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BOARD OF GOVERNORS

CHAIRMAN
Mr BVR Mohan Reddy
Executive Chairman
Cyient Limited

MEMBER
Prof Vinod Krishan
Senior Professor & Dean
Indian Institute of Astrophysics

MEMBER
Dr Prema Ramachandran
Director
Nutrition Foundation of India

MEMBER
Prof M Lakshmi Kantam
Department of Chemical Engineering
Institute of Chemical Technology

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Ministry of Human Resource Development

MEMBER
Prof B Janardhan Reddy, IAS
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Department of Education
Government of Telangana

SENATE NOMINEE
Prof Anjan Kumar Giri
HoD, Physics Department
Indian Institute of Technology Hyderabad

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EX-OFFICIO
Prof UB Desai
Director
Indian Institute of Technology Hyderabad

SECRETARY
Mr N Jayaram
Registrar
Indian Institute of Technology Hyderabad
IITH entered its next decade in July 2018. The first year of the new decade was as exciting or even more so than any of the previous years. As always, IITH has been at the forefront of academics. Top JEE (advanced) and GATE ranking students are opting for IITH. In the academic year starting in August 2019 IITH is starting several new programs: B.Tech. in AI, Minor in AI, B.Des. in the Design Department, M.Tech. in Climate Change and several other initiatives. Our faculty student ratio is best among all IITs – 1:13. We have a very strong PG program. The rough ratio among Ph.D. students, Masters students and Undergraduate students is 30:25:45. Overall IITH offers 10 B.Tech programs, 16 M.Tech programs, 3 M.Sc. programs, MA Program, M.Des program and PhD programs in all branches of engineering, science, liberal arts and design.

IITH has implemented a very novel academic program, referred to as, Fractal Academics – the key idea is to atomize courses, provide breadth and depth, emphasize courses in liberal arts as well as creative arts, emphasize project work, and create an interactive learning ambience.

IITH is the first institute to start an M.Tech. program in Data Science for working
professionals; this is a completely a video-based course. IITH also has All Course M.Tech. Program in almost all engineering departments.

By Aug 2019, IITH will have nearly 2750 students with more than 20% women students, and 205 full time faculty members. IITH’s sanctioned research funding will be to the tune of Rs.350 crs. from nearly 350 plus sponsored projects. Our overall citation is 24,492 and we have an H-Index of 50.

Our Japan collaboration is in full swing with Japanese faculty visiting us and IITH faculty visiting leading Japanese university on a regular basis. There are several active R&D projects having Japanese collaboration. There is a strong student exchange program with Japan. All the infrastructure development with Japanese collaboration has started, and soon IITH will be among the best campuses in the country and possibly the world.

IITH has MOUs with at least 50 universities globally, most of them in Japan, USA, Australia, Canada, Europe and Taiwan.

IITH has three technology incubators – iTIC, Center for Healthcare Entrepreneurship and Fabless Chip Design Incubator. Moreover, there are 6 research centers – most notable being Nano-technology, Teaching and Learning Center, and Design Innovations Center. This year IITH will start a new Center of Excellence in AI. Fourteen companies have been incubated, three are already making a profit, two have received funding from Bill and Melinda Gates Foundation, four have received funding from BIRAC-DBT, and three companies employ more than 40 people. The center for health care entrepreneurship, funded by two IIT Bombay alumni, is a feather in the cap for the entrepreneurial efforts taken by IITH.

IITH has been consistently ranked in top 10 engineering institutions in the National Institutional Ranking Framework (NIRF). Furthermore, it has achieved 196 and 100 position in QS Asia pacific and QS BRICS ranking respectively. IITH also features at 600 position in Times Higher Education World University ranking. IITH also features at 10th position in the first edition of ARIIA ranking for publically funded institutes.

IITH is creating a unique holistic educational ecosystem that offers interactive learning, a highly, flexible academic structure, cutting edge research, strong industry collaboration, and entrepreneurship. It is providing an environment wherein students and faculty are not afraid to translate their dreams to realities.

Prof UB Desai
As on 31 March 2019, IITH is having 197 faculty members on its roll. 12% of the total faculty are women. 35% of the faculty members obtained their PhD from universities abroad and 50% possess post doctoral research experience from leading universities abroad.

**Gender-wise Distribution of Faculty**

- Male Faculty: 172
- Female Faculty: 25

**All Faculty with PhD**

- Foreign PhD: 68
- Indian PhD: 129

**Faculty with Post-Doctoral Experience in Abroad**

- Total: 100
- Male: 96
- Female: 4

**Faculty with Post-Doctoral Experience in India**

- Male: 21
- Female: 17

**Department-Wise Faculty Strength**

- BM: 8
- BT: 8
- ChE: 16
- CY: 14
- CE: 17
- CSE: 20
- DS: 6
- EE: 28
- LA: 15
- MSME: 12
- MA: 15
- MAE: 21
- PH: 17
# ACADEMICS

**Department-wise Distribution of B.Tech students (18-19)**

- CE: 35
- CHE: 26
- CSE: 52
- EE: 52
- EP: 19
- ES: 28
- MAC: 11
- MAE: 15

*Including all Courses of M.Tech*

**Department-wise Distribution of M.Tech students (18-19)**

- BM: 11
- BT: 9
- CHE: 20
- CSE: 32
- EE: 82
- MAE: 43
- MAC: 11

#Including EMDS candidates

**Department-wise Distribution of M.Sc students (18-19)**

- CY: 31
- MA: 14
- PH: 18

*Including all Courses of M.Tech*

**Total number of B.Tech students admitted in each academic year**

- 08-09: 111
- 09-10: 112
- 10-11: 123
- 11-12: 139
- 12-13: 196
- 13-14: 200
- 14-15: 208
- 15-16: 203
- 16-17: 242
- 17-18: 288
- 18-19: 290

* Two students transferred from other IITs

**Total number of M.Tech students admitted in each academic year**

- 09-10: 32
- 10-11: 52
- 11-12: 78
- 12-13: 160
- 13-14: 177
- 14-15: 211
- 15-16: 194
- 16-17: 223
- 17-18: 251
- 18-19: 269

**Total number of M.Sc students admitted in each academic year**

- 10-11: 7
- 11-12: 20
- 12-13: 36
- 13-14: 41
- 14-15: 48
- 15-16: 49
- 16-17: 59
- 17-18: 61
- 18-19: 63

* Two students transferred from other IITs
...ACADEMICS

Total number of M.Phil students (18-19) 6

Total number of M.Des students (18-19) 12

Department-wise Distribution of PhD students (18-19)
The vibrant research culture in IITH is evident from the large number of publications and the sponsored projects. In the financial year 2018-19 IITH had secured more than 100 sponsored projects from national funding agencies and private companies. The trend in the number and quantum of sponsored projects in IITH over the past is shown in the charts below.

**Research Projects**

No of Projects | Projects Cost (Amount In Rs Lakhs)
---|---
2008-09 | 1
2009-10 | 5
2010-11 | 12
2011-12 | 28
2012-13 | 32
2013-14 | 40
2014-15 | 66
2015-16 | 104
2016-17 | 139
2017-18 | 225
2018-19 | 372

**Consultancy Projects**

No of Projects | Projects Cost (Amount In Rs Lakhs)
---|---
2008-09 | 2
2009-10 | 5
2010-11 | 6
2011-12 | 17
2012-13 | 20
2013-14 | 37
2014-15 | 37
2015-16 | 68
2016-17 | 113
2017-18 | 170
2018-19 | 225

Placements at Indian Institute of Technology Hyderabad for the academic year 2018-19 have yielded 261 offers for 418 registered students. More than 252 companies have registered for the placement process out of which around 107 companies have completed the placement process till date.

The top paying companies are Mercari, Toyota Research Institute-Advanced Development, Works Application and SMS Data Tech. The highest salary offered for this year is Rs.53.79 LPA and the average salary is Rs.16.74 LPA. There were 22 international offers.

A good number of students from UG, PG and M.Sc. have opted for higher education in India and abroad. Mentioned below few Universities opted for higher education:

- University of Tokyo
- University of Minnesota
- University of Texas, USA
- Carnegie Mellon University
- Nagoya University, Japan
- KTH, Sweden.
- Tohoku University, Japan
- New York University
- Purdue University, USA
- Hokkaido University, Japan
- University of Illinois
- Ohio State University
- Keio University
- Yokohama National University
- University of California
- University of Massachusetts, Amherst
- Columbia University
- National University of Singapore
- University of Florida
- University Della Svizzera Italiana
- University of Dallas
- George Washington University DC
- University of Maryland
- University of Cincinnati

SUMMER INTERNSHIPS

At IIT Hyderabad 3rd year B.Tech students participated actively in the summer internship program during May to July 2018-19 to a maximum of 8 weeks. Which includes both Industrial & Research oriented opportunities for students, the following are the companies registered for 2018-19 internship process.

- Adobe
- AIESEC
- Amazon
- Arcesium
- Arista Networks
- Awesome Firms India
- Boston Scientific
- Coromandel
- Cotzero Energy
- DE SHAW
- DoubtNut
- EA Games
- EarlySalary
- Edvizo
- Embibe
- Equilibrium Solutions
- Evelyn Learning System
- EY
- Frugal Testing
- Futures First
- Goldman Sachs
- Hexagon
- Host Analytics
- Kahan Technologies
- KPIT
- MakeXhappen
- Microsoft
- Model N Software
- Murata
- My Home Constructions
- My-healthconnect
- Paninian
- Pegasystems
- Philips
- Qrius
- Rakshak Foundation
- Raphe mPhibr Pvt Ltd
- Reckitt Benckiser (RB)
- Salseforce
- Samsung Bangaluru
- Samsung Delhi
- Saven Technologies
- Smartron India Pvt. Ltd.
- SMS Data Tech
- Suzuki Japan
- Svaya Robotics
- TCS
- Texas Instruments
- Thence
- TheRightDoctors
- TRDCC
- Triginta Technologies
- Truebil
- UTC
- Verizon Media
- XMACHINES
- XYZ Innovations.
## TEQIP Programs During 2018-19

<table>
<thead>
<tr>
<th>SL No.</th>
<th>Type</th>
<th>Program Title</th>
<th>Program Held on</th>
<th>Activity Coordinator’s Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Faculty Training Program</td>
<td>Faculty Induction Program – Batch I &amp; Batch II</td>
<td>15-19 &amp; 20-24 January 2018 (100 TEQIP Faculty)</td>
<td>Dr. Suhash Ranjan Dey</td>
</tr>
<tr>
<td>2</td>
<td>Faculty Training Program</td>
<td>Faculty Induction Program – Batch III &amp; Batch IV</td>
<td>25-29 January &amp; 30 January - 3 February 2018 (98 TEQIP Faculty)</td>
<td>Dr. Suhash Ranjan Dey</td>
</tr>
<tr>
<td>3</td>
<td>Short Course</td>
<td>Concepts &amp; Applications of the Finite Element Method</td>
<td>26 February - 3 March 2018</td>
<td>Dr. Viswanath Chinthapenta</td>
</tr>
<tr>
<td>4</td>
<td>Workshop</td>
<td>Nanomaterials based low cost sensor design for application in IoT</td>
<td>2-6 April 2018</td>
<td>Dr. Amit Acharyya &amp; Dr. Sushmee Badhulika</td>
</tr>
<tr>
<td>5</td>
<td>Workshop</td>
<td>Python, Arduino Platform and its programming using C</td>
<td>3-7 April 2018</td>
<td>Dr. G.V.V. Sharma</td>
</tr>
<tr>
<td>6</td>
<td>Faculty Training Program</td>
<td>Summer Training Program on Active learning</td>
<td>14 May - 8 June 2018 (229 Faculty in 6 Batches)</td>
<td>Dr. Suhash Ranjan Dey</td>
</tr>
<tr>
<td>7</td>
<td>Workshop</td>
<td>Thermal Analysis of Materials using DSC, TG, and Dilatometer</td>
<td>25-30 June 2018</td>
<td>Dr. Bharat B. Panigrahi</td>
</tr>
<tr>
<td>8</td>
<td>Workshop</td>
<td>Biomimetics and Biological Soft Materials</td>
<td>27-30 June 2018</td>
<td>Dr. Satyavarta Samavedi &amp; Dr. Balaji Iyer</td>
</tr>
<tr>
<td>9</td>
<td>Workshop</td>
<td>3-D Printing in Medicine</td>
<td>16-21 July 2018</td>
<td>Dr. Falguni Pati</td>
</tr>
<tr>
<td>10</td>
<td>Workshop</td>
<td>MEMS &amp; NEMS: Fundamentals, Design and Fabrication</td>
<td>17-22 December 2018</td>
<td>Dr. Prem Pal, Dr. Ashok Kumar Pandey &amp; Dr. Chandra Shekar Sharma</td>
</tr>
<tr>
<td>11</td>
<td>Workshop</td>
<td>Theory &amp; Applications of Computational Fluid Dynamics</td>
<td>11-15 February 2019</td>
<td>Dr. Raja Banerjee</td>
</tr>
<tr>
<td>12</td>
<td>Workshop</td>
<td>Radiation Physics &amp; Application</td>
<td>17-22 February 2019</td>
<td>Dr. B. Ramakrishna, Dr. J. Mohanty &amp; Prof. Anjan Giri</td>
</tr>
<tr>
<td>13</td>
<td>Internship</td>
<td>Student Summer Internship - 2018 (34 students from 16 various TEQIP Institutes)</td>
<td>1-30 June 2018</td>
<td>IIT Hyderabad Faculty (17 different faculty)</td>
</tr>
<tr>
<td>14</td>
<td>Internship</td>
<td>Faculty Summer Internship - 2018</td>
<td>1-20 June 2018</td>
<td>Dr. Gajendranath Chaudhary</td>
</tr>
<tr>
<td>15</td>
<td>Internship</td>
<td>Faculty Winter Internship - 2018</td>
<td>17-26 December 2018</td>
<td>Prof. C Krishna Mohan</td>
</tr>
</tbody>
</table>
The list of startups incubated in FY 18-19 is as follows:

