

KERNEL

IISc 2018



INDIAN INSTITUTE OF SCIENCE

The cover image of this issue of **Kernel** depicts some of the rural technologies developed at the Indian Institute of Science (IISc). These innovations provide low cost and environmentally sustainable solutions to issues related to energy, sanitation, and drinking water, thereby making a direct impact on the quality of people's lives.

KERNEL

IISc 2018



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The background of the entire page is a photograph of a tall, ornate building tower, likely the IISc clock tower, seen through the intricate, dark branches of trees. The sky is a clear, pale blue. The text is overlaid on a dark blue, semi-transparent shape in the upper left corner.

From the Director

Greetings from IISc.

Established in 1909, IISc is India's leading institution of advanced education and research in the sciences and engineering. Its success stems from the unwavering pursuit of the primary objective of the Institute, as written down in its statutes: *to provide for advanced instruction and to conduct original investigations in all branches of knowledge as are likely to promote the material and industrial welfare of India.*

IISc's reputation and preeminence ensures that it attracts the best of young faculty members trained in the best laboratories around the world. Our faculty, numbering over 500, carries out research in most areas of the basic and applied sciences, publishing vigorously in premier journals. This year, as in previous years, several of them have won national and international accolades for their research.

The Institute's commitment to excellence is not restricted to the high calibre of its faculty. With some of the best students in the country seeking entry into IISc, the Institute places emphasis on a strong research training programme, and the pursuit of cutting edge research by all its students. The Institute has a student population of around 4200 students, of which there are about 2750 doctoral students, roughly 950 master's students, and about 500 students in a four-year, research oriented undergraduate programme in the sciences. The doctoral students are carefully selected based on their performance in national examinations, in addition to personal interviews. All the degree programmes emphasise the stated objective of conducting "original investigations."

The untiring efforts of our faculty, students, and administrative staff have ensured that IISc is India's top-ranked institution. However, I would be remiss if I did not acknowledge the unflinching support of the members of the Court and the Council in taking IISc to where it stands today. Their continued guidance will be crucial as we embark on a future filled with challenges and endless possibilities.

In recent years, the Institute has also made a conscious effort to reach out to other academic institutions, industry, and indeed the rest of our society. An important initiative as part of this endeavour is the publication of our annual magazine **Kernel**, which aims to reacquaint you with the Institute and provide you with a flavour of the kind of research that is carried out here. The goal of the research conducted at IISc, in practically all areas of the sciences and engineering, is not only to generate new knowledge, but to also apply the discoveries and knowhow for the benefit of society. This issue highlights a few examples of how this kind of research from IISc is making a difference to the lives of people. It also features two unique training programmes conducted by IISc: one for college science teachers in the Institute's new campus in Challakere and the other for teachers and researchers in the field of nanotechnology.

And as in previous issues of **Kernel**, this one too describes the academic structure of the Institute and showcases its achievements through numbers.



Anurag Kumar
Director



The Institute

The Indian Institute of Science is an institution of higher learning and research established in 1909 under the Charitable Endowments Act 1890. With the establishment of the University Grants Commission in 1956, the Institute came under its purview as a Deemed University. The principal authority governing the Institute is the Council, which is advised by the Court in the formulation of policies. The Director is the Chief Executive of the Institute and is assisted in its management by the Senate and the Faculties of Science and Engineering.

Visitor: **The President of India**

President of Court: **K Kasturirangan**

Chair of Governing Council: **P Rama Rao**

Director: **Anurag Kumar**

Deans:

Biman Bagchi (Science)

K Kesava Rao (Engineering)

Anjali Karande (Undergraduate Programme)

Registrar: **V Rajarajan**



The Governing Council

The Council is the principal governing authority of the Institute and its membership includes the Nominees of the Court, Parliament, Government of India, Government of Karnataka, Tata Trusts, Representatives of Indian Universities, University Grants Commission and Scientific bodies. The following are the members of the Council:

