

An aerial photograph of the Indian Institute of Science (IISc) campus in Bangalore, India. The image shows a large, multi-story building with a prominent central tower, surrounded by dense green trees and other campus buildings. The word "WELCOME" is overlaid in large white letters at the top.

WELCOME

**INDIAN INSTITUTE OF SCIENCE
BANGALORE**

Conceived in 1896 by the inspired vision
of the pioneering industrialist Jamsetji Tata



- Established in 1909 as a Trust (Charitable Endowments Act 1890)
- Deemed University from 1957
- Funded by MHRD since 1993



Vision



Founder's mandate:
Institute designed to promote original investigations in all branches of learning and to utilise them for the benefit of India.

21st century: To be among the world's foremost academic institutions through the pursuit of excellence and the promotion of innovation.

Residential intellectually vibrant campus

440-acre wooded campus

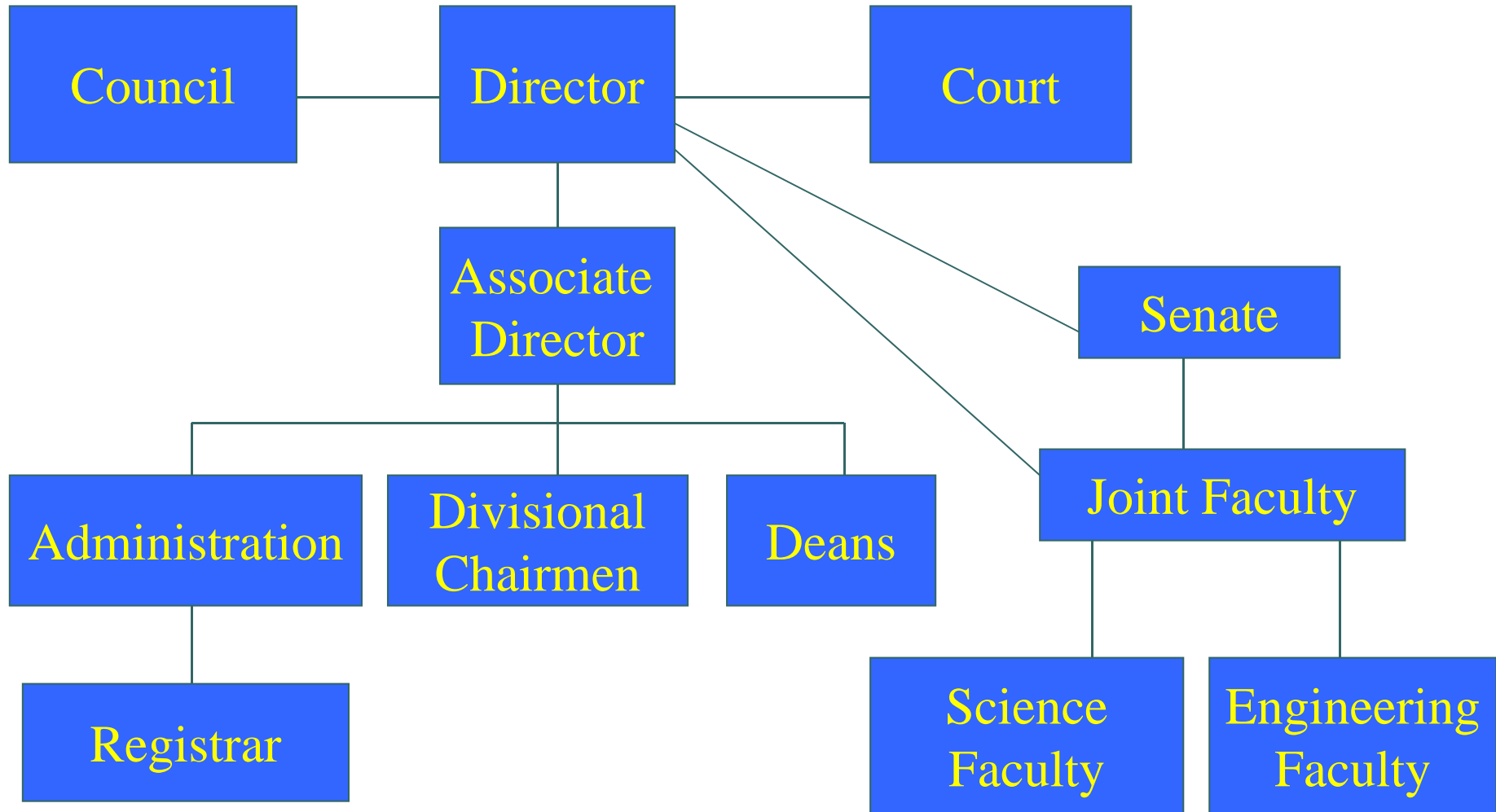
Land gifted by the Maharaja of Mysore Shri Krishna Raja Wodeyar