<table>
<thead>
<tr>
<th>Name of the startup</th>
<th>Promoters</th>
<th>Business Domain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acausal Automation Pvt. Ltd.</td>
<td>Dr. Ramesh Reddy, Dr. Prasanth Kumar, Ms. Hemalatha Mallarapu</td>
<td>Robotics &amp; Automation Solutions and Products</td>
</tr>
<tr>
<td>Skelregen Pvt. Ltd.</td>
<td>Dr. Subha Narayan Rath, Dr. Nellore Vijay Kumar, Mr. Shibu Chameettachal</td>
<td>Polymer &amp; bio-active ceramic products</td>
</tr>
<tr>
<td>Eaffocare Innovation Pvt. Ltd.</td>
<td>Dr. Jyotsnendu Giri, Dr. Baishakhi Chandra</td>
<td>Human Healthcare and products</td>
</tr>
</tbody>
</table>
At IIT Hyderabad, 26th of January is celebrated as Republic Day every year as the Constitution of India came into force on this day in 1956. It is celebrated as the national festival of India. The Republic Day celebration starts with the hoisting of national flag by the Director of IIT Hyderabad followed by various cultural programmes. Students participate in these programmes with great zeal and enthusiasm.
Shri Ram Nath Kovind, the Honourable President of India was the chief guest for the 7th convocation of IIT Hyderabad held on 5th Aug 2018.
Women’s Cell, IIT Hyderabad, celebrated the International Women’s Day on 8 March 2019. Dr. Anuradha Udumudi, Founder and Director, Gene Tech, Hyderabad was the chief guest for the event. Prior to the Women’s Day event, there was a tree plantation activity in IITH campus by Dr. Udumudi.

The event began with a solo vocal performance followed by an inspiring talk by the chief guest. Dr. Udumudi talked about her journey from being in academia to entrepreneurship and experiences in the area of performing genetic tests before childbirth in the Indian scenario. Also, she mentioned that how women should be allowed to express themselves the way they are and requested women to come forward as an entrepreneur in the area of healthcare.

There were cultural programmes such as singing, dance and poetry recital. On the same day, an exhibition on the theme ‘Breaking the Barriers’ showcased poems, painting and photography submitted by students. Prizes were awarded based on feedback from a panel of judges. The event as a whole provided a forum for female students, faculty and staff to share their thoughts. A 2K run was also organised on the occasion, for students, faculty and staff.

In the year 2018-19, Women’s Cell received complaints of stalking, passing sexually coloured remarks and defaming. All these complaints were resolved through taking initiatives in generating awareness on gender issues through arranging several workshops for faculty and students in 2018 and 2019. Women’s Cell created an awareness on Sexual Harassment Act and appropriate behaviour to be expected in an educational institution.

The Women’s Cell also organized a self-defence program for the female students in September-November 2018. The program included an introduction to KravMaga, general safety in public places and transport, importance of self-defence training for girls, countering eve-teasing and countering violent attacks.

Women’s Cell has taken initiative in formulating and designing a mobile app for the safety and security of all the female students travelling in the night. The app will help in sending a message to IITH main security in case of emergency, by pressing a button.

In order to address harassment in laboratories and safety of female students working during late hours in campus, a feasibility study of installing CCTV camera in laboratories is under progress. Steps are being undertaken to make all streetlights functioning.

Women’s Cell, IIT Hyderabad has also taken initiative in organizing a series of lectures under ‘Women in STEM’ program in October and November 2018. As a part of this Ms. Charumathy Srinivasan, Partner Group Engineering Manager, Microsoft India Development Center, Hyderabad delivered a talk titled ‘Tour through the Current and Future Trends in Computing – Cloud & Edge’. Moreover, an inspirational lecture was given by Dr. Jugnu Jain, CEO and co-founder of Sapien Biosciences who shared her journey as a woman scientist in India, UK and USA, moving from academia to industry and becoming an entrepreneur. Specifically, she discussed about her role-models, mentors, inspiration and the challenges involved in this journey. This was to encourage female students to know more about experience of being women entrepreneurs and professionals in industry today. These talks were attended by a large number of students, and received good feedback.
The Biomedical Engineering Department (BME) at IIT Hyderabad is the place where boundaries between engineering and science disciplines fade in order to focus on research and education targeted for ongoing and future technology. The primary mission of the department is to foster interdisciplinary work of highest quality by bringing together a broad spectrum of faculty expertise under a single umbrella to focus on research in Biomedical Engineering. By converging the engineering expertise in analytical and experimental methods to biological and medical sciences, BME aim at unveiling the unseen in biology and innovations in technology that can be translated to clinical health care. BME has made substantial investments in strengthening the core research facilities and course curriculum. Faculty members of the department have several external research projects including IMPRINT. The BME minor program of 12 credits is designed for undergraduates to gain interdisciplinary knowledge in areas of Bioengineering. Faculty in the department of BME undertake research in broad spectrum of areas related to Biomedical Engineering/ Bioengineering such as Biophotonics, Lab on a Chip Biosensors, Biophysics, Biomechanics, Neuroscience, Tissue Engineering, 3D Bioprinting and Nanomedicine. The department will continue to leverage its core strengths in emerging as one of the leading centers of excellence in Bioengineering in the country.
FACULTY

Renu John
Ph.D – IIT Delhi
Associate Professor & HoD
Research Areas: Biomedical Optical Imaging; Quantitative Phase Microscopy; Biosensors

Jyotsnendu Giri
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Nanomedicine; Regenerative Medicine; Drug Delivery; Therapeutics and Diagnostics

Falguni Pati
Ph.D – IIT Kharagpur
Assistant Professor
Research Areas: Biomaterials; Tissue Engineering; 3D Bioprinting; InVitro Tissue/Organ Models

Harikrishnan Narayanan Unni
Ph.D – NTU, Singapore
Assistant Professor
Research Areas: Lab on Chip Microfluidics and Nanofluidics; Biophysics; Biomechanics

Mohan Raghavan
Ph.D – IISc., Bangalore
Assistant Professor
Research Areas: Computational Neuroscience; Motor System; Spinal Cord; Bionics; Assistive Devices; Rehabilitation

Aravind Kumar Rengan
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Nanomedicine; Bio-Nanotechnology; Photothermal Therapy; Nanotoxicology; Cancer Theranostics

Subha Narayan Rath
Ph.D – NUS, Singapore
Associate Professor
Research Areas: Biomimicking; 3D Bio-Printing; Angiogenesis; Osteogenesis; Nature-Inspired Biomaterials; Decellularized Tissues; Organ-On-Chip; Cell Therapy
**Patents Filed**


Shibu Chameettachal and Falguni Pati, Decellularized Corneal Matrix Based Hydrogel, Bioink Formulation and Methods Thereof, 17 March 2018, TEMP/E-1/10328/2018-CHE.


**Book & Book Chapters**


**Publications**

(in peer reviewed journals)


Renu John, Low Coherence Optical Microscopy for Microfluidics Applications, DST SERB, 2018-2020, Rs. 34 Lakhs.

Affordable and cost effective cancer diagnosis/treatment using gold based biodegradable nanoparticles – MHRD-IMPRINT Grant, Aug 2017 Rs. 154 Lakhs.

Affordable Detection Kit for Cervical Cancer – BIRAC SRISTI Grant, May 2017, Rs. 15 Lakhs.

**Publications**

(in peer reviewed conferences)


**Funded Research Projects 2018-19**

Renu John, *Development of OCT platforms for clinical applications*, DST TDP Program 2017-2019, Rs. 95 Lakhs.


**Workshops / Symposia**

International Conference on Digital Fabrication, Hyderabad, 16-17 March 2018 (Co-organization).

**Awards / Recognitions**

Shibu Chameettachal (PhD student) - *GYTI 2018 Award*.

Aravind Kumar Rengan (Faculty), Indian National Science Academy (INSA) - *Young Scientist Medal 2017*.

The research focus of Biomedical Engineering department spans on diversified areas in translational medicine and healthcare. The research labs in the department are very active in areas of Biophotonics, Microfluidics based Lab on Chip sensors, Stem Cell engineering and Nanomedicine. Following are some of the research highlights from the department:

The focus of Biophotonics Lab is the development of imaging techniques for studying biological cells and macromolecules. Different optical techniques such as phase contrast microscopy, digital holography etc. are investigated in detail for development of novel bioimaging applications. Phase image of sperm cells (to nanoscale resolution) are depicted in Figure 1. This research has serious implications in guiding the success rate of In Vitro Fertilization (IVF) treatment.

![Reconstructed Cells](image1)

Figure 1

The focus of Biomicrofluidics Lab (BML) is the development of chip scale analytic devices for biological/biomedical applications. Recently, the lab has developed paper based microfluidic platforms for diagnosis of Osteoporosis markers (Figure 2). In addition, an active area of BML is the design and development of droplet microfluidic platforms for biological micromixing (Figure 3 – ITO electrodes patterned on Glass wafer).

![Figure 2](image2)
**Biofabrication Lab** is dedicated to developing 3D printed materials/scaffolds for biomedical/biological applications. The lab has developed a novel cornea matrix (Figure 4) hydrogel, useful in ophthalmological applications.

**Computational Neuroscience lab** is very active in developing computational models for neural firing patterns in brain and spinal cord in an effort to understand and solve neurobiological problems. People in the lab are actively engaged in clinical collaborations for validation of the developed models. A screenshot from NEUROiD (Neuro Motor integration and design environment) created by Spine Labs is presented in Figure 5. The screenshot shows a freeze of a Spinal cord at L4/L5 with neurons embedded in anatomical locations, recording and stimulating electrodes in red and blue, cellular electrophysiology and a representation of lower limb mechanics in response to stimulation.
In the new era of precision medicine, the Department of Biotechnology at IITH focuses on various cutting-edge medical biotechnology research areas with the expertise of 8 faculty members who had versatile research training in US and Europe. The department offers MTech (Medical Biotechnology) and PhD (Biotechnology) programs to train students to meet the international standards. The department graduated eight MTech students and five PhD students during the year 18-19. MTech students of the department got placed in Medgenome labs, Bangalore, International Max Planck Research School-LS LMU University of Munich, Germany and The University of Tokyo, Japan for PhD. One of the graduated PhD student is pursing postdoc in Clemson University, South Carolina, USA and another one is employed as a scientist in Dr Reddy’s Labs.

The faculty members in the department published thirteen research and review articles in the leading peer-reviewed, international journals in the year 18-19. The faculty members in the department received around 1 crore in research funding from DST-SERB. The department conducted several brain storming seminars inviting faculty and researchers from the leading institutions around the world. The department celebrated National science day on 28 February 2019 in the esteemed presence of Dr Aravind Kumar, CCMB, Hyderabad India and Dr Debajyoti Dutta, University of Alberta, Canada.