P Rama Rao Chair of the Council Former Vice Chancellor University of Hyderabad Hyderabad (Nom. GoI)		
KK Sharma Secretary, Min. of Human Resource Development Govt. of India	Sukhbir Singh Sandhu Additional Secretary (CUL) Additional Charge (Mgt) Min of Human Resource Development, Govt of India	Jawaid Akhtar Principal Secretary Higher Education Dept Govt of Karnataka
ISN Prasad Additional Chief Secretary Dept. of Finance Govt of Karnataka	JJ Irani Director Tata Sons Limited Mumbai (Nom. Tata Trusts)	R Venkataraman Executive Trustee Sir Dorabji Tata Trust Mumbai (Nom. Tata Trusts)
SK Joshi Former Director General CSIR, Gurugram (Rep. UGC)	Murli Manohar Joshi Member of Parliament (Lok Sabha), New Delhi (Rep. Parliament)	Suresh C Angadi Member of Parliament (Lok Sabha), New Delhi (Rep. Parliament)
Rajeev Chandrasekhar Member of Parliament (Rajya Sabha)	SN Agarwal Chairman Bhoruka Power Corporation Ltd. Bangalore (Nom. Court)	VS Ramamurthy Former Director National Institute of Advanced Studies, Bangalore (Nom. Court)
Suranjan Das Vice Chancellor Jadavpur University	Shivajirao S Kadam Vice Chancellor Bharti Vidyapeeth University	Anil D Sahasrabudhe Chairman AICTE, New Delhi (Rep. AICTE)
Girish Sahni Director General CSIR, New Delhi (Rep. CSIR)	Anurag Kumar Director (Ex-officio)	K Kesava Rao Dean Faculty of Engineering IISc (ex-officio)
Biman Bagchi Dean Faculty of Science IISc (ex-officio)	V Rajarajan Registrar (Ex-officio Secretary)	





Deans



Biman Bagchi
Dean
Faculty of Science



K Kesava Rao
Dean
Faculty of Engineering



Anjali Karande
Dean
UG Programme



Balaji Jagirdar
Associate Dean
UG Programme



Deputy Directors



PS Anil Kumar
Associate Dean
UG Programme



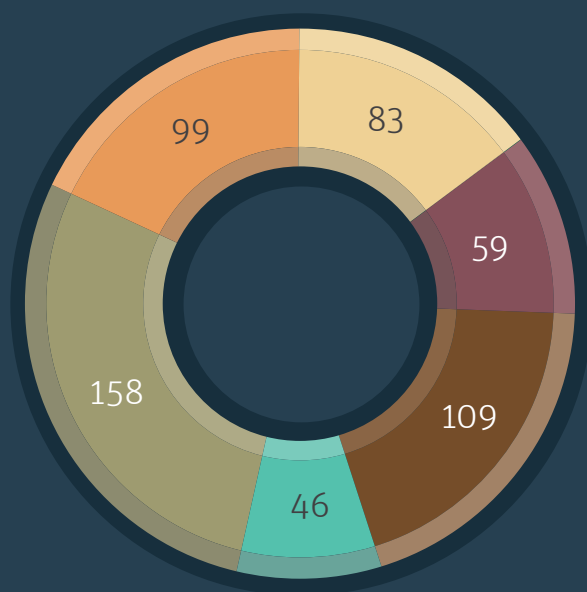
S Ramakrishnan
Deputy Director
Planning and
Infrastructure



Jayant Modak
Deputy Director
Administration
and Finance

IISc in Numbers

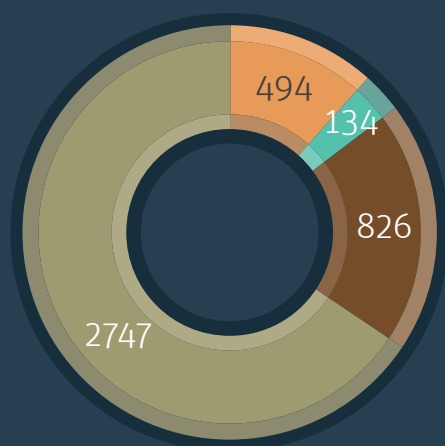
FACULTY MEMBERS AND SCIENTIFIC STAFF



- Biological Sciences
- Chemical Sciences
- Electrical Sciences
- Mechanical Sciences
- Interdisciplinary Research
- Physical and Mathematical Sciences

Total: 554

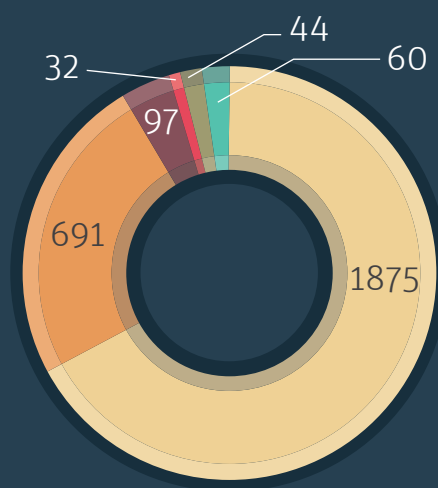
STUDENTS ON ROLL



- PhD/ Int PhD
- MSc (Engg)
- Master's Programmes
- (ME / MTech / MDes / MMgt)
- BSc (Research)