Exotic flora and fauna





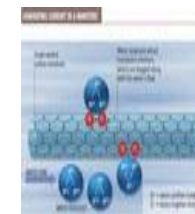
Organization





Divisions

- **Biological Sciences**
- **Chemical Sciences**
- **Earth and Environmental Sciences**
- **Electrical Sciences**
- **Mechanical Sciences**
- **Physical and Mathematical Sciences**





Student and Faculty Profile



- **Faculties: Science and Engineering**
- **Students: ~2300 (Men ~ 80% ; Women ~ 20%)**
- **Research: (PhD, Int. PhD) ~ 1440**
- **Course: [ME, MTech, MDes, MBA, MSc (Engg.)] ~ 860**
- **Faculty: 336 (Academic) 105 (Scientific)**





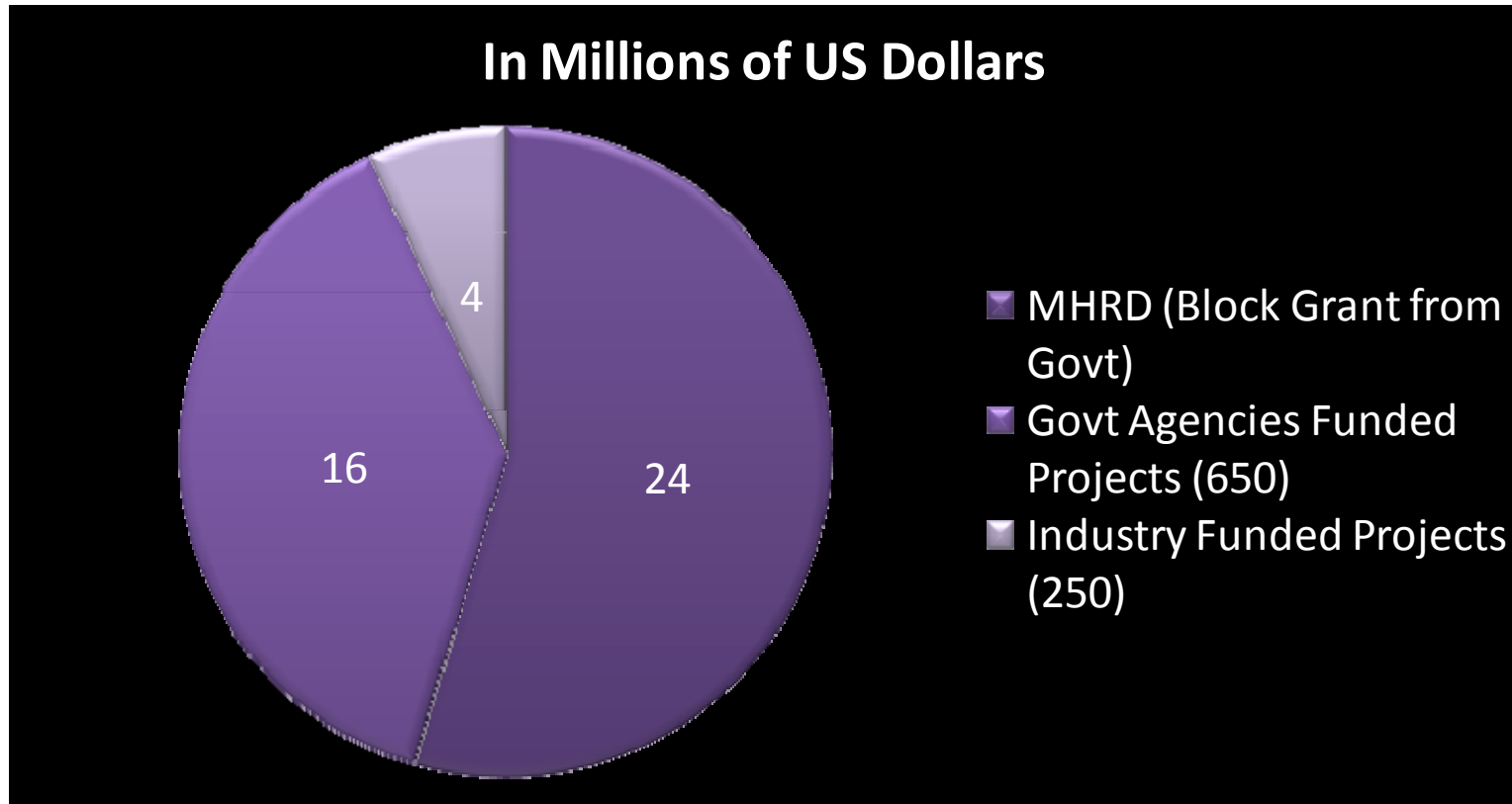
Student and Faculty Profile



- Faculty-Student Ratio ~1:7
- Degrees / year ~ 555 [PhD 180; MSc (Engg) 85; MS 35; ME/M Tech/MDes 255]
- Research Publications / year ~ 1800
- SCI Journal Papers/year ~ 900
- Academic visitors /year ~ 1000

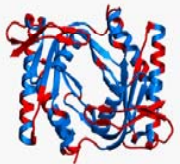
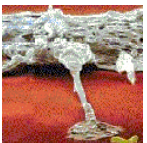
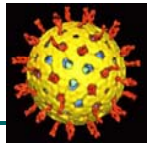


Annual Budget at a Glance



Biological Sciences Division

58 Faculty Members, 307 students



- **Biochemistry**
- **Microbiology and Cell Biology**
- **Molecular Reproduction, Development and Genetics**
- **Molecular Biophysics Unit**
- **Centre for Ecological Sciences**
- **Centre for Neuroscience**
- **Central Animal Facility**
- **Structural Biology**
- **Immunology**
- **Enzymology**
- **Reproductive and Developmental Biology**
- **X-ray Crystallography**
- **Ecological and Environmental Studies**
- **Genomics**
- **Neuroscience**

260 publications



Chemical Sciences Division

Chemistry at the Interface of Biology and Material Science

44 Faculty Members 250 Students



- Inorganic and Physical Chemistry



- Materials Research Centre