PhD student Yogeeshwar Ajjugal under the guidance of Dr Thenmalararchelvi Rathinavelan received Dr. KV Rao Research Award, Hyderabad, India. A team led by Dr Thenmalararchelvi Rathinavelan comprising of Yogeeshwar Ajjugal and Narendar Kolimi received the Gandhian Young Technological Innovation Award (2019).
Thenmalarchelvi Rathinavelan  
Ph.D – University of Madras  
Associate Professor & HoD  
Research Areas: Computational Biology; Biophysics; Biomolecular NMR

N K Raghavendra  
Ph.D – IISc, Bangalore  
Associate Professor  
Research Areas: HIV-1 Biology

Sandeep K Singh  
Ph.D – Virginia Commonwealth University, USA  
Assistant Professor  
Research Areas: Cell and Molecular Neuroscience; Neuron-Glia Interactions; Cell Biology of Glioma

Basant Kumar Patel  
Ph.D – Banaras Hindu University  
Associate Professor  
Research Areas: Protein Misfolding in Neurodegenerative Diseases

Rajakumara Eerappa  
Ph.D – CCMB, Hyderabad  
Associate Professor  
Research Areas: Epigenetic; Enzyme Engineering for Asymmetric Synthesis and for Catalytic Efficiency; Structure Based Drug Design and DNA Repair; and Structural Biology; X-Ray Crystallography; Biophysics and Biochemistry and Computational Biology

Anindya Roy  
Ph.D – IISc, Bangalore  
Associate Professor  
Research Areas: DNA Repair

Anamika Bhargava  
Ph.D – Innsbruck Medical University, Austria  
Assistant Professor  
Research Areas: Voltage-Gated Calcium Channels; Electrophysiology; Channelopathies; Imaging of Ion Channels; Zebrafish Animal Model

Book & Book Chapters


Publications
(in peer reviewed journals)
Gaur H, Purushothaman S, Pullaguri N, Bhargava Y, Bhargava A. Sodium benzoate induced developmental defects, oxidative stress and anxiety-like behaviour in...


**Funded Research Projects 2018-19**


Ashish Misra, Determining the role of N6-methyladenosine reader, YTHDC2 in alternative pre-mRNA splicing, SERB, 49,50,000 INR, 28 October 2018.

**Talks Given in National / International Conferences**

Rajakumar a Eerappa, Characterization of Ligand-Receptors Interactions, Teaching and Learning of Molecular Biology and Enzymology through Hands-on Experience (MBE-2018), Department of Biotechnology, NIT Warangal, 22 September 2018.


Shivangi Sachdeva, Sanjana Anilkumar Nair, Narendar Kolimi, Raghavamsi Venkata Palur, L Ponoop Prasad Patro, Karpagam Uma Sudhakar and Thenmalarchelvi Rathinavelan,
Wzi, an outer membrane lecto-aquaporin can be a universal drug target for Gram-negative bacteria, Indo-US conference on Multiscale Simulations and Mathematical Modelling of Complex Biological Systems, Center for Computational Biology and Bioinformatics, School of Computational & Integrative Sciences (SCIS), Jawaharlal Nehru University - Golden jubilee celebration, New Delhi, January 30-February 01, 2019.

Anamika Bhargava, Calcium channels: Function to dysfunction, One-day seminar on “Innovations in Biotechnology”, Loyola Academic Degree and PG College, Hyderabad, 21 February 2019.


Seminars Conducted

Prof. Ranga Udaykumar, Molecular Biology and Genetics Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur, Bangalore, India, The emerging promoter variations of HIV-1 and its impact on viral transcriptional silencing, 20 April 2018.

Prof. S.N. Byrareddy, Dept. of Pharmacology & Experimental Neurosciences, Univ. of Nebraska Medical Center, Omaha. USA. Targeting Gut Homing Molecules to Cure HIV/AIDS, 25 April 2018.

Prof. Paike J Bhat, Department of Biosciences and Bioengineering, IIT Bombay, From protein dynamics to phenotype, 27 August 2018.

Dr. Sourav Datta, Assistant Professor, Department of Biological Sciences, IISER Bhopal. Regulation of plant responses to signals from the environment, 28 August 2018.

Dr. Pavan Kumar Agrawal, Janelia Research Campus, Helix Drive, Ashburn, VA-20147, USA, Feeling Lonely: Transcriptional and Epigenetic Signatures of Social Isolation in Drosophila Brain, 15 October 2018.

Dr. Raushan Kumar Singh, Postdoctoral Associate, University of Massachusetts Medical School, Worcester, USA, SWR1C: A nucleosome editing machine, 9 November 2018.

Dr. Manoj Saxena, Post-Doctoral Scholar, Department of Radiation Oncology, University of California Davis Sacramento, USA, Transferrin structure and function; Unraveling the mystery of titanium transport in humans, 26 December 2018.

Harsha Dodapaneni, Assistant Professor, Department of Molecular and Human Genetics, Baylor College of Medicine, Human Genome Sequencing Center, Houston, USA, NextGen Sequencing: Current and Future Trends, 11 January 2019.

Dr. Ganesh Bagler, Assistant Professor, Center for Computational Biology, Indraprastha Institute of Information Technology Delhi (IIIT-D), Computational Gastronomy: The emerging data science of food, flavors and health, 24 January 2019.

Dr. Ashish Ranjan, Postdoctoral research Associate, University of Wisconsin - Madison, USA, Understanding Soybean resistance mechanism to Sclerotinia stem rot, 28 January 2019.

Awards / Recognitions

Yogeeshwar Ajjugal, First Runner up Biology, Dr K. V. Rao Scientific Society 18th Annual Research Awards (PI: Dr Thenmalarchelvi Rathinavelan).

Yogeeshwar Ajjugal, Narendra Kolimi and Thenmalarchelvi Rathinavelan, Gandhian Young Technological Innovation Awards/Appreciations 2019.
Molecular biophysics lab explores the molecular basis for the biological phenomena by using in silico/in vitro techniques in the perspective of therapeutics. Currently, the lab is working towards the understanding two major global healthcare problems: trinucleotide repeat expansion disorders (TREDs) and antimicrobial resistance (AMR).

Trinucleotide Repeat Expansion Disorders (TREDs)
The trinucleotide repeat expansion is one of the major causes for several neurological disorders. Trinucleotide repeats belong to the family of microsatellites (a tract of 1 to 6 repetitive nucleotides) that are commonly observed in eukaryotes and exhibit repeat length polymorphism. The inherent ability of trinucleotide repeats to undergo abnormal expansion leads to many incurable genetic disorders. The lab explores the secondary structural traits of various trinucleotide repeat expansions using molecular dynamics simulations (MD), circular dichroism (CD), electrophoretic mobility shift assay (EMSA) and nuclear magnetic resonance (NMR) techniques. A case in point is CCG (C...C mismatch) & CGG repeat (G...G) expansions that lead to a neurological disorder FXTAS (Figure 1). Based on the outcomes, a neurotoxic mechanism has been proposed to explain the role of unusual secondary structures that may be responsible for the increased R-loop stability, bidirectional transcription, RNA foci formation and repeat associated non-AUG translation for monopolypeptide aggregates in FXTAS, a major neurodegenerative disorder. The results suggest that G-quadruplex structure observed in FXTAS associated with fmr1 gene and its transcript can be a potential drug target. This innovation has been recognized with Gandhian Young Technological Innovation Award (2019).

To serve the scientific community that are involved in nucleic acid research, the lab has developed a user-friendly web-server, namely, 3D-NuS (https://iith.ac.in/3dnus/) (Figure 2A), for the modeling and visualization of a variety of 3-dimensional nucleic acids structures. As of 01-May-2019, 3D-NuS has
1142 new users from 423 cities of 58 countries (Figure 2(D)) and it has also been felicitated with GYTI-2018 appreciation award.

Figure 1. Overview of fragile X associated tremor/ataxia syndrome (FXTAS) and fragile X syndrome (FXS) neurological disorder (Top) and the proposed neurotoxic mechanism (Bottom).

Anti-Microbial Resistance (AMR)

Towards the antimicrobial resistance research, an in silico diagnostic tool, namely, K-PAM (https://iith.ac.in/K-PAM/) (Figure 2B) is developed to identify the Klebsiella species serotype during the seroepidemiological and pathophysiological investigations. The laboratory also hosts a public repository of modeled E. coli K-antigens structures (https://www.iith.ac.in/EK3D/) (Figure 2C) to facilitate anti-E. coli vaccine studies. Since January 2016, it has 2425 new users from 439 cities (70 different countries) (Figure 2E). As Klebsiella species and E. coli has developed extreme drug resistance, World Health Organization (WHO) has a global call for the development of next generation antibiotics and vaccine developments. Thus, both K-PAM and EK3D can be helpful in solving the purpose.

Figure 2. (Top) Front page of: (A) 3D-Nus, (B) K-PAM and (C) EK3D. (Bottom) Google analytics map showing global usage of 3D-Nus (D) and EK3D (E) webserver from the date of publication. The circles are city specific and size and color depicts the number of new users from a particular city. The color scale for number of new users has been given at the bottom of the world-map.
The main objective of the department is to prepare the next generation of chemical engineers to address a broad spectrum of problems that are central to sustainability and economic growth of the country. With more and more interdisciplinary research that is required to solve today’s socio-economic problems, collaborations that cut across conventional research paradigm is indispensable.

Chemical Engineering department at IITH encompasses both B.Tech and M.Tech programs that feature a curriculum that is both comprehensive and flexible.

Department also hosts 55 PhD students. Department’s strong commitment to research is evidenced by INR 30 crores extramural funding that faculties have obtained. Faculty from the department are actively involved in hosting conferences and outreach workshops benefitting the students and faculty across several institutes in India.

Department also houses state-of-the-art research teaching equipment. Chemical Engineering department at IITH conducts research in a wide variety of exciting areas such as fluid flow, mineral processing, catalysis, materials for energy and biological applications, nanotechnology, bioengineering, process control and optimization.
Narasimha Mangadoddy  
Ph.D – University of Queensland - Australia 
Associate Professor & HoD 
Research Areas: Mineral Processing; CFD; Multiphase Flows; Fluidization; Particulate Technology

Kishalay Mitra  
Ph.D – IIT Bombay 
Associate Professor 
Research Areas: Machine Learning; Artificial Intelligence; Optimal Control; System Identification; Uncertainty Modeling; Supply Chain; Systems Biology; Wind and Solar Farm Design

Saptarshi Majumdar  
Ph.D – IIT Kharagpur 
Associate Professor 
Research Areas: Multi-Scale Modeling; Bio-Materials Design; Industrial Process Analysis

Kirti Chandra Sahu  
Ph.D – JNCASR, Bangalore 
Professor 
Research Areas: Raindrops; Bubbles and Drops; Multiphase Flows; Flow Instability

Anand Mohan  
Ph.D – Texas A&M, USA 
Associate Professor 
Research Areas: Cardiovascular Mechanics; Complex Fluid Rheology

Phanindra Varma Jampana  
Ph.D – University of Alberta, Canada 
Associate Professor 
Research Areas: System Identification; Compressed Sensing

Vinod Janardhanan  
Ph.D – KIT, Germany 
Professor 
Research Areas: Heterogeneous Catalysis; Fuel Cells

Sunil K. Maity  
Ph.D – IIT Kharagpur 
Associate Professor 
Research Areas: Hydrodeoxygenation of Vegetable Oils and Oxygenated Compounds; Steam Reforming and Oxidative Steam Reforming of Bio-butanol; Process Design using Aspen Plus and Techno-economic Analysis; Hydroalkylation-alkylation Reaction (HAR) followed by HDO of HAR product; Oligomerization of Butylene; Production of Butyl Levulinate by Butanolysis of Furfuryl Alcohol

Chandra Shekhar Sharma  
Ph.D – IIT Kanpur 
Associate Professor 
Research Areas: Polymer and Carbon Nanomaterials; Carbon-MEMS; Electrospun Nanofibers; Nature inspired Functional Surfaces; Drug Delivery; Waste Management; Li-ion batteries and Supercapacitors

Parag D. Pawar  
Ph.D – Johns Hopkins, USA 
Associate Professor 
Research Areas: Bacterial Infections; Biofilms; Cellular Automata; Antibiotic Resistance

Debabradas Shee  
Ph.D – IIT Kanpur 
Associate Professor 
Research Areas: Catalysis Over Supported Metals and Metal Oxides; Structure Property Correlations; Fuels and Chemicals from Renewable Sources; Reaction Kinetics

Devarai Santhosh Kumar  
Ph.D – IIT Madras 
Associate Professor 
Research Areas: Solid State Fermentation; Submerged Fermentation; Lipase; Biodiesel; Edible Mushroom; Statistical Design of Experiments; Microbial Enzyme Production; Hybrid Biosensor
Patents Filed

Book & Book Chapters


Publications
(in peer reviewed journals)

Anusree Unnikrishnan, N. Rajalakshmi, and Vinod M. Janardhanan, Kinetics of electrochemical charge transfer in HT-PEM


Deepak Raikwar, Meghana Munagala, Saptarshi Majumdar, and Deaprasad Shee, Hydrodeoxygenation of Guaiacol over Mo, W and Ta Modified supported nickel Catalysts, Catalysis Today, 325, 2019, 117-130.