Total: 4210

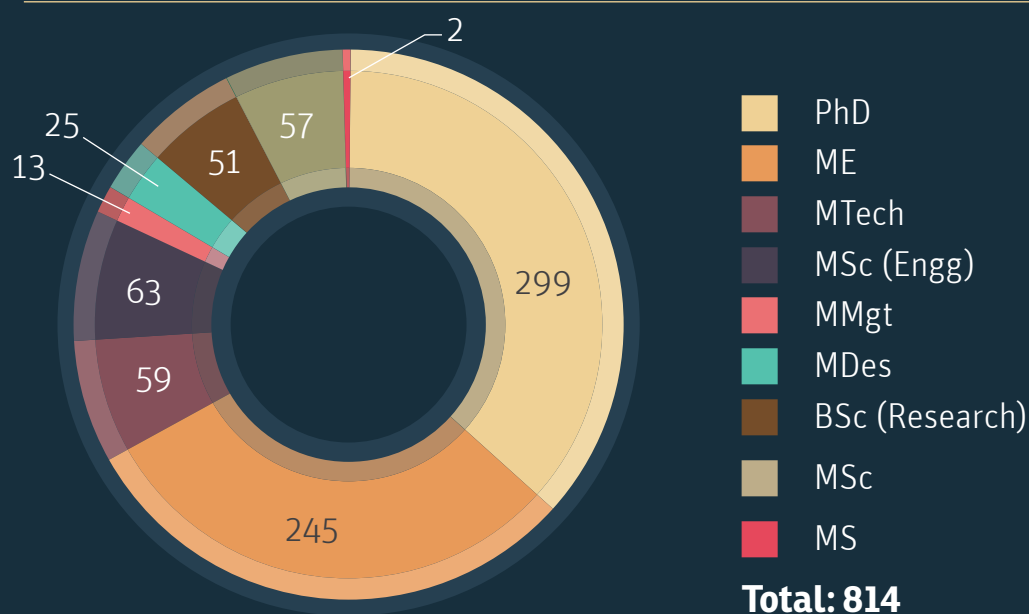
PUBLICATIONS 2017



- Journal Publications
- Conference Publications
- Book Chapters
- Books and Monographs
- Popular Articles
- Reports
- Reports

Total: 2799

DEGRESS AWARDED 2017



FELLOWSHIPS OF SCIENCE AND ENGINEERING ACADEMIES

Indian National Science Academy (INSA)	88
Indian Academy of Sciences (IASc)	100
National Academy of Sciences, India (NASI)	69
Indian National Academy of Engineering (INAE)	58
The Royal Society (UK)	3
National Academy of Sciences (USA)	1
The World Academy of Sciences (TWAS)	28
Institute of Electrical and Electronics Engineers (IEEE)	7

AWARDS

Padma Awards	6
Infosys Prize	3
Shanti Swarup Bhatnagar Prize	56
JC Bose Fellowship Award	74
DST – Swarnajayanti Fellowship Award	30
Wellcome Trust – DBT Fellowship	28

IISc Ranked India's Best Institution

In April 2017, IISc's Director Anurag Kumar received two plaques on behalf of the Institute from the Ministry of Human Resource Development (MHRD) – one for being ranked No. 1 among institutions of higher learning in India in the “Overall” category, and the other for receiving the top place for all Indian universities. The rankings are brought out by NIRF (National Institutional Ranking Framework) under the auspices of MHRD. IISc also received the top place in 2016 when the rankings were first introduced.





Our Guests

IISc hosted several dignitaries in 2017, including the former President of India Shri Pranab Mukherjee, the President of India Shri Ram Nath Kovind, the Vice President of India Shri Venkaiah Naidu, and the Human Resource Development (HRD) Minister of India Shri Prakash Javadekar.