- Organic Chemistry

- Solid State and Structural Chemistry



- Centre for NMR Research



- Synthesis

- Organometallics

- Functional Polymers

- Supramolecular Chemistry

- Laser Spectroscopy

- Chemical Dynamics

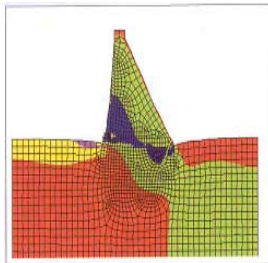
- Smart Materials

- Magnetic Resonance Imaging etc.

345 publications

Earth and Environmental Sciences Division

43 Faculty Members 230 Students



Principal stress contours on gravity dam subjected to hydrostatic & body forces

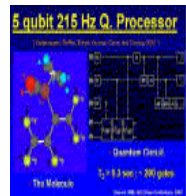
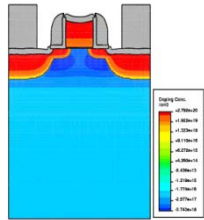


- Atmospheric and Oceanic Sciences
- Civil Engineering
- Climate Change
- Earth Sciences
- Infrastructure, Sustainable Transportation and Urban Planning
- Management Studies
- Sustainable Technology
- Soil Mechanics
- Theory of Structures
- Hydrology & Water Resource Engineering
- Climatology and Ocean Science
- Earth System Science
- Sustainable Rural Technologies
- Satellite Technologies
- Human Resource Management
- Economics
- Finance and Marketing

267 publications

Electrical Sciences Division

56 Faculty members 567 Students



- **Electrical Engineering**
- **Electrical Communication Engineering**
- **Computer Science and Automation**
- **Centre for Electronic Design and Technology**

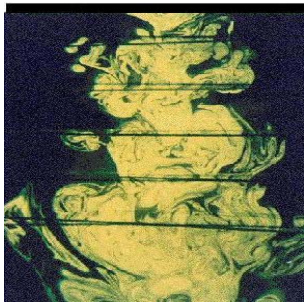
- **Communications (Networks, Microwave, Optical)**
- **Microelectronics and Instrumentation**
- **Power Systems (including Dielectrics and Protection)**
- **Signal Processing**
- **Software Engineering (including Graphics and DBMS)**
- **System Sciences and Automation**
- **Information Technology**
- **Internet Technology**
- **Theoretical Computer Science and Architecture**