P. Swain, A. Ronghe, U. Bhutani, and S. Majumdar, Physicochemical Response of Gelatin in a Coulombic Soup of Monovalent...


Doriya and D.S. Kumar, Optimization of solid substrate mixture and process parameters for the production of L-asparaginase and scale-up using tray bioreactor. *Biocatalysis and Agricultural Biotechnology*, 13, 2018, 244-250.


M.T. Tripathi and K.C. Sahu, Motion of an air bubble under the action of thermocapillary and buoyancy forces, Computers & Fluids, 2018, 177, 58-68.


A. Nathani, A. Adaval, A. Karima, and C.S. Sharma, Poly (styrene-block-methylmethacrylate) derived electrospun mesoporous nanofibers, Surfaces and Interfaces, 2018, 12, 168-178.


Illa M. Pujitha, M. Khandelwal, and Chandra S. Sharma, Bacterial cellulose-derived Carbon Nanofibers as Anode for Lithium-ion Batteries, Emergent Mater, 2018.


**Publications**

(in peer reviewed conferences)


S. Swain, P.D. Pantula, K. Mitra, and L. Giri, Confocal imaging of cytosolic Ca2+ and fuzzy clustering reveals the circuit topology details underlying synchronization in hippocampal neurons, 40th Annual International Conference of the IEEE Engineering in Medicine and Biology


A. Saxena, V. Dhyani, S. Gare, and L. Giri, Effect of topology and time window on probability distribution underlying baclofen induced Ca2+ response in hippocampal neurons, 41st Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBS), Berlin, Germany, 23-27 July 2019.

A. Saxena, V. Upadhyay, V. Dhyani, S. Jana, and L. Giri, Cell-to-Cell Variability in Protein
Expression during Viral Infection: Monte-Carlo Simulation and Validation based on Confocal Imaging, 41st Annual International Conference of the IEEE Engineering in Medicine & Biology Society (EMBS), Berlin, Germany, 23-27 July 2019.


Gaikwad, M, Kakunuri, M., Sharma, C.S. Catalytically graphitized nanostructured carbon xerogels as high performance anode material for lithium ion battery, ECS Transactions, 85(1), 2018, 1-10.

M. Suresh, M. Kakunuri, and C.S. Sharma, Fabrication of SU-8 derived Three-dimensional Carbon microelectrodes as high capacity anodes for lithium-ion batteries, ECS Transactions, 85(1), 2018, 21-27.

Funded Research Projects 2018-19

Kinetic Modeling of Iron Oxide Reduction, TATA Steel, 7.67 Lakhs.

Co-Principal Investigator, A Collaborative Project with L.V. Prasad Eye Hospital on Improving the efficiency of spiral concentrator separating the multi-component chromite ore particles using CFD and experimental methods, UAY-Phase II, 99.98 Lakhs, MHRD and TATA Steel, Duration 2018-2021, Start date - Oct 2018, SERB, 2018-2021, 40.00 Lakhs.

Co-Principal Investigator, Production of high cell density edible mushrooms by submerged fermentation and development of high protein nutrition, DST-SERB, 2018, 38.69 Lakhs.

Co-Principal Investigator, Linear stability analyses of interfacial flows of fluids with complex rheolog, DST- MATRICS, 2018-2020, 6.6 Lakhs.

Co-Principal Investigator, Development of ERT Reconstruction Algorithms for Accurate Estimation of Phase Concentration in Multi-phase flows, 2019, 16.72 Lakhs.

Co-Principal investigator, Academic partner, IBM Research, India under Open Science Collaboration Program (OSCP), January 2019, 5.00 Lakhs.

Co-Principal Investigator, Wind farm layout optimization under uncertainty using wind speed forecasting through probabilistic models and comparison with machine learning algorithms, MHRD - SPARC, March, 2019, 47.50 Lakhs.

Co-investigator, Bacterial cellulose derived tunable nanostructured Carbon as High performance Anode for Lithium ion battery, SERB, 28 March 2019, 49.2 Lakhs.

Co-investigator, Investigation on role of neuron-glial activation leading to neuronal...
loss as an early marker of diabetic retinopathy using transcriptomics and high-resolution imaging based approaches.

Talks Given in National / International Conferences


Saptarshi Majumdar, Natural Biopolymer: Science to Engineering, CompFlu 2018, IIT-Roorkee, Roorkee, 8 December 2018.


Narasimha Mangadoddy, Understanding the NGM Particle Dynamics Inside a DM Cyclone Using Positron Emission Particle Tracking (PEPT) and CFD Techniques, NMD ATM 2018, Kolkata, India 14-16 November 2018.

Narasimha Mangadoddy, Multiphase CFD modelling of mineral separators performance: Validation against imaging and tomography, Indo-German Symposium on Advanced Measurements and Multiscale CFD Simulations for Intensification of Multiphase Flow Processes, IIT Delhi, 3-5 October 2018.


Prof. Kirti Chandra Sahu, Fluid dynamics of a bubble/droplet, Indo-German Symposium on Advanced Measurements and Multi-Scale CFD Simulations for Intensification of Multiphase Flow Processes, IIT Delhi, India, 3-5 October 2018.

Chandra S. Sharma, Nature Inspired Novel Approaches for Tunable Wettability, One day workshop on Wetting of Surfaces, CSIR-IMMT, Bhubaneswar, 9 April 2018.

Chandra S. Sharma, Direct recycling of polystyrene based waste objects using orange peel extract for oil spills remediation, DST Swachhta Pakhwada, New Delhi, 1 May 2018.

M. Gaikwad, M. Kakunuri, and C.S. Sharma, Catalytically graphitized nanostructured carbon xerogels as high performance anode material for lithium ion battery, 233rd ECS Meeting, Seattle, WA, 13-17 May 2018.

M. Suresh, M. Kakunuri, and C.S. Sharma, Fabrication of SU-8 derived Three-dimensional Carbon microelectrodes as high capacity anodes for lithium-ion batteries, 233rd ECS Meeting, Seattle, WA, 13-17 May 2018.

I.M. Pujitha, M. Khandelwal, and C.S. Sharma, Bacterial Cellulose Derived Carbon
**Nanofibers As High Capacity Anode for Lithium-Ion Batteries**, 233rd ECS Meeting, Seattle, WA, 13-17 May 2018.


**Workshops / Symposia**

International Conference on Carbon-MEMS, 5-7 December 2018 @ Pragati Resorts, Hyderabad (Convener: Dr. Chandra Shekhar Sharma).

First INYAS-Frontiers of Science Brainstorming Meeting, 9-11 December 2018 @ Pragati Resorts, Hyderabad (Convener: Dr. Chandra Shekhar Sharma).

**Other Events**

Convener/Organizer (along with Dr. Balaji Iyer): TEQUIP workshop on Biomimetics and Biological Soft Matter, organized at IIT Hyderabad, June 2018.

Invited speaker: ICT-based teaching methods & Technical presentations for Faculty Induction Program organized by Teaching Learning Center, IIT Hyderabad, November 2018.

**Awards / Recognitions**

Inducted member, Indian National Young Academy of Sciences (2019-23), INYAS.

Visiting Professor, June - August 2018, Department of Chemical Engineering, University of Washington, Seattle, USA.

Appointed Finance Co-Chair, 6th IEEE Indian Control Conference, 18-20 December 2019, IIT Hyderabad (http://icc.org.in/dec-2019/).

Appointed Joint Secretary, Control Society, Organizing committee of the IEEE Indian Control Conference.

Selected Member of Executive Council of Asian Society for Research in Engineering Sciences (ASRES).

Selected as Associate Editor, Journal of The Institution of Engineers (India): Series E, Springer.

Selected as Member, International Program Committee, Indian Control Conference, an IEEE event.

Selected as Member, International Advisory Committee, International Conference **Seminars Conducted**

Professor Prabir Basu, Dalhousie University, Halifax, Canada, Advances in Fluidized bed combustion and its future direction, 6 February 2019.
on Power, Control and Communication Infrastructure (ICPCCI 2019).

Selected as Member, International Program Committee, Genetic and Evolutionary Computation Conference (GECCO 2019).

Become member for International Advisory Committee of the IMPC (International Mineral Processing Congress) to represent India.

Kirti Chandra Sahu, Member of External Affairs Committee - American Physical Society’s Division of Fluid Dynamics (DFD) (2019-2021).


Chandra Shekhar Sharma, As Director of Restyro Technologies Pvt. Ltd., wins two Gold Medals @ International Innovation Fare, TESLA FEST @ Sweden. Our project on Direct Recycling of Polystyrene is featured in DST Annual Report 2017-18 as a success story.


Inaugural Ceremony of International Conference on Carbon MEMS: New Horizons
The Department of Chemistry housed 14 faculty members, 73 research scholars and 58 two-year M.Sc. students. The department has been conducting cutting-edge research in contemporary topics in Physical, Organic and Inorganic Chemistry. Various state-of-the-art research facilities such as 400 MHz NMR, ESR, HRMS, Single Crystal- and Powder- XRD, CD, Fluorescence/lifetime and Raman spectrometers, Atomic force microscopy (with conductive, electrostatic force, magnetic force, surface potential, nanolithography modes), Gas Chromatography-Mass Spectrometer, HPLC, high resolution lasers etc. are available in the department.
FACULTY

Melepurath Deepa
Ph.D – Delhi University
Professor & HoD
Research Areas: Applied Electrochemistry

Faiz Ahmed Khan
Ph.D – University of Hyderabad
Professor

Ch. Subrahmanyam
Ph.D – IIT Madras
Professor
Research Areas: Catalysis; Nanomaterials and Energy Systems

G. Prabhu Sanker
Ph.D – IIT Bombay
Professor
Research Areas: Organometallic Synthesis; Late Transition Metal Chemistry; Heavier Main Group P-Block Chemistry; Molecular Activation; Molecules to Materials; Molecules for Medicines

Surendra K. Martha
Ph.D – IISc, Bangalore
Assistant Professor
Research Areas: Materials Electrochemistry with Special Emphasis on Lead-acid, Li-ion, Sodium Ion Batteries and Supercapacitors

Tarun K. Panda
Ph.D – Free University - Berlin, Germany
Professor
Research Areas: Main Group Chemistry; Coordination Chemistry; Lanthanide Chemistry; Homogeneous Catalysis; X-Ray Crystallography and Structure Analysis

Faiz Ahmed Khan
Ph.D – University of Hyderabad
Professor

D.S. Sharada
Ph.D – University of Hyderabad
Associate Professor
Research Areas: Organo/Bio/Photoredox Catalysis; Asymmetric Synthesis and Chemical Biology

Surajit Maity
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Physical Chemistry; Spectroscopy and Dynamics of Molecules Ions and Radicals

G. Satyanarayana
Ph.D – IISc, Bangalore
Professor
Research Areas: Transition-metal Catalysis; Development of New Methodology and Total Synthesis and Drug Diversity Oriented Synthesis

Bhabani S. Mallik
Ph.D – IIT Kanpur
Associate Professor
Research Areas: Computational Chemistry; Molecular Dynamics; Statistical Mechanics

Jai Prakash
Ph.D – IIT Delhi
Assistant Professor
Research Areas: Inorganic Chemistry; Crystallography; Metal Chalcogenides and Intermetallics
Publications
(in peer reviewed journals)


M. Ojha, M. Deepa, Molybdenum selenide nanotubes decorated carbon net for a high performance supercapacitor, *Chemical Engineering Journal*, 368, 2019, 772-783

S. Deshagani, X. Liu, B. Wu, M. Deepa, Nickel cobaltite@poly(3,4-ethylenedioxyxypyrrole) and carbon nanofiber interlayer based flexible supercapacitors, *Nanoscale*, 11, 2019, 2742-2756.


A. George, A. Gopi Krishna Reddy, G. Satyanarayana, and N. K. Raghavendra, 1,2,3,4-Tetrahydroisoquinolines as inhibitors of HIV-1 integrase and human LEDGF/p75 interaction: Chem. Biol. Drugs, 2018, 91, 1133.


Devarapalli Ravi Kumar, G. Satyanarayana, Palladium Catalysis: One-Pot Synthesis of Fluorenones: ChemistrySelect 2018, 3, 7867.


Katam Srinivas and Ganesan Prabu Hankar, Role of C, S and P Donor Ligands in Copper(I) Mediated C-N and C-Si Bond Formation Reactions, RSC Advances, 8, 2018, 32269-32282.