Shri Ram Nath Kovind, President of India



Shri Pranab Mukherjee, Former President of India



Shri Venkaiah Naidu, Vice President of India



Shri Prakash Javadekar, Human Resource Development (HRD) Minister of India



Divisions

The Institute comprises six Academic Divisions

Biological Sciences

Chemical Sciences

Electrical Sciences



Interdisciplinary Research
Mechanical Sciences
Physical and Mathematical Sciences

DIVISION OF BIOLOGICAL SCIENCES

83

FACULTY AND
SCIENTIFIC STAFF

92

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

27

PhD STUDENTS GRADUATED
IN 2017

183

PhD STUDENTS

71

INTEGRATED PhD STUDENTS





Umesh Varshney
Divisional Chair

Biochemistry

Estd: 1921 | Chair: Prof. C Jayabaskaran

Centre for Ecological Sciences

Estd: 1983 | Chair: Prof. Rohini Balakrishnan

Microbiology and Cell Biology

Estd: 1941 | Chair: Prof. Usha Vijayraghavan

Centre for Infectious Diseases Research

Estd: 2014 | Convener: Prof. Dipankar Nandi

Centre for Neuroscience

Estd: 2009 | Chair: Prof. Aditya Murthy

Molecular Biophysics Unit

Estd: 1971 | Chair: Prof. Raghavan Varadarajan

Central Animal Facility

Estd: 1971 | Chair: Prof. Kumaravel Somasundaram

Molecular Reproduction, Development and Genetics

Estd: 1989 | Chair: Prof. Sandhya S Visweswariah



DIVISION OF CHEMICAL SCIENCES

59

FACULTY AND
SCIENTIFIC STAFF

79

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

47

PhD STUDENTS GRADUATED
IN 2017

274

PhD STUDENTS

106

INTEGRATED PhD STUDENTS



PK DAS
Divisional Chair



Inorganic and Physical Chemistry
Estd: 1909 | Chair: Prof. S Umapathy

Materials Research Centre
Estd: 1978 | Chair: Prof. Arun M Umarji

NMR Research Centre
Estd: 1977 | Chair: Prof. S Vasudevan

Organic Chemistry
Estd: 1911 | Chair: Prof. N Jayaraman

Solid State and Structural Chemistry Unit
Estd: 1976 | Chair: Prof. Aninda J Bhattacharyya

DIVISION OF ELECTRICAL SCIENCES

109

FACULTY AND
SCIENTIFIC STAFF

38

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

54

PhD STUDENTS GRADUATED
IN 2017

389

PhD STUDENTS

415

MASTER'S STUDENTS

7

IEEE FELLOWS

109

MASTER'S STUDENTS
GRADUATED IN 2017



Y NARAHARI
Divisional Chair



Computer Science and Automation

Estd: 1969 | Chair: Prof. Shalabh Bhatnagar

Electrical Communication Engineering

Estd: 1946 | Chair: Prof. A Chockalingam

Electrical Engineering

Estd: 1911 | Chair: Prof. AG Ramakrishnan

Electronic Systems Engineering

Estd: 1974 | Chair: Prof. Joy Kuri



DIVISION OF INTERDISCIPLINARY RESEARCH

46

FACULTY AND
SCIENTIFIC STAFF

12

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

31

PHD STUDENTS GRADUATED
IN 2017

339

PHD STUDENTS

126

MASTER'S STUDENTS

34

MASTER'S STUDENTS
GRADUATED IN 2017



G Rangarajan
Divisional Chair



Centre for BioSystems Science and Engineering
Estd: 2015 | Chair: Prof. GK Ananthasuresh

Centre for Contemporary Studies
Estd: 2004 | Chair: Prof. Raghavendra Gadagkar

**Centre for Infrastructure, Sustainable
Transportation and Urban Planning**
Estd: 2009 | Chair: Prof. Abdul Rawoof Pinjari

Centre for Nano Science and Engineering
Estd: 2010 | Chair: Prof. Navakanta Bhat

Computational and Data Sciences
Estd: 2015 | Chair: Prof. Phaneendra Yalavarthy

Management Studies
Estd: 1985 | Chair: Prof. Parthasarathy Ramachandran

Interdisciplinary Centre for Energy Research
Estd: 2012 | Chair: Prof. Giridhar Madras

Interdisciplinary Centre for Water Research
Estd: 2015 | Chair: Prof. PP Mujumdar

Robert Bosch Centre for Cyber Physical Systems
Estd: 2011 | Chair: Prof. Bharadwaj Amrutur

Supercomputer Education and Research Centre
Estd: 1970 | Chair: Prof. Sathish Vadhiyar