320 publications



Mechanical Sciences Division

73 Faculty members 507 Students



- Aerospace Engineering
- Centre for Product Design and Manufacturing
- Chemical Engineering
- Materials Engineering
- Mechanical Engineering

- Aerospace Propulsion
- Aerodynamics
- Flight Mechanics & Control
- Aerospace Structures
- Fluid mechanics
- Combustion
- Turbo Machinery
- Technical Acoustics
- MEMS
- Reaction Engineering
- Composites and Alloys
- Nanomaterials
- Computer-aided Product Design
- Rapid prototyping

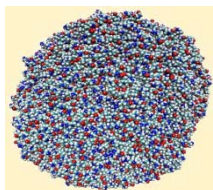
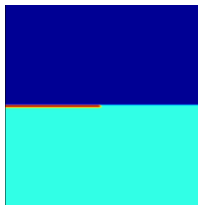
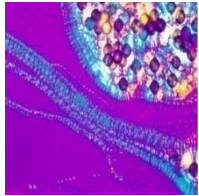
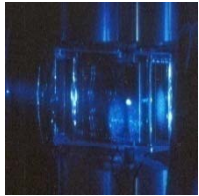
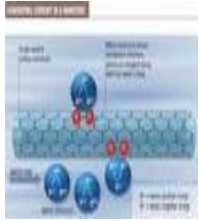
415 publications

Physical and Mathematical Sciences Division

56 Faculty Members 227 Students

- **Physics**
- **Mathematics**
- **Instrumentation**
- **Centre for Cryogenic Technology**
- **Centre for High Energy Physics**
- **Centre for Contemporary Studies**
- **Astronomy and Astrophysics Programme**
- **Condensed matter physics - Theory and Experiments**
- **Biocrystallography**
- **Electronic Instrumentation**
- **Thin film devices**
- **Optical Instrumentation**
- **Astronomy & Astrophysics**
- **Particle Physics**
- **Field Theory**
- **Analysis**
- **Geometry and Topology**
- **Nonlinear Dynamics**
- **Stochastic Processes**

230 publications





Information Resources



- JRD Tata Memorial Library
- Best Science and Technology library in India
- Electronic access to over 10000 journals



Information Resources ...



NCSI: National Centre for Science Information

E-information and E-prints archive

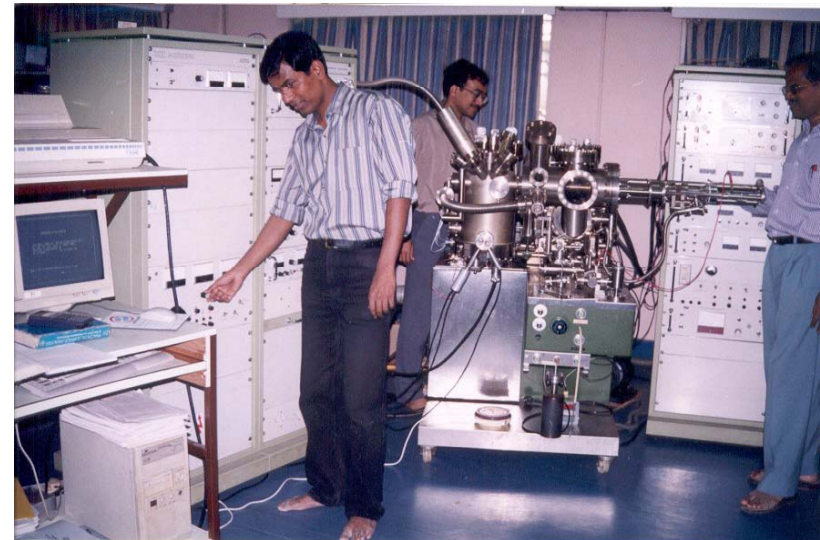
Digital Library ("Million Books on the Web" Project)