Ganesan Prabu Hankar, Nirmala Muthukumaran, Mouli Vaddamanu, Gembali Raju, Kavitha Velappan, Arruri Sathyanarayana, Yamane Masaya, Shohei Sugiyma, Kyohei Hisano, and Osamu Tsutsumi., Thermochemically Stable Liquid-Crystalline Gold(I) Complexes Showing Enhanced Room Temperature Phosphorescence, Crystals. 9(5), 2019, 227.
A. Harinath, J. Bhattacharjee, and T. K. Panda, Facile Reduction of Carboxylic Acids to Primary Alcohols under Metal-free and Solvent-free Conditions, Chemical Communications, 55, 2019, 1386-1389.


S. Pullen, S. Maji, M. Stein, and S. Ott, Restricted rotation of an Fe(CO) 2(PL3)-subunit in [FeFe]-hydrogenase active site mimics by intramolecular ligation, Dalton Transactions, 48, 2019, 5933-5939.

R. Knochenmuss, S. M aity, F. Balmer, C.
Funded Research Projects
2018-19

D. S. Sharada, Metal-Free Direct Oxidative Cyclizations via C-H Functionalization Leading to Diverse Heterocyclic Frameworks, CSIR, 2018-2021, 30.21 Lakhs.

Venkata Rao Kotagiri, Self-organization of linearly fused polycyclic heteroaromatic compounds into ordered functional materials via 'hydrophobic amphiphilic' approach: Rational design, synthesis, and utilization for optoelectronics, energy storage, and conversion', Early Career Research Award, SERB, 8 February 2019, 35.31 Lakhs.


Talks Given in National / International Conferences

NG. Satyanarayana, Transition Metal Catalysis: Concise One-pot Synthesis of Carbo-/Hetero-cyclic Products, Emerging Trends in Chemical Sciences, Department of Chemistry, Christ University, Bangalore, Karnataka.

G. Satyanarayana, Mass Spectrometry, Chemistry for Sustainable Future, Palamuru University, Mahabubnagar, Telangana.


Duddu S. Sharada, Trends in Asymmetric Synthesis, Faculty Development Programme (FDP) in Chemistry, Department of Chemistry, Osmania University, Hyderabad, India, 13-18 December 2018.

Duddu S. Sharada, Bioinspired Sustainable Chemistry: Access to New Chemical Space, International Conference On Frontiers at the Chemistry-Allied Sciences Interface,
Department of Chemistry, University of Rajasthan, Jaipur, India, 21-22 December 2018.


Prof. Michael Gozin, Ph.D. School of Chemistry, Faculty of Exact Science, Tel Aviv University, Israel, *Development of Promoters for Hypergolic Reactions*, 1 February 2019.


Prof. Sambasivarao Kotha, Pramod Chaudhari Chair Professor, Indian Institute of Technology Bombay, *Development of new synthetic strategies and tactics: Their impact, implications and applications*, 28 March 2019.


**Workshops / Symposia**


**Seminars Conducted**

Prof. R. Graham Cooks, Department of Chemistry, Purdue University, West Lafayette, Indiana US, Organic Synthesis and Chemical Analysis by Mass Spectrometry, 12 December 2018.

Prof. Michael Gozin, Ph.D. School of Chemistry, Faculty of Exact Science, Tel Aviv University, Israel, Development of Promoters for Hypergolic Reactions, 1 February 2019.

Prof. David Scheschkewitz, General and Inorganic Chemistry, Saarland University, Germany, Unsaturated Maingroup Species: Beyond the Carbon Copy, 15 February 2019.

Ramesh K Kokal (PhD student), Awarded the DST-IUSSTF-BASE Student Internship during Apr-Sep 2018, and worked with Dr Farnum at Auburn University, USA.

The Best Poster Award in National Symposium on Materials in Healthcare, 6-8 September 2018, GITAM, Hyderabad, India

Indrani Banerjee is (PhD student under Prof. Tarun K. Panda research group) Awarded with best poster in Frontiers in Chemical Sciences (FICS – 2018), IIT Guwahati, 2018
Research Group of Dr. Tarun K. Panda: We demonstrate the development of a facile protocol for the deoxygenative hydroboration of aliphatic and aryl carboxylic acids to afford corresponding primary alcohols under solvent-free and catalyst-free conditions. The reaction proceeds under ambient temperature exhibits good tolerance towards various functional groups and generates quantitative yields. The plausible mechanism involves the formation of Lewis acid–base adducts as well as the liberation of hydrogen gas.
Civil Engineering department has graduated 4 PhD Students, 21 M.Tech students, 9 All Course M.Tech Students, and 22 B.Tech students in the FY 18-19. Dr. Shashidhar T has been appointed as Associate Editor of Journal of Hazardous, toxic and radioactive waste, ASCE. Prof. Sireesh S has been appointed as Editorial Board Member, Indian Geotechnical Journal. Dr. Shashidhar T has been appointed as members of Board of Studies at JNTU Hyderabad and NIT Warangal. Dr. Umashankar B has been appointed as member of Board of Studies at JNTU Hyderabad. Dr. Pritha C has been appointed as Associate Editor of Journal of Hazardous, toxic and radioactive waste, ASCE. In addition, the department received Rs. 4.70 Crores as research funding through various new projects, funded by Defence Research and Development Organisation (DRDO), Impacting Research, Innovation and Technology (IMPRINT)-2, Science and Engineering Research Board (SERB), Asia-Pacific Network for Global Change Research, Scheme for Promotion of Academic and Research Collaboration (SPARC), Department of Science and Technology, Ministry of Earth Sciences (MoES) and Inter-University Centre for Astronomy and Astrophysics (IUCAA). Dr. Shashidhar T has been appointed as a CFE Committee member of Telangana State Pollution Control Board and an expert member of Amaravathi Capital City Development.
Shashidhar
Ph.D – IIT Madras
Associate Professor & HoD
Research Areas: Bioremediation; Contaminant Hydrology; Hydraulic Transients; Hydroclimate; Hazardous Waste Management; Wastewater treatment; Remote sensing and GIS applications

Asif Qureshi
Ph.D – Swiss Federal Institute of Technology, Switzerland
Associate Professor
Research Areas: Environmental Science and Public Health

K.B.V.N. Phanindra
Ph.D – New Mexico State University, USA
Associate Professor
Research Areas: Groundwater Modeling; Soil-Water-Plant Interactions; Remote Sensing & GIS; Eco-Hydrological Processes

K.V.L. Subramaniam
Ph.D – Northwestern University, USA
Professor
Research Areas: Concrete Material and Structures; Structural Health Monitoring; Material Characterization

B. Munwar Basha
Ph.D – IISc Bangalore
Associate Professor
Research Areas: Unsaturated Soil Mechanics; Reliability Based Design; Geotechnical & Geoenvironmental Engineering; Unsaturated Soil Mechanics; Computational Geomechanics; Municipal Solid Waste Landfills; Soil Dynamics and Earthquake Resistant Design; Retaining Structures; Reliability Analysis of Pavement Geotechnics; Rock Mechanics

Debraj Bhattacharyya
Ph.D – University of New Brunswick, Canada
Associate Professor
Research Areas: Water & Wastewater Treatment; Solid Waste Management; Renewable Energy (Biofuel)

S. Sireesh
Ph.D – IISc Bangalore
Professor
Research Areas: Pavement Geotechnics; Geosynthetics; Recycled Materials; Ground Improvement

Amirtham Rajagopal
Ph.D – IIT Madras
Associate Professor
Research Areas: Damage Mechanics; Fracture Mechanics; Finite Element and Mesh Free Methods

B Umashankar
Ph.D – Purdue University, USA
Associate Professor
Research Areas: Foundation Engineering; Reinforced Soil; Soil-Structure Interaction; Recyclable Materials in Geotechnics

Mahendrakumar Madhavan
Ph.D – University of Alabama - Birmingham, USA
Associate Professor
Research Areas: Affordable Housing; Sustainable Materials; Cold-formed Steel; Structural Steel Design; Cold-Formed Steel Wall Panels; CFRP Retrofitting of Steel Structures; Cold-formed Steel (CFS) Connections; Composite (steel-concrete) Construction
**Book & Book Chapters**


M.P. Gundupalli, S. Parth, and Bhattacharyya D. Hydrothermal Pretreatment of Tender Coconut Coir and Optimization of Process Parameters Using Response Surface Methodology, Urbanization Challenges in Emerging Economies: Energy and Water Infrastructure; Transportation Infrastructure; and Planning and Financing, ASCE, 178-188.

K. Katam, M.P. Gundupalli, and D. Bhattacharyya, Production of biofuel from a kitchen wastewater by using a mixed culture of diatoms: Treatment, kinetic evaluation, and lipid analysis, Urbanization Challenges in Emerging Economies: Energy and Water Infrastructure; Transportation Infrastructure; and Planning and Financing, ASCE, 278-287.


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**Publications**

(in peer reviewed journals)


Arun Narayanan, Amarteja Kocherla and Kolluru V.L. Subramaniam, PZT Sensor Array for Local and Distributed Measurements of Localized Cracking in Concrete, Smart Materials and Structures, 27(7), 075049.


P.A. Fabymole, Sireesh Saride, and M.R. Madhav, Influence of Shear Stiffness of

A.A. Nasedkina and A. Rajagopal, Mathematical and computer homogenization models for bulk mixture composite materials with imperfect interfaces, Materials physics and Mechanics, 37, 2018, 34-41.


K.V.N.S. Raviteja and B. Munwar Basha, Reliability Based LRFD of Geomembrane Liners for V-Shaped Anchor Trenches of


Sivaganesh Selvaraj and Mahendrakumar Madhavan, Bracing Effect of Sheathing in Point symmetric Cold-formed Steel Flexural

Vijayakumar Natesan and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Vijayakumar Natesan and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Experimental investigation on clip angle bolted connection between two cold-formed steel channels, Structures and Buildings, Proceedings of the Institution of Civil Engineers, 2019, 10.1680/jstbu.18.00134.
of Prestressed Concrete Beams, Engineering Structures Journal, 171, 2018, 47-55.


N. Mukund, B. O'Reilly, S.N. Somala, and S. Mitra, Effect of Induced Seismicity on Advanced Gravitational Wave Interferometers, Classical and Quantum gravity 36(10), 2019, 10LT01, 10.1088/1361-6382/ab1360.


M.C. Raghucharan and S.N. Somala, Stochastic Extended Simulation (EXSIM) of Mw 7.0 Kumamoto-Shi earthquake on 15 April 2016 in the Southwest of Japan using the SCEC Broadband Platform (BBP), AIMS Geosciences, 144-165, 2018, 10.3934/geosci.2018.2.144.


Prem Jose Vazhacharickal, Trupti Gurav, and D. Chandrasekhar, Heavy metal signatures in urban and peri-urban agricultural soils across the Mumbai Metropolitan Region, India, Nutrients Cyling in Agroecosystem, 74, 2018, 10.1007/s10705-018-9966-y.


Publications (in peer reviewed conferences)


Pranav R.T. Peddinti, Munwar Basha, and Sireesh Saride, Evaluation of flexible pavement distress using non-linear regression analysis. Conference:
International Symposium on Geotechnics of Transportation Infrastructure (ISGTI 2018), Indian Institute of Technology Delhi, New Delhi, India.


Sivaganesh Selvaraj and Mahendrakumar Madhavan, Cold-Formed Steel Built of columns: Experimental Investigation, 9th International Conference on Advances in Steel Structures (ICASS), Hong Kong, I, 553-560, 168, 5-7 December 201810.18057/ICASS2018.P.168.


Sivaganesh Selvaraj and Mahendrakumar Madhavan, Behavior of Cold-Formed Steel Built-Up Columns: Experimental Investigation, 8th International Conference on Thin-Walled Structures (ICTWS), Lisbon, Portugal, 175, 24-27 July 2018.

Sivaganesh Selvaraj and Mahendrakumar Madhavan, Effect of Gypsum Sheathings on Cold-Formed Steel Panels: Flexural Test Results, 8th International Conference on Thin-Walled Structures (ICTWS), Lisbon, Portugal, 60, 24-27 July 2018.


M. Chellapandian and S.S. Prakash, Axial compression – bending interaction behavior of severely damaged RC columns repaired using Hybrid FRP composites, Structural Engineering Convention (SEC-2018), Kolkata, India.

A. Mani, M. Chellapandian, and S.S. Prakash, Effect of synthetic fiber reinforcement on flexural behaviour of GFRP reinforced beams, Structural Engineering Convention (SEC-2018), Kolkata, India.

M. Chellapandian, S.S. Prakash, and A. Sharma, Axial compression - bending interaction behavior of Hybrid FRP strengthened RC column elements, 9th International Conference on FRP Composites in Civil Engineering (CICE 2018), Paris, France, 1, 492-499.