DIVISION OF MECHANICAL SCIENCES

158

FACULTY AND
SCIENTIFIC STAFF

86

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

96

PhD STUDENTS GRADUATED
IN 2017

724

PhD STUDENTS

343

MASTER'S STUDENTS

172

MASTER'S STUDENTS
GRADUATED IN 2017

VIKRAM JAYARAM
Divisional Chair



Aerospace Engineering

Estd: 1942 | Chair: Prof. S Gopalakrishnan

Centre for Product Design and Manufacturing

Estd: 1998 | Chair: Prof. Amaresh Chakrabarti

Chemical Engineering

Estd: 1943 | Chair: Prof. Ganapathy K Ayappa

Materials Engineering

Estd: 1945 | Chair: Prof. TA Abinandanan

Mechanical Engineering

Estd: 1945 | Chair: Prof. Pradip Dutta

Civil Engineering

Estd: 1950 | Chair: Prof. Sudhakar M Rao

Centre for Earth Sciences

Estd: 2007 | Chair: Prof. D Nagesh Kumar

Centre for Atmospheric and Oceanic Sciences

Estd: 1982 | Chair: Prof. Debasis Sengupta

Centre for Sustainable Technologies

Estd: 1974 | Chair: Prof. BV Venkatarama Reddy

Divecha Centre for Climate Change

Estd: 2009 | Chair: Prof. SK Satheesh

DIVISION OF PHYSICAL AND MATHEMATICAL SCIENCES

99

FACULTY AND
SCIENTIFIC STAFF

60

FELLOWSHIPS OF
SCIENCE AND ENGINEERING
ACADEMIES IN INDIA

54

PhD STUDENTS GRADUATED
IN 2017

314

PhD STUDENTS

15

MASTER'S STUDENTS

11

MASTER'S STUDENTS GRADUATED IN 2017

128

INTEGRATED PhD STUDENTS





Rahul Pandit
Divisional Chair

Centre for Cryogenic Technology

Estd: 1971 | Chair: Prof. V Venkataraman

Centre for High Energy Physics

Estd: 2004 | Chair: Prof. B Ananthanarayan

Instrumentation and Applied Physics

Estd: 1996 | Chair: Prof. S Asokan

Mathematics

Estd: 1956 | Chair: Prof. Gadadhar Misra

Physics

Estd: 1933 | Chair: Prof. V Venkataraman



IISc and Society

Industrial growth and social welfare were at the heart of JN Tata's founding vision of the Institute. These ideals continue to guide IISc in its research programmes, a few of which are highlighted in this section.

IISc is committed to research that directly impacts lives. An example of this is the IISc-led multidisciplinary, multi-institution effort to develop antivirals and a vaccine for hepatitis C. IISc also leads the research effort that would lead to the next-generation hypersonic vehicles through its Centre of Excellence for Hypersonics.

Keen on gaining a foothold in the nanoelectronics industry, the Ministry of Electronics and Information Technology is supporting the Indian Nanoelectronics Users' Programme at IISc and IIT Bombay. In IISc, the programme trains researchers from all over India at the cutting-edge facilities at the Centre for Nano Science and Engineering. An unexpected benefit has been engineering college teachers finding the training they receive in this programme to be of use in their teaching. A larger-scale effort to train teachers at all level is underway at the Talent Development Centre at IISc's Challakere campus.



Nowhere, perhaps, are the dual imperatives of economic growth and human welfare in conflict as much as with the phenomenon of climate change. Inputs from IISc's climate scientists will help shape India's sustainable growth trajectory. As a first step, though, we need to know where we're headed, and a climate change "calculator" developed by an IISc researcher with his collaborators helps us visualise our climate trajectories if we cut down on our greenhouse gas emissions. Or what happens if we don't.

IISc researchers also intervene more directly towards a sustainable future. The numerous technologies developed at the Centre for Sustainable Technologies exemplify how existing technology can be adapted to local needs.

Nanotechnology for the nation

The Indian Nanoelectronics Users' Program (INUP), supported by the Ministry of Electronics and Information Technology, makes the state-of-the-art facilities and the expertise at the Centre for Nano Science and Engineering (CeNSE) available to the wider research community in India.

In the three-level training programme, PhD students and faculty members at institutions across India get to work on projects they wouldn't otherwise have been able to because they didn't have access to the facilities or the training to use them. CeNSE is especially suited for such training, given the facilities it has for everything from fabrication to packaging.





“The aim is to create human resources in this area, a critical mass of people who can contribute,” says Navakanta Bhat, Chairperson of CeNSE and the Principal Investigator of INUP. “This will create a ‘multiplier effect’, where the people we train will go out and influence others.” So far, INUP, at IISc and IIT Bombay, has trained about 6700 researchers from 703 institutions and organisations across India. The programme has resulted in more than 250 PhD theses, 210 published papers and 17 patents filed/awarded based partly or wholly on work done through INUP at CeNSE.



Low-cost sustainable technologies

Over the years, the Centre for Sustainable Technologies (CST) has rolled out several innovations that have had a direct impact on the quality of lives of people. These technologies – which have found applications in rural electrification, drinking water and waste water management, bioenergy and more – have been implemented in different parts of the country in partnership with NGOs and local communities.