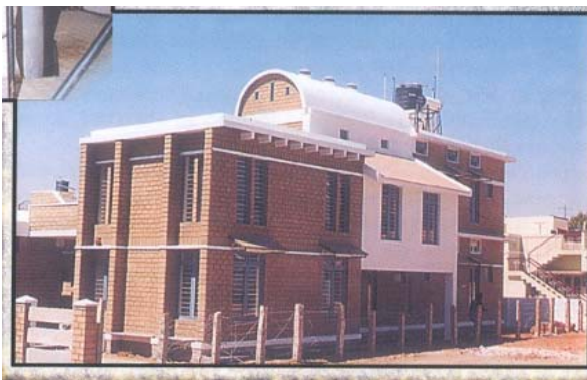
Our Strengths

- A tradition of sustained excellence in science and engineering
- Mother to many Institutions in the country
- Contributor to all major national initiatives
- A distinguished and highly acclaimed faculty





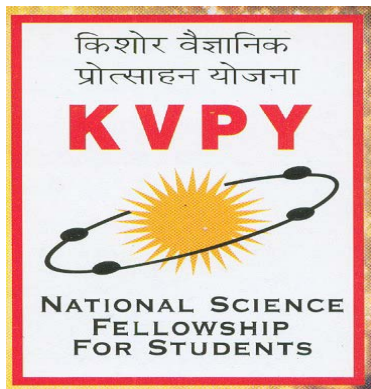
Interactive Programmes



- **Technology Development Missions**
- **IISc-DRDO Joint Advanced Technology Programme**
- **Space Technology Cell**
- **Department of Biotechnology Programmes**
- **Department of Nonconventional Energy Sources**
- **Department of Ocean Development**
- **Department of Environment and Forests**
- **Ministry of Communication and Information Technology**



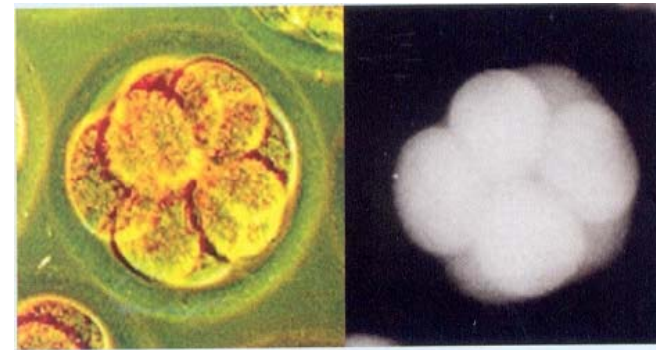
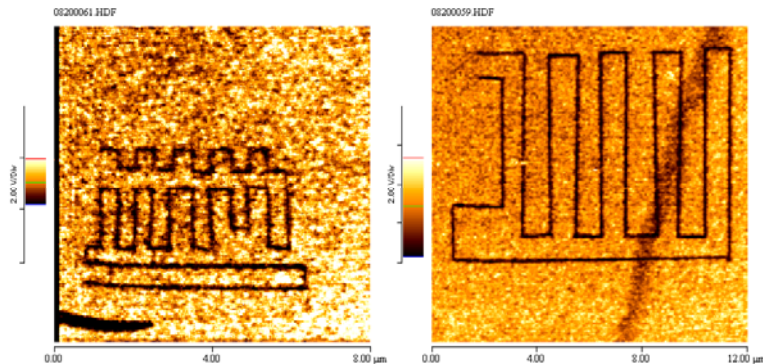
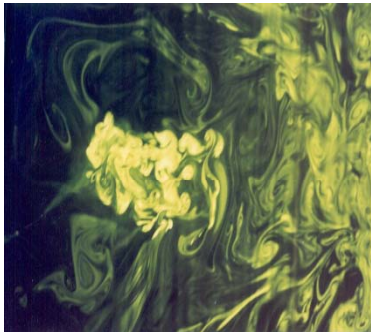
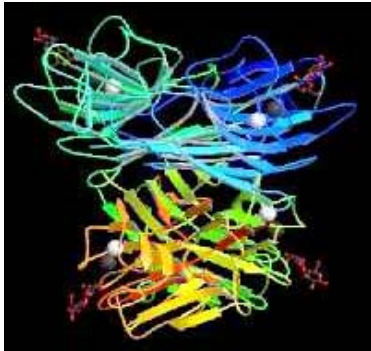
Outreach Programmes



- **IISc Young Associate Programme (Science and Engineering ~ 50 per year)**
- **Kishore Vaigyanik Protsahan Yojana of DST, India, coordinated by IISc**
- **Summer research programmes (JNCASR and Indian Academy of Sciences)**

Interdisciplinary Programmes

- Chemical Biology
- Earth System Science
- Institute Mathematics Initiative
- Nanoengineering
- Nanoscience and Nanotechnology
- Neuroscience