M.C. Raghucharan and S.N. Somala, Generating Site-Specific Ground Motions for Delhi Region for Seismic Vulnerability Assessment of Buildings – Promoting
Disaster Resilient Communities, 290-299, ASCE India Conference 2017, New Delhi, India, 12–14 December 2017 10.1061/9780784482032.030.

M.C. Raghucharan, S.N. Somala, and G.V. Kishor, Synthetic ground motions for Mw6.5 hypothetical earthquake and comparison of structural response with combination rules of IS1893-Part 1, 16th Symposium on Earthquake Engineering (16SEE), Roorkee, December 2018.


**Funded Research Projects 2018-19**


S. Suriya Prakash, *Development of Innovative and Sustainable Low-Cost Lightweight Precast Hollow Core Structural (LWPHCS) Systems for Affordable Housing*, IMPRINT-MHRD, 21 January 2019, 70.00 Lakhs.

Satish Regonda, *Urban Flood Modeling - A Web-based decision tool, Climate Change Programme, (a collaborative project with IIT Bhubaneswar, India)*, DST, SPLICE, February 2019, 35.03 Lakhs.

Surendra Nadh Somala, *Collision Tectonics and Seismicity in Alpine-Himalayan belt: A comparative study between the Great Caucasus (Russia) and the Himalaya (India)*, DST-RFBR, 7 February 2019, 27.46 Lakhs.


S. Suriya Prakash, *Smart Hybrid Fiber Reinforced Polymer Composite Strengthening System for Civil Infrastructure, Collaboration with University of Stuttgart, Germany*, SPARC-MHRD, 15 March 2019, 71.00 Lakhs.

Satish Regonda, *Understanding space-time variability of climate extremes for societal resiliency in Indonesia and India, Asia-Pacific Network for Global Change Research (APN)*, USD 72000 (2-years), Role: Co-PI, IITH component is USD 28035-00, January 2019, This is a collaborative project with Jenderal Soedirman University, Purwokerto, Indonesia, and University of Colorado at Boulder, USA.

Satish Regonda, *An Experimental Operational Hydrologic Modeling and Forecasting System for River Basin Hydrology and Extremes for India, Monsoon Mission of Indian Institute of Tropical Meteorology (IITM), Earth System Sciences Organization (ESSO) (a collaborative project with University of Colorado at Boulder, USA and IIT Gandhinagar, India)*, 23.26 Lakhs.

**Talks Given in National / International Conferences**

Shashidhar, Two week Faculty Development Programme (FDP) on Applications of...


V. Vinay Kumar and Sireesh Saride, Flexural and Shear Characterization of Geosynthetic Reinforced Asphalt Overlays, International conference on Sustainable Civil Infrastructures: (GeoMEast), Cairo, Egypt, 24-28 November 2018.


Mahendrakumar Madhavan, Cold-Formed Steel Built of columns: Experimental Investigation, 9th International Conference on Advances in Steel Structures (ICASS), Hong Kong, 5-7 December 2018.

Mahendrakumar Madhavan, Design approach for steel channels retrofitted with Cold formed steel, International Conference on Engineering Research and Practice for Steel Construction, Hong Kong, 5-7 September 2018.


Mahendrakumar Madhavan, Behavior of Cold-Formed Steel Built-Up Beams: Experimental Investigation, 8th International Conference on Thin-Walled Structures (ICTWS), Lisbon, Portugal, 24-27 July 2018.
Mahendrakumar Madhavan, Effect of Gypsum Sheathings on Cold-Formed Steel Panels: Flexural Test Results, Proceedings of the Eighth International Conference on Thin-Walled Structures (ICTWS), Lisbon, Portugal, 60, 24-27 July 2018.


Sharma and et al., Comparison between radar-, rain gauge- and satellite-based rainfall for the Hyderabad region, 3rd conference on India Radar Meteorology, IITM Pune, 2019.


Seminars Conducted

Dr. Mitesh Surana, Seismic Fragility Analysis of Hill-Side Buildings, 6 April 2018.

Dr. Subhamoy Sen, Bayesian filtering based health monitoring techniques and input force reconstruction, 7 April 2018.

Dr. Deendayal Rathod, Analysis of laterally loaded piles in clayey soils with sloping ground, 9 April 2018.

Dr. Manabendra Saharia, Characterization and Forecasting of Floods, 9 April 2018.

Dr. Somenath Mondal, Investigations on Heat Migration in Soil Mass, 10 April 2018.

Dr. Janaki Ramaiah, Static and Dynamic Properties of Municipal Solid Waste for Stability Analysis of Open Dumps, 10 April 2018.

Prof. Balaji Rajagopalan, University of Colorado at Boulder, USA, A 10,000 Year Story of Equatorial Pacific Sea Surface Temperatures, Indian Summer Monsoon Climate and Civilizations, on Thursday, 14 June 2018.

Prof. Vikas Thakur, Rainfall induced landslide: Norwegian perspectives, 11 July 2018.


Prof. Kirti Sahu, Different dynamics of micron to cm sized bubbles and droplets, 26 September 2018.

Dr. Nagaraja Rao Harshadeep (Harsh), World Bank, Washington DC, USA, A New World of Disruptive Technologies for HydroInformatics, 3 October 2018.


Dr. Pandith Madhnure, Director, Telangana State Ground Water Department, Status of groundwater resources availability, its utilization and groundwater quality in the Telangana state, 25 October 2018.


Dr. Aniket Kataware, Investigation on Effectiveness of Warm Mix Asphalt Additives for Modified and Unmodified Asphalt Binders, 28 January 2019.

Dr. Shiju Josesh, Hydration and microstructural development of cementitious materials, 28 January 2019.

Dr. Souvik Chakraborty, Topology Optimization under Uncertainty, 28 January 2019.
Dr. Marisamynathan S, Modeling Pedestrian Crossing Behavior and Perceptions Based Safety Level at Signalized Intersections, 29 January 2019.


Madukhar Karnati PE, CFM, CPESC, EXP, Chicago, USA, Civil engineering in the U.S. - a perspective from a practicing civil engineer, 8 February 2019.

Madukhar Karnati, Civil engineering in the U.S. – a perspective from a practicing Civil Engineer, 8 February 2019.

Dr. Jothi Saravanan, Structural Health Monitoring of Intelligent Infrastructure, 11 March 2019.

Prof. S. Majid Hassanizadeh, Colloid transport in porous media under partially saturated conditions, 12 March 2019.


Workshops / Symposiums


One day Workshop on Affordable Housing for all using sustainable constructional materials, 27 October 2018, https://sites.google.com/view/housingforall-iithyderabad


Two day Short course and Workshop on Cold-formed Steel Structures, 22-23 March 2019 https://sites.google.com/view/iithcfscourse

Developed Non-biological treatment system for drug effluents to prevent microbial drug resistance in environment.

Developing Fuzzy based Groundwater Sustainability Index

Analysis of Failure Crack Patterns and Strain Distributions in Steel Fiber Reinforced Prestressed Concrete Beams under Shear Loads.

The role of shear reinforcement in fire response of RC columns.

Reliability Analysis of Spatially variable MSW slopes

Smart Cities for Emerging Countries based on Sensing, Network and Big Data Analysis of Multimodal Regional Transport System

Bio electrochemical system

Design of Cold-formed Steel Built-up beam

FIR analysis of algal-bacterial biomass
The department of Computer Science and Engineering (CSE) has made rapid progress and is continuing to establish itself through state-of-the-art research and teaching. The department comprises of twenty-one faculty members, with expertise in various research areas including theoretical computer science, algorithms, graph theory, networking, distributed systems, compilers, formal methods, machine learning, architecture and image/video processing. In addition to the regular B.Tech, M.Tech and Ph.D programs, the CSE department has been successfully running the MDS and EMDS programs for working professionals. The department faculty members are recipients of substantial research grants from government agencies like SERB/DST/MHRD, DST-JST, JICA and industry partners such as Intel, IBM, Honeywell, Redpine Signals, SRC and AMD. Faculty members of the CSE department published papers in top-tier venues e.g., IJCAI, ICML, STOC, CVPR, ICS and CP. The research papers of faculty members were covered by technical news websites such as Inside HPC, The Memory Guy and Storage Search. Individual accolades include C Krishna Mohan and Karteek Sreenivasaiah receiving Excellence in Teaching awards. Research submissions from CSE have won several awards and recognitions, in venues such as MaxSAT evaluations 2018, SVCOMP 2019, Honeywell AI and ML Hackathon, IDRBT Doctoral Colloquium 2018, SSS 2018 and ICDCN 2019. PhD students of the department were selected in IDRBT-IITH joint PhD program and IITH-Swinburne University of Technology (Australia) joint PhD program. The department hosted several events and visitors, including the Indoquant 2019 workshop as well as the IITH-RIKEN AI Workshop. The students and alumni of CSE have continued to excel, securing internships and graduate admissions at prestigious places.
M. V. Panduranga Rao  
Ph.D – IISc Bangalore  
Associate Professor & HoD  
**Research Areas:** Applications of Formal Methods

Manohar Kaul  
Ph.D – Aarhus University, Denmark  
Assistant Professor  
**Research Areas:** Applied Algebraic Topology; Topological Data Analysis; Machine Learning; Spatial Databases; Computational Geometry

Saurabh Joshi  
Ph.D – IIT Kanpur  
Assistant Professor  
**Research Areas:** Formal Methods; Formal Verification; Constraint Programming; Software Verification; Program Analysis

J. Saketha Nath  
Ph.D – IISc Bangalore  
Associate Professor  
**Research Areas:** Machine Learning

Maunendra Sankar Desarkar  
Ph.D – IIT Kharagpur  
Assistant Professor  
**Research Areas:** Machine Learning; Recommendation Systems; Information Retrieval; Social Network Analysis

Spash Mittal  
Ph.D – Iowa State University, USA  
Assistant professor  
**Research Areas:** Computer Architecture; Architectures for Deep Learning; GPU; Accelerators for Machine Learning

Rakesh Venkat  
Ph.D – IIT Bombay  
Assistant Professor  
**Research Areas:** Approximation Algorithms; Complexity Theory

Subrahmanym Kalyanasandaram  
Ph.D – Georgia Tech, USA  
Associate Professor  
**Research Areas:** Theoretical Computer Science; Graph Algorithms

Kotaro Kataoka  
Ph.D – Keio University, Japan  
Visiting Associate Professor  
**Research Areas:** Networks; Blockchain

Rogers Mathew  
Ph.D – IISc Bangalore  
Assistant Professor  
**Research Areas:** Combinatorics; Graph Theory; Graph Algorithms

A. Antony Franklin  
Ph.D – IIT Madras  
Associate Professor  
**Research Areas:** 5G; Cloud Radio Access Networks; SDN/NFV; Mobile Edge Computing
FACULTY

C. Krishna Mohan  
Ph.D – IIT Madras  
Professor  
Research Areas: Video Content Analysis, Machine Learning

N.R. Aravind  
Ph.D – Institute of Mathematical Sciences, Chennai  
Associate Professor  
Research Areas: Algorithms; Parameterized Complexity; Graph Theory; Combinatorics

Manish Singh  
Ph.D – University of Michigan, USA  
Assistant Professor  
Research Areas: Databases; Data Mining; Text Mining; Social Network Analysis; Information Retrieval

Maria Francis  
Ph.D – IISc Bangalore  
Assistant Professor  
Research Areas: Computational Algebra; Symbolic Computation; Lattice Cryptography

Karteek Sreenivasaiah  
Ph.D – The Institute of Mathematical Sciences, Chennai  
Assistant Professor  
Research Areas: Theoretical Computer Science; Computational Complexity

Ramakrishna Upadrasta  
Ph.D – University of Paris and INRIA, Paris  
Assistant Professor  
Research Areas: Compilers; Program Analysis; Optimization; Polyhedral Compilation; Programming Languages and Domain Specific Languages

Sathya Peri  
Ph.D – University of Texas at Dallas  
Associate Professor  
Research Areas: Parallel & Distributed Systems

Vineeth N Balasubramanian  
Ph.D – Arizona State University, USA  
Associate Professor  
Research Areas: Machine Learning; Deep Learning; Computer Vision

Ch. Sobhan Babu  
Ph.D – IIT Bombay  
Assistant Professor  
Research Areas: Big Data Analytics; Social Networks Analysis

Srijith P K  
Ph.D – IISc Bangalore  
Assistant Professor  
Research Areas: Machine Learning; Bayesian Learning; Deep Learning; Bayesian Nonparametrics, Social Media and Text Analysis

Karteek Sreenivasaiah  
Ph.D – The Institute of Mathematical Sciences, Chennai  
Assistant Professor  
Research Areas: Theoretical Computer Science; Computational Complexity

Ramakrishna Upadrasta  
Ph.D – University of Paris and INRIA, Paris  
Assistant Professor  
Research Areas: Compilers; Program Analysis; Optimization; Polyhedral Compilation; Programming Languages and Domain Specific Languages

Sathya Peri  
Ph.D – University of Texas at Dallas  
Associate Professor  
Research Areas: Parallel & Distributed Systems

Vineeth N Balasubramanian  
Ph.D – Arizona State University, USA  
Associate Professor  
Research Areas: Machine Learning; Deep Learning; Computer Vision

Ch. Sobhan Babu  
Ph.D – IIT Bombay  
Assistant Professor  
Research Areas: Big Data Analytics; Social Networks Analysis

Srijith P K  
Ph.D – IISc Bangalore  
Assistant Professor  
Research Areas: Machine Learning; Bayesian Learning; Deep Learning; Bayesian Nonparametrics, Social Media and Text Analysis
Patents Filed
Vineeth N. Balasubramanian, Thirumaran Ekambaram, Sivaram Annadurai, and Sathiyaranayanan Sampoorthi, Method and Electronic Device for Gender Detection of Humans in One or more Images, April, 2018, Indian Patent Appl No.201841015128.