One such innovation that CST has developed is the stabilized mud block, a technology that has helped rebuild the village of Kodiyaampalayam in Tamil Nadu after it was struck by a tsunami. These mud blocks were used to construct environmentally-friendly, low-cost houses and toilets in this fishing hamlet. The toilets had to be designed so that it can be built in cramped spaces and on an elevated platform because the water table here is very high. Its design, which has been patented, has received a “best practices” award from the Suez Environment–Water For All Foundation.





Besides technology transfer, CST has been training youth from villages in the use of technologies like the fuel-efficient cooking stove (ASTRA OLE) and the ASTRA fruit and vegetable drier among others.



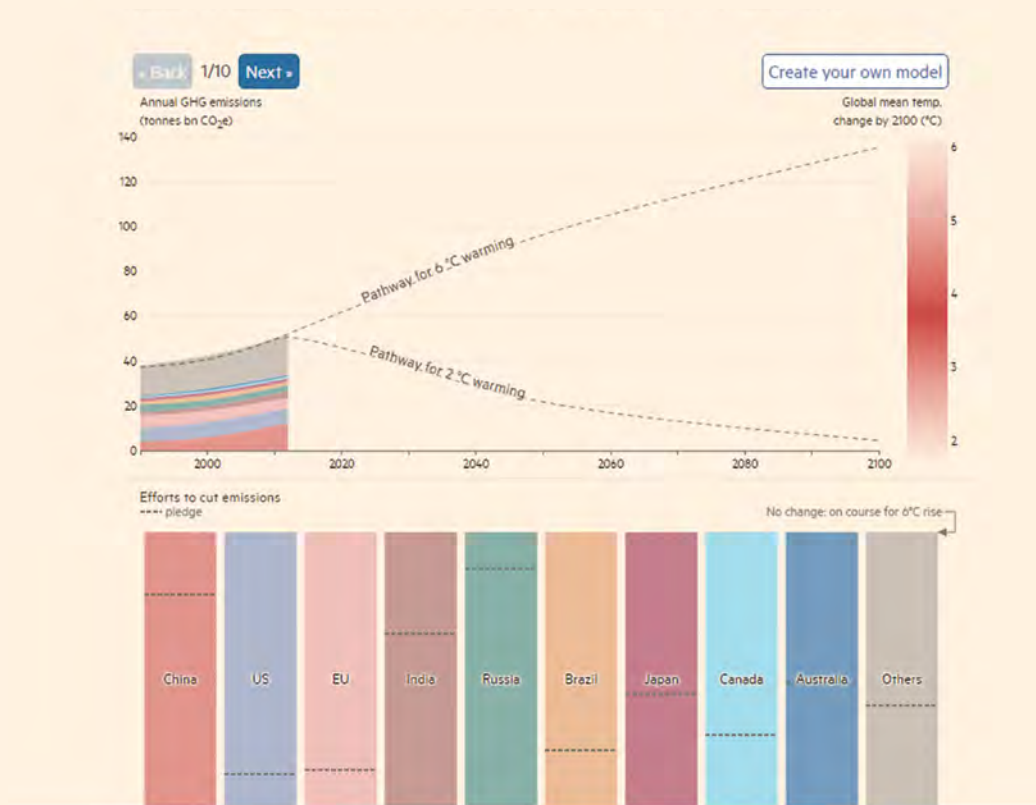
A device that provides a glimpse into our future

Since 1880, the average global surface temperature has increased by at least 0.85°C . The effects of the change in temperature are already evident: sea levels are rising, sea ice and glaciers are melting, heat waves are becoming more frequent, and core ecological processes are being disrupted. The main villain in the recent spurt in warming is carbon dioxide, a greenhouse gas.

