subin S	25,000	-
	Amritha Sivan	25,000	-
	Kumar	23,000	-
	M/s Zeba Lab Systems Pvt Ltd	2,01,961	-
	Cumulative Professional Development Advance		
	Dr Madhu Thalakulam	-	5,187
	Dr Rajeev N Kini	-	60,000
	Dr Satish Khurana	-	1,50,000

	Dr A Thirumugan	-	1,80,000
	Dr Reji Varghese	-	1,00,000
	Dr M M Shaijumon	-	75,000
	Dr Stalin Raj	-	42,000
	Dr M M Shaijumon	-	50,000
	Dr Soumen Basak	-	45,000
	Dr Utpal Manna	-	1,13,000
	Dr K R Arun	-	2,00,000
	Dr Sheetal Dharmatti	-	1,89,000
	Dr Bindusar Sahoo	-	1,26,000
	Dr Ramesh Chandranath	-	20,000
	Dr Suhesh Kumar Singh	-	1,64,000
	Dr Ramesh Chandranath	-	50,000
	Dr K George Thomas	-	42,250
	Dr. Saikat Chatterjee	1,50,000	-
	Dr. Deepshika Jaiswal Nagar	80,000	-
	TA / LTC Advance		-
	Soumitra Hazra	-	75,000
	Ranjit Kumar Sahoo	-	74,000
	Dr Bikas C Das	-	1,16,100
	Sreeja V Nair	-	1,52,000
	Binson Babu	-	1,50,000
	Dr. Suhesh Kumar Singh	1,35,000	1,10,000
	Dr Viji Z Thomas	-	1,000
	Soham Bhattacharyya	75,000	-
	Rishika Rai	75,000	-
	Vignesh A	75,000	-
	Arthi R	1,00,000	-
	Dr. Sukhendhu Mandal	75,000	-
	Ankush Kumar Garg	75,000	-
	Niyas Rehman	75,000	-
	Secured Advance		
	Secured Advances for construction	32,35,433	1,91,59,010
	Secured Advance -RDS Project Ltd	24,38,308	-
	Secured Advance -M/s CCC Ltd	5,11,77,978	6,21,19,339
	Deposit/Advances- RDS Project Ltd	1,63,69,133	-
	Admission Fee for Officers, Faculty & Staff	3,400	3,400
	Advance payment made to KSEB	1,524	1,524
	GTLI	-	3,54,828
	Grant Receivable from MHRD	-	25,35,00,000

	NITC-NPS	-	16,065
	Receivable from BMC IN	73,196	73,196
	Recivable from Balani Infotech Pvt Ltd	2,633	2,633
	Receivable from BSMS Students	8,677	8,677
	Receivable from Fusion Scientific Technologies	-	1,14,856
	Receivable from JAC 2017	-	9,28,243
	Receivable from JAC 2019	1,08,840	-
	Receivable from Dr.Utpal Manna	180	180
	Receivable From Caligo Technologies	4,400	4,400
	Receivable from Mahendranath P.L.N-PHD151025	10,000	10,000
	Receivable from M.S.Steels	1,450	1,450
	Recievable from Meera Traders	-	540
	Recievable from KVPY	-	7,042
	Recievable from IIIT Kottayam	61,02,062	21,63,284
	Recievable from JEST	1,66,900	1,66,900
	Recievable from Priji E Moses	828	828
	Recievable from Sreya.M.P-IMS13134	-	4,244
	Recivable from APC 2014	79,091	-
	Receivable from Amal Medhi	2,529	2,529
	Receivable from Mahesh Hariharan	500	500
	Recievable from Nafeesa K	100	100
	Recievable from UK Agencies	41,194	3,500
	Receivable From DST INSPIRE Faculty Mamtha Sahoo	-	8,240
	Receivable from MESS	-	9,43,527
	Receivable from Institute(IDBI)	76,322	1,87,366
	Receivable from Institute(CANARA BANK)	51,43,785	1,00,49,324
	Receivable from Project	-	-
	Receivable from IDBI Project A/c by Institute	6,10,358	2,03,67,437
	Receivable from IDBI Project A/c by Canara Bank	-	-
	Receivable from Customs	21,743	21,743
	Receivable from SERB project- Dr. Sukhendhu Mandal	3,00,000	-
	Receivable from Ramanujan Project- Dr. Ramesh Rasappan	1,40,000	-
	Receivable from DST MES Project- Dr. M M Shaijumon	75,000	-
	Receivable from Science Writing Workshop-Dr.Natesh	25,460	25,460
	Receivable from Shree Balaji Scientific Co	11,288	11,288
	Receivable from SPL Engineers	6,527	6,527
	Receivable from Rajadhani Engineering Company	1,073	-
	Receivable from LOOM	10,620	-
	Receivable from Ideal Systems	7,489	-

	Receivable from ISHAN Vikas Programme	-	5,91,627
	Receivable from Sangeeth M	265	265
	Receivable from KSCSTE	(5,38,090)	15,175
	Receivable from NEWTON scholarship	2,00,000	-
	Loan to Institute	3,00,00,000	-
	Receivable from Science Workshop 2019	(1,03,507)	-
		11,70,51,650	**37,33,34,336**
	Other Current Assets		
	TDS 2018-19	3,34,675	-
	Total loans and advances	**1,78,52,60,757**	**1,23,74,72,265**