Some New Facilities

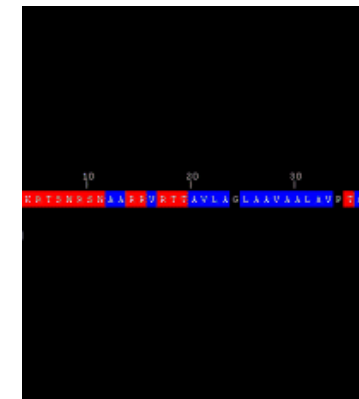
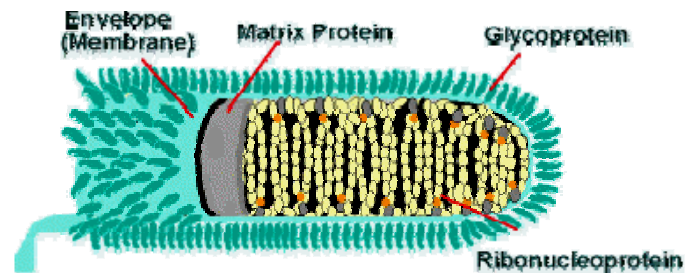
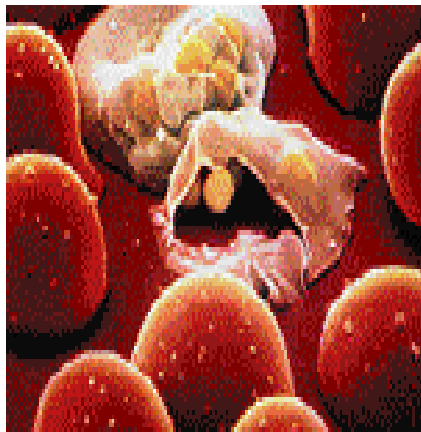
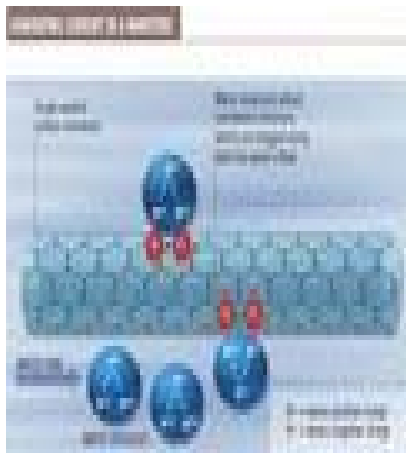
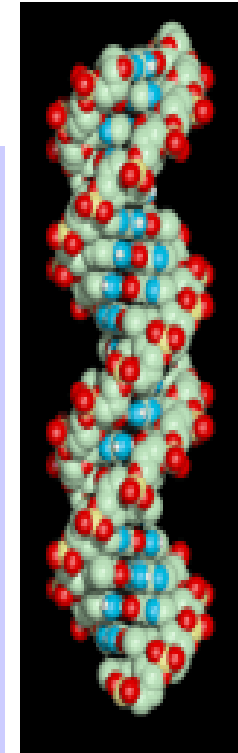


- Field-emission transmission electron microscope with EELS and HADDF
- Field-emission SEM
- 700 MHz NMR with a cryoprobe
- Femtosecond laser spectroscopy
- IBM Bluegene Computer
- Five New Academic Buildings



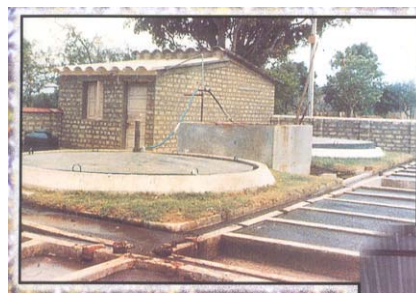
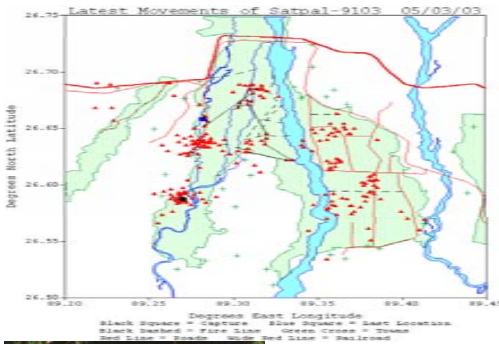
Some Recent Highlights