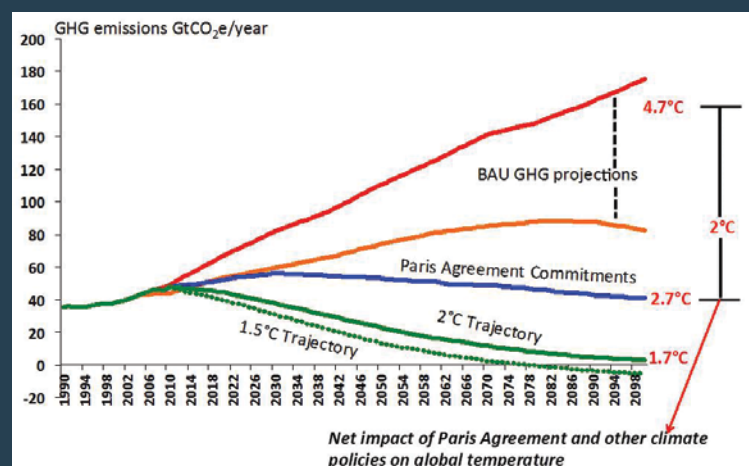
In spite of the impending crisis, the track record of political leaders in addressing the issue of climate change has been sketchy at best. However, in December 2015 in Paris, 195 countries agreed to voluntarily cut their greenhouse gas emissions over the next few decades. But what happens if the signatories treat these promises as mere lip service? Or if a country backs out of the agreement, as the US is threatening to do?



Climate Change Calculator



There is no straightforward answer to the question, but we now have a climate change calculator to help us understand the repercussions of such a move. This interactive virtual tool has been developed based on research by Rajiv Kumar Chaturvedi from the Divecha Centre for Climate Change, and his collaborator Jeremy Woods from Imperial College London.



A Centre dedicated to the jigsaw puzzle of hypersonic research

In 2011, IISc created a new centre for studying an exciting aspect of scientific research in today's world: hypersonic flight. The Centre of Excellence for Hypersonics was inaugurated that year by APJ Abdul Kalam, former President of India and eminent aerospace scientist.

Although research on hypersonics has been conducted in India for the last few decades (particularly at IISc – India's first hypersonic shock tunnel was built here in 1973), there had previously been no major dedicated programmes, says Jagadeesh Gopalan, Professor at IISc's Department of Aerospace Engineering and Chairperson of the Centre.





Gopalan describes the vision for the Centre as being to complete the “jigsaw puzzle” of hypersonics research, which combines work from different disciplines. The Centre works with faculty members across departments at IISc such as the Materials Research Centre and Department of Inorganic and Physical Chemistry, and collaborates closely with industry.



Improving the quality of India's teachers

According to the Annual Status of Education Report 2016, only 43.3% of Class VIII students in India can perform simple arithmetic operations like dividing a three-digit number by a single-digit number. This is one of the many statistics that show the dearth of well-trained teachers in India.

To address this issue, in 2011, a permanent training centre for science and mathematics teachers called the Talent Development Centre (TDC) was started at IISc's second campus at Challakere in Chitradurga district. This programme is now part of the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching, a government initiative to boost the quality of science teaching in India.





So far thousands of teachers have been trained here successfully – as evident from the pre- and post-training evaluations of the participants. The Convenor of the TDC, MS Hegde, is more ambitious. “We are training about 1500-1600 teachers each year. The aim is to increase this number to 2800,” he says.

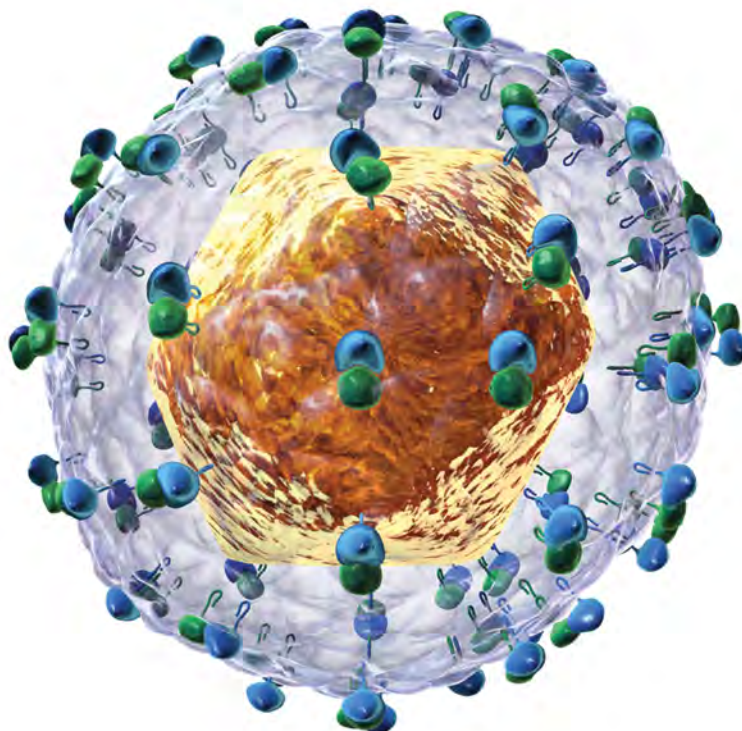
By 2019, the Centre will move to a new building with larger classrooms, an auditorium, and a cafeteria. Hostels to accommodate up to 200 teachers are also coming up.