Publications
(in peer reviewed journals)
Sparsh Mittal, A Survey of ReRAM-based Architectures for Processing-in-memory and Neural Networks, Machine learning and knowledge extraction, 1, 2018, 75-114, 10.3390/make1010005.
Arun ramamurthy, vanlin Sathy, Shrestha ghosh, Antony franklin, and Bheemarjuna reddy Tamma, Dynamic Power Control and Scheduling in Full Duplex Cellular Network with D2D, Springer Wireless Personal Communications, 104(2), january 2019, 695-726.


Publications
(in peer reviewed conferences)


Sreekanth Madisetty and Maunendra Sankar Desarkar, Aggression Detection in Social Media using Deep Neural Networks, TRAC@COLING 2018, 2018, 120-127.


Priyanka Choudhary and Maunendra Sankar Desarkar, PReFacTO: Preference Relations Based Factor Model with Topic Awareness and Offset. Ecommerce Workshop in SIGIR 2018, Michigan, USA, 8-12 July 2018.


Vaibhav Sinha, Sukrut Rao, and V. Balasubramanian, Fast Dawid-Skene: A Fast Vote Aggregation Scheme for Sentiment Classification, Workshop on Issues of Sentiment Discovery and Opinion Mining at ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), London, UK, August 2018.


Anand Bawade, Luca Beltramelli, and A. Antony Franklin, Mikael Gidlund, Bheemarjuna Reddy Tamma, and LakshmiKanth Guntupalli, Modelling and Analysis of Wi-Fi and LAA Coexistence with Priority Classes, WiMob, October 2018.


Shashwat Kumar, Sai Vineeth Doddala, and A. Antony Franklin, Edge Assisted DASH Video Caching Mechanism for Multi-access Edge Computing, IEEE ANTS, December 2018


Bapi Chatterjee, Sathyda Peri, Muktikanta Sa, and Nandini Singhal, A Simple and Practical Concurrent Non-blocking Unbounded Graph with Reachability Queries, 20th International Conference on Distributed Computing and Networking (ICDCN), Bangalore, India, January 2019.


Parwat Singh Anjana, Sweta Kumari, Sathya Peri, Sachin Rathor, and Archit Somani, An Efficient Framework for Concurrent Execution of Smart Contracts, 27th Euromicro International Conference on Parallel, Distributed, and Network-Based Processing (PDP), Pavia, Italy, February 2019.


Funded Research Projects 2018-19

Vineeth N Balasubramanian, Vision and Learning with Limited-to-No Supervision: Applications to Autonomous Navigation and Beyond, Intel India, 2018, 91.0 Lakhs.

Vineeth N Balasubramanian, Passenger Drone Project, MEITY, 980.00 Lakhs.


Sathya Peri, Tools for Large-Scale Graph Analytics, Intel, USA, June 2018, USD 60,000.

Sparsh Mittal, Designing Efficient Hardware Accelerators for Autonomous Driving Vehicles, Semiconductor Research, Corporation, Oct 2018, $36,000.

Vineeth N Balasubramanian, Towards Next-Generation Deep Learning: Faster, Smaller, and Easier, DST ICPS Data Science Program, 2019, 57.00 Lakhs.

Antony Franklin, Network Slice Life-cycle Management for 5G Mobile Network, SPARC, MHRD, March 2019, 80.00 Lakhs.

Talks Given in National / International Conferences


Saurabh Joshi, Approximation Strategies for Incomplete MaxSAT, 24th International Conference on Principles and Practice of Constraint Programming, (CP), Lille, France, 29 August 2019.


Vineeth N. Balasubramanian, Adversarial Data Programming: Using GANs to Relax the Bottleneck of Curated Labeled Data, ACCV Area Chairs Workshop, Nanyang Technological University, September 2018.


Vineeth N. Balasubramanian, Towards Solving Next-Gen ML Problems: Learning with Weak Supervision, IntelICTAI Workshop, Bangalore, November 2018.


Seminars Conducted

Dr. Raghava Mutharaju, GE global research, Distributed Rule-Based Ontology Reasoning, 10 April 2018.

Dr. Suryajith Chillara, IIT Bombay, Small-depth Multilinear Formula Lower Bounds for Iterated Matrix, 12 April 2018.

Dr. Bamdev Mishra, Microsoft R&D, A unified framework for structured low-rank matrix learning, 6 June 2018.

Mr. Sanjeev Sharma, Swaayatt Robots, Self-Driving Technology for Indian Environments, on 20 June 2018.

Dr. Rakesh Venkat, IIT Hyderabad, Graph Partitioning for Low Threshold-Rank and Semi-Random Instances, 4 July 2018.

Dr. Vikas Raykar, IBM Research, Evolving Predictive Models: How to not be an overzealous data scientist, 13 July 2018.

Prof. Aditya Akella, UW-Madison, Putting Networks on a Firm Footing- Revolutionizing
Network Management, 6 August 2018.
Dr. Prabuchandran K J, IISc Bangalore, Sequential Decision Making under Uncertainty, 9 August 2018.
Dr. Prakash Saivasan, TU Keiserslautern, Regular abstractions with applications to Infinite state verification, 21 August 2018.
Dr. Nikhil Balaji, Ulm university, Decision problems on linear recurrence sequences, 23 August 2018.
Dr. Shweta Jain, IIT Bhubaneswar, Mechanism Design for Stochastic Multi-armed Bandit Problems, 23 August 2018.
Dr. Maneesh Singh, Verisk R&D, Unsupervised Representation Learning, 29 November 2018.
Mr. Shriphani Palakodety, Onai, Automatic Neural Network Architecture Discovery, 2 January 2019.
Dr. Sanket Tavarageri, Intel Labs, Building Systems Technology for Deep Learning, 12 February 2019.
Mr. Alain Durand, Internet Corporation, DNS Object Exchange or Draft Durand Object Exchange, 13 February 2019.
Mr. Samiran Gupta, ICANN, The Internet - Technology, Business and Governance, 13 February 2019.
Mr. Soumith Chintala, Facebook AI Research, Stories from Deep Learning: Open-Source as a Catalyst, 25 February 2019.

**Workshops / Symposiums**

IndoSys-2018@IITH: A two-day workshop on Indian Symposium on Computer Systems, IndoSys 2018, was organized at IITH, 8-9 September 2018. It was attended from academicians and industry researchers from various organizations.

IndoQuant-2019: A two-day workshop on quantum computing and communication was organized on 12-13 January 2019. It was attended by academicians (faculty, students, researchers), industry and representatives from the government.

IITH-RIKEN AI Workshop-2019: A two-day workshop including researchers from IIT-Hyderabad and RIKEN AIP, Japan, as well as other leading researchers in AI and ML from India, was organized on 15-16 March 2019. It was attended by researchers from both organizations, students from other educational institutions in India, as well as representatives/diplomats from Japan.

**Awards / Recognitions**

Dr. Saurabh Joshi, Prateek Kumar and Sukrut Rao, 1st Place in 60 second and 2nd place in 300 second timeout subcategories in the incomplete MaxSAT track of MaxSAT evaluations 2018 for Open-WBO-Inc.

Eti Chaudhary and Dr. Saurabh Joshi, 2nd place in ReachSafety-Floats subcategory in SVCOMP 2019 for Pinaka.

Subhrajit Nag under Dr. Sparsh Mittal, Selected for IITH-Swinburne University of Technology (Australia) joint PhD program. Papers have been covered by technical news websites, e.g., InsideHPC (1,2), TheMemoryGuy, StorageSearch and HPCWire.

Dr. Karteek Sreenivasaiah, INSPIRE Fellowship from Sept 2018 for 5 years.

Dr. Vineeth N Balasubramanian, Verisk AI Faculty Research Award, Sept 2018.

Parwat Singh Anjana, Sweta Kumari, Sathyas Peri, Sachin Rathor, Archit Somani, An Efficient Framework for Concurrent Execution of Smart Contracts, received the Best Poster award in the Ph.D symposium of ICDCN 2019.

Chirag Juyal, Sandeep Kulkarni, Shweta Kumari, Sathyas Peri, Archit Somani, An Innovative Approach to Achieve Compositionality Efficiently using Multi-Version Object Based Transactional Systems, Recipient of Best Student Paper Award at SSS 2018. The poster version of this paper received Best Poster Award at Netys 2018.
The Department of Design currently offers Master of Design (M.Des), and Ph.D in Design along with a new addition in the list – Minor Program in Design for the B.Tech students. The department is about to launch Bachelor of Design (B.Des) program from next academic session. The departmental approach has been to encourage and engage its immediate community of users. The faculty are involved in academic as well as research in various domains of design spanning virtual reality, architecture, product design, UI/UX, communication & media design, experience design, animation, films and design for sustainability, etc.

Both faculty and student teams have been actively involved in providing design support to the institute community through various design initiatives like convocation gown, furniture, interior design, architectural design, institute website, promo material for various events, logos for campus centers, photography of campus and events held – for archival purposes. Department is involved in question paper setting and evaluation of UCEED and CEED entrance test. The Design Innovation Centre which is funded by Ministry of Human Resource and Development displayed and presented the progress on the projects at SPA New Delhi. The department has been actively involved in creating new narratives in Indian context through future ready virtual reality tools.

The Department of Design at IIT-Hyderabad offers a vibrant environment for learning, practicing and exploring several facets of design. The department envisions to creatively engage in the space between technologies and people. This involves facilitating innovation in the key emergent areas such as Participatory and collaborative Design, Professional Ethics/ Sustainability, Product Systems and Services, Design and education, Wellness, Crowd sourced Design.
FACULTY

Delwyn Jude Remedios
Assistant Professor
Research Areas: Animation; Film; Virtual Reality; Children Story Books; Graphic Novels; Illustrations; e-Learning

Prasad S. Onkar
Assistant Professor
Research Areas: Product Design; Computer Aided Conceptual Design; 3D Sketching; Virtual Reality; Haptics; Interaction Design

Neelakantan P K
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Architectural Design; Early Stage Design Process; Aesthetics; Experiential Installations; Urban Planning; Art and Performance Studies

Deepak John Mathew
Ph.D – MS University of Baroda
Professor & HoD
Research Areas: Photography; Elements of Design; Aesthetics; History of Design

Seema Krishnakumar
Assistant Professor
Research Areas: Information Design; Data Visualization; Interactive Storytelling; Journalism Design; Photodocumentary; Multimedia Storytelling

Shiva Ji
Assistant Professor
Research Areas: Design for Sustainability; Sustainability Assessment Methods; LCA; Environmental Planning and Design; Virtual Reality Applications in Architecture

Prasad S. Onkar
Assistant Professor
Research Areas: Product Design; Computer Aided Conceptual Design; 3D Sketching; Virtual Reality; Haptics; Interaction Design

Neelakantan P K
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Architectural Design; Early Stage Design Process; Aesthetics; Experiential Installations; Urban Planning; Art and Performance Studies

Deepak John Mathew
Ph.D – MS University of Baroda
Professor & HoD
Research Areas: Photography; Elements of Design; Aesthetics; History of Design

Seema Krishnakumar
Assistant Professor
Research Areas: Information Design; Data Visualization; Interactive Storytelling; Journalism Design; Photodocumentary; Multimedia Storytelling

Shiva Ji
Assistant Professor
Research Areas: Design for Sustainability; Sustainability Assessment Methods; LCA; Environmental Planning and Design; Virtual Reality Applications in Architecture
Book Chapters


Seema Krishnakumar, Narrating human conditions has been highly satisfying, The Hindu, Kerala, 8 March 2019.


Publications (in peer reviewed journals)


Publications (in peer reviewed conference)


Talks Given in National / International Conferences


Ji, Shiva., Industry 4.0 and Design with Empathy: Integration of Technology and Inclusive Design – Emerging Contexts; Conduent Labs India (Formerly Xerox Research), Bangalore, 21 August 2018.

Ji, Shiva., Paradox of Intensive Orographic Rainfall and Challenges of Water Scarcity in North-East India – A Participatory Planning Approach for Sustainable Community. 9th International Conference on Sustainable Built Environment 2018 (ICSBE2018), University of Peradeniya, Kandy, Sri Lanka, 13 December 2018.


Delwyn Jude Remedios, Experimental Animation Workshop, Satyajit Ray Film and Television Institute (SRFTI), May 2018.


Awards / Recognitions

KN Viswatej, NIRF Trophy Design – winner.

Manasi Deshpande, Design X Award – Special Jury award.

Manasi Deshpande, Best Design Student (in top 5 contestants) at UX India.

K Devi Meghana, Hult Prize – Entrepreneur of the week.

Saahil Sagar, Nupur Chowdhary, Sumit Yempalle & Dikshit Sharma, Project Guide: Delwyn J. Remedios, Short experimental animation film ‘Ankahi // Untold’ was screened at the 11th IDSFFK, Trivandrum.

Upasna Bhandar, Indranil Saha, Deepak John Mathew, Distinguished paper at ICoRD 2019 Seema Krishnakumar, photodocumentary work was featured on 8 March in Women’s Day special edition of The Hindu, Kerala edition.

K Devi Meghana, Kreayotoo Solutions (won in a team), CIDC – Best Startup Award.
Design Innovation Centre (DIC) funded by (MHRD) at IIT Hyderabad is engaged in innovation through design and technology. The Department of Design along with partnering institutions engages in mutually beneficial innovation activities. DIC aims at creating a holistic and inter-disciplinary nature of design to cut across research and move projects from research to development. Diverse range of projects in domains such as cultural heritage, architecture, digital humanities, pedagogy etc. Design practices are embedded in active social contexts and humanistic endeavours. Innovative projects and new modes of design thinking that encourages designers also appreciate the idea of design praxis as a convergence of multiple interests. Contemporary design practice across diverse contexts including the macro scenarios. Our innovation hub and our partnering spokes incubate meaningful projects which are in line with contemporary trends in the design discipline. Lead by Deepak John Mathew (Professor) and Delwyn Remedios (Assistant Professor) along with team.

As part of this research on the role of emotional arousal in design cognition, a respondent sketches on a digital tablet to generate conceptual solutions for a graphic design problem. Through a VR Mood board, the emotions of a respondent are aroused and the influence of such arousal on the design outcomes is observed. A wearable wrist band which records Electrodermal Activity and Blood Volume Pulse is used to record physiological markers of emotional arousal. A snapshot of the VR environment used in the mood board. Lead by Prasad Onkar (Assistant Professor) and team of Vimal and Rakhin.

A short narrative of the life of Hayad Bakshi Begum in the form of 360 degree virtual reality animation which aims to give an immersive visual experience of folktales for the viewer. The objective of the project is to preserve culture through the use of computer generated animation. Lead by Delwyn Remedios (Assistant Professor) and team of Pravin J, Manoj Malviya, Prakash Kumar, Saahil Sagar, Dhanashree Hindlekar, Veena Thakre and Mark Andrew Charles.

Ancient heritage digital reconstruction lead by Shiva Ji (Assistant Professor) along with Manasi and Vinay. It frames a novel approach in Indian heritage reconstruction in digital space by reconstructing the lost structures of historical significance.

Design for Sustainability lead by Shiva Ji (Assistant Professor) with team Learning Network on Sustainability (LeNS) for New theoretical considerations of and contributions to the role of design and other disciplines in the transition towards the Sustainability for all society. Particularly handling areas of Design for Sustainable Materials and Energy, Product Design for Sustainability, Product-Service System Design for Sustainability and Design for Sustainable Distributed Economies, etc.
Since its inception in 2008, EE department @ IITH has progressed rapidly into a full-fledged, multi-faceted department having the largest number of faculty and students in IITH. EE department has 28 full-time faculty and 4 visiting faculty and it caters to close to 500 students. The thrust of the department is invention and innovation. Research grants to the tune of 80 crores is a testament for the drive/capabilities of our Faculty. Spanning across four major domains, viz., Communication and Signal Processing, Micro/Nanoelectronics & VLSI, Power Systems and Power Electronics and Control Systems, EE runs four M.Tech programs on its own and also offers one more M.Tech program in conjunction with Computer Science department. With multiple offers in hand, our B.Tech students are well placed across different top-notch MNCs. Moreover, offers for higher studies in Ivy league universities has become common place for our undergraduate toppers. Placements for Masters and Ph.D programs have been lucrative thus far. Couple of our research scholars have become faculty in IITs and NITs. Last but not the least, the emphasis on practical work and state-of-the-art research work has led to incubation of four startups. Two of these start-ups have revenue in-flow and will pretty soon be getting series-A funding. We at EE aim to be pioneers rather than peers.
K. Sri Rama Murty  
Ph.D – IIT Madras  
Associate Professor & HoD  
Research Areas: Signal Processing; Speech Analysis, Recognition & Synthesis; Machine Learning

Mohammed Zafar Ali Khan  
Ph.D – IISc Bangalore  
Professor  
Research Areas: Wireless Communications; MIMO Decoding; Commensal Radar; CPS Security and Dynamic Spectrum Allocation

Kiran Kumar Kuchi  
Ph.D – University of Texas at Arlington, USA  
Professor  
Research Areas: Wireless Communications; Signal Processing; 5G Testbed Development; Development of Global Standards

Shiv Govind Singh  
Ph.D – IIT Bombay  
Professor  
Research Areas: Wireless Communications; MIMO Decoding; Commensal Radar; CPS Security and Dynamic Spectrum Allocation

Mohammed Zafar Ali Khan  
Ph.D – IISc Bangalore  
Professor  
Research Areas: Wireless Communications; MIMO Decoding; Commensal Radar; CPS Security and Dynamic Spectrum Allocation

Rajalakshmi  
Ph.D – IIT Madras  
Associate Professor  
Research Areas: Internet of Intelligent Things; Artificial Intelligence; Computer Aided Diagnosis; Intelligent and Autonomous Transportation

Kiran Kumar Kuchi  
Ph.D – University of Texas at Arlington, USA  
Professor  
Research Areas: Wireless Communications; Signal Processing; 5G Testbed Development; Development of Global Standards

Kiran Kumar Kuchi  
Ph.D – University of Texas at Arlington, USA  
Professor  
Research Areas: Wireless Communications; Signal Processing; 5G Testbed Development; Development of Global Standards

Shiv Govind Singh  
Ph.D – IIT Bombay  
Professor  
Research Areas: Wireless Communications; MIMO Decoding; Commensal Radar; CPS Security and Dynamic Spectrum Allocation

Mohammed Zafar Ali Khan  
Ph.D – IISc Bangalore  
Professor  
Research Areas: Wireless Communications; MIMO Decoding; Commensal Radar; CPS Security and Dynamic Spectrum Allocation

Rajalakshmi  
Ph.D – IIT Madras  
Associate Professor  
Research Areas: Internet of Intelligent Things; Artificial Intelligence; Computer Aided Diagnosis; Intelligent and Autonomous Transportation

Kiran Kumar Kuchi  
Ph.D – University of Texas at Arlington, USA  
Professor  
Research Areas: Wireless Communications; Signal Processing; 5G Testbed Development; Development of Global Standards

Soumya Jana  
Ph.D – UIUC, USA  
Associate Professor  
Research Areas: Biomedical Image and Signal Analysis; Air Quality Analysis; Network Information Theory; Computer Vision; Artificial Intelligence; Radar and Sonar Imaging and Signal Processing

Ashudeb Dutta  
Ph.D – IIT Kharagpur  
Associate Professor  
Research Areas: Analog and Radio Frequency VLSI Chip Design; Receiver; Phase Locked Loop; Low Noise Amplifier; Energy Harvesting

Ashudeb Dutta  
Ph.D – IIT Kharagpur  
Associate Professor  
Research Areas: Analog and Radio Frequency VLSI Chip Design; Receiver; Phase Locked Loop; Low Noise Amplifier; Energy Harvesting

Ketan Detroja  
Ph.D – IIT Bombay  
Associate Professor  
Research Areas: Control Theory; State Estimation; Fault Diagnosis

Ammit Acharyya  
Ph.D – University of Southampton, UK  
Associate Professor  
Research Areas: VLSI systems resource-constrained applications; Low Power Design Techniques; Machine learning hardware design; Signal Processing Algorithm and VLSI Architectures; Digital Arithmetic; Hardware Security; Real-time Battery Health monitoring for the Electric Vehicles; Healthcare Technology and chip-design targeting remote health monitoring including cardio-vascular diseases; Diabetes; Autism Spectrum Disorder; Neurological disorder; Orthopaedically handicapped patients; Accelerating Cancer diagnostic procedures through hardware-software co-design; Design for Testability and Reliability

Siva Kumar K.  
Ph.D – IISc Bangalore  
Associate Professor  
Research Areas: PPM Induction Motor Drives; Multi-Level Inverters; Micro-Grids

Vaskar Sarkar  
Ph.D – IIT Bombay  
Associate Professor  
Research Areas: Wide Area Monitoring and Control; Grid Integration of Renewables; Power Market Design

Siva Kumar K.  
Ph.D – IISc Bangalore  
Associate Professor  
Research Areas: PPM Induction Motor Drives; Multi-Level Inverters; Micro-Grids
FACULTY

Sumohana Channappayya
Ph.D – The University of Texas at Austin, USA
Associate Professor
Research Areas: Image and Video Quality Assessment; Biomedical Image Processing; Machine Learning

Siva Rama Krishna
Ph.D – IISc, Bangalore
Associate Professor
Research Areas: Biosensors; Electrochemistry; MEMS; 3D-IC

Sushmee Badhulikha
Ph.D – University of California, USA
Associate Professor
Research Areas: Flexible and Wearable Nanoelectronics; Nanomaterials Based Devices and Circuits; Eco-Friendly Electronics; Paper Electronics; Electrochemical Sensors and Supercapacitors

Pradeep Yemula
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Smart Grids; Power System Control Centers; Information Technology Architectures; Ontologies for Power System Events; Common Information Model (CIM); Interoperability and Standards

Abhinav Kumar
Ph.D – IIT Delhi
Assistant Professor
Research Areas: Resource Allocation for 5G; Visible Light Based Communications; Security and Privacy in Wireless Networks; Cellular Operation in the Unlicensed Spectrum

Kaushik Nayak
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Electronic Devices Physics; Mesoscopic Electronics

Shishir Kumar
Ph.D – Trinity College, Dublin
Assistant Professor
Research Areas: Micro-nanofluidics; Nanopores; 2D Materials; Bio-chemical Sensors

Gajendranath Chowdary
Ph.D – IIT Delhi
Assistant Professor
Research Areas: Analog and Mixed Signal Circuit Design

Seshadri Sravan Kumar V
Ph.D – IISc, Bangalore
Assistant Professor
Research Areas: Grid Connected Renewable Energy Systems; Micro Grids; Voltage Stability; Electric Vehicles

Emani Naresh Kumar
Ph.D – Purdue University, West Lafayette Campus, USA
Assistant Professor
Research Areas: Nanophotonics; Photovoltaics; Optoelectronic Devices and Nanofabrication

Aditya Siripuram
Ph.D – Stanford University, USA
Assistant Professor
Research Areas: Graph Signal Processing; Mathematical Aspects of Sampling; Adversarial Machine Learning

Rupesh Wandhare
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Power Electronics; Electric Drives; Renewable Energy Sources; Distributed Energy Generation; Standalone and Hybrid Energy Generation; Microgrid
Patents Filed


A method, apparatus, system and computer-readable Medium for compression and de-compression of a numerical file, A Acharyya et. al. (filed, USA).


Patents Granted


Method and a System for Fault Tolerance in 3D ICs, Indian Patent Application No: 201711038800, Filing Date: November 1, 2017 (Indian).

Apoorna Bhatt, Nimesh Sheth, Rupesh Wandhare, and Naresh Jotwani, Sinusoidal Pump Controller With A Maximum Power Point Tracker (Mppt) For Efficient Water Pumping, 7 February 2018, Appl No.201821004618 A.

Book Published