- Recombinant and DNA-based vaccines for Hepatitis-B, Rota virus, and Rabies
- New drug target for falciparum malaria
- MEMS and Nano flow sensors
- Ultrasensitive immunoassay
- Protein sequence to structure to function via computational genomics
- Bioleaching in mining



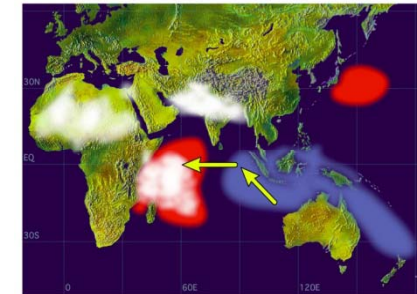


Some Recent Highlights

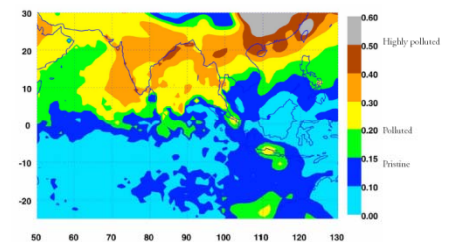


- Satellite tracking of elephants
- Biomass-gasification-based power generation
- Improved lead-acid batteries
- Biofuels
- Low-cost earthquake resistant housing
- Biodiversity conservation
- Dipole mode in the Indian Ocean
- Asian Brown Cloud

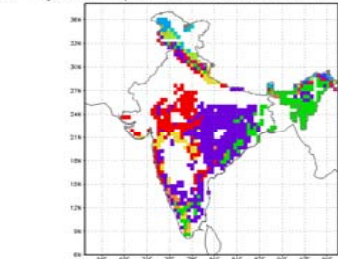
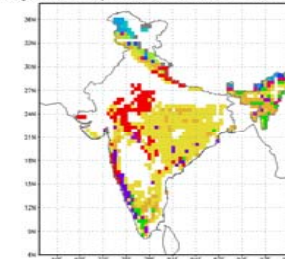
Positive Dipole Mode



The Asian Haze
INDOEX Data for Jan-Mar 1999



Vegetation map for the control run of HadRM2 Vegetation map for Year 2050, GHG run of HadRM2





Interactions with Industry

- Catalyses and nurtures consultancy projects
- Design and development of products and processes
- Transfer of technology



**Centre for Scientific
and Industrial
Consultancy**



Interactions with Industry

- **Mandate:**
Intellectual – industrial clusters
- **Generate and protect IPR**



Society for Innovation and Development: Centre for Innovation



Interactions with Industry

- Faculty members can form their own companies in which the Institute gets equity
- Example: Strand Life Sciences



SID: Entrepreneur Centre



Interactions with Industry

IT

Honeywell

Intel

Microsoft

Nokia

Samsung

CISCO

Motorola

Texas Instruments

Ericsson

Nortel

HP Labs India

Mahindra & Mahindra

BT

Shantha Biotech

Indian Immunologies

Biological E cole

Mitokor

GPS Usha

Dabur Research Foundation

FMC India

Sir Dorabji Tata Centre

Sourav Chemicals

Unichem Laboratories

Cadila Pharmceuticals

Hindustan Lever Limited

Materials & Systems

General Motors

Tata Motors Ltd

Honeywell

Daimler Chrysler

Boeing

Pratt & Whitney

IMI Cornelius

ADA

NPOL

ISRO

DRDO

Cookson Electronics

National Science Seminar Complex



- **State of the art conference centre with various halls.**
- **Nearly 100 international and national conferences held every year.**



Centre for Continuing Education



- Set up in 1975-76
- Makes the expertise and facilities of IISc available to technical and scientific personnel in industries and universities
- **28000 people trained via short-term courses**
- **About 200 have got PhDs and 200 ME / MTech**



International Relations

MOUs with foreign universities

Growing number of foreign students

Large number of foreign delegations ~ 75/year



Some International Partners



- Indo-French Cell on Water Science (with IRD, Paris)
- University of California, Berkeley
- University of Southern California
- Korea Institute of Sci. and Tech.
- Karolinska Institut, Stockholm
- University of Bologna
- University of Manchester
- Technical University, Munich
- Universite Joseph Fourier
- ENS (Cachan, Lyon, Paris)
- National University of Singapore
- University of Sydney
- Indo-French Centre for Organic Synthesis