Outsmarting the Hepatitis C Virus

As of 2015, an estimated 143 million people worldwide were infected with the hepatitis C virus (HCV), the pathogen which causes the liver disease hepatitis C. And millions of new cases are reported each year.

Saumitra Das (Department of Microbiology and Cell Biology) and his collaborators have developed antivirals that attack various stages of the HCV lifecycle. Das heads a multidisciplinary Centre of Excellence for Hepatitis C Virus Research, a collaborative effort involving nine labs across India.





HCV hijacks its host cell's machinery to translate its RNA and manufacture its own proteins through a mechanism common to all strains of the virus. Over the years, Das has successfully demonstrated various approaches to inhibiting this translation. With collaborators at IISc and elsewhere, he has developed ways to prevent HCV from entering the cells in the first place, and also ways to stop the virus from replicating if it has entered a cell.

Das' lab found that extracts from pomegranate (*Punica granatum*) and a type of amla (*Phyllanthus amarus*) have compounds which inhibit virus replication. His team has also made a major headway towards developing a HCV-vaccine candidate, customized for Indian population.









Nirupam Roy | PHYSICS



Varun Raghunathan | ELECTRICAL COMMUNICATION ENGINEERING



Sourabh Suhas Diwan | AEROSPACE ENGINEERING



Vamsi Pritham Pingali | MATHEMATICS



Srisha Rao MV | AEROSPACE ENGINEERING

Welcome to our new faculty

Meet the faculty members who have joined our Institute in recent months



Naga Phani B Aetukuri | SOLID STATE AND STRUCTURAL
CHEMISTRY UNIT



Bhushan J Toley | CHEMICAL ENGINEERING



Anand Louis | COMPUTER SCIENCE AND AUTOMATION



Tanweer Hussain | MOLECULAR REPRODUCTION,
DEVELOPMENT AND GENETICS



Srimanta Middey | PHYSICS



Hardik J Pandya | ELECTRONIC SYSTEMS ENGINEERING



Sumilan Banerjee | PHYSICS



Pavankumar Tallapragada | ELECTRICAL ENGINEERING



Rajeev Kumar Jain | PHYSICS



Chandni U | INSTRUMENTATION AND APPLIED PHYSICS



Venkatesh R | MATHEMATICS



Chetan Singh Thakur | ELECTRONIC SYSTEMS ENGINEERING



Animesh Kuley | PHYSICS



Alope Kumar | MECHANICAL ENGINEERING



Asha Bhardwaj | INSTRUMENTATION AND APPLIED PHYSICS



Vinod Ganapathy | COMPUTER SCIENCE AND AUTOMATION



Akkattu T Biju | ORGANIC CHEMISTRY



Rachit Agarwal | CENTRE FOR BIOSYSTEMS SCIENCE AND ENGINEERING



Anirban Chakraborty | COMPUTATIONAL AND DATA SCIENCES



Abdul Rawoof Pinjari | CIVIL ENGINEERING



Apoorva Khare | MATHEMATICS



Chinmoy Ranjan | INORGANIC AND PHYSICAL CHEMISTRY



Abhishake Mondal | SOLID STATE AND STRUCTURAL CHEMISTRY UNIT



Kartik Sunagar | CENTRE FOR ECOLOGICAL SCIENCES



Sambuddha Misra | CENTRE FOR EARTH SCIENCES



Shashi Jain | MANAGEMENT STUDIES



Tarun Rambha | CIVIL ENGINEERING



Vaishnavi Ananthanarayanan | CENTRE FOR BIOSYSTEMS SCIENCE
AND ENGINEERING



Srimonta Gayen | MOLECULAR REPRODUCTION, DEVELOPMENT AND GENETICS



Ashok Sekhar | MOLECULAR BIOPHYSICS UNIT



Saurabh Arun Chandorkar | CENTRE FOR NANO SCIENCE
AND ENGINEERING



Susmita Dash | MECHANICAL ENGINEERING







KERNEL COMMITTEE

TA Abinandanan

KN Balaji

Debasish Ghose (Chair)

Indumati Srinivasan

Karthik Ramaswamy

Kaushal Verma

T Matthew Jacob

Y Narahari

PS Sastry

V Thilagam

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Talent Development Centre

IISc Photography Club

Centre for Excellence in Hypersonics

Megha Prakash

Centre for Sustainable Technologies

Centre for Nano Science and Engineering

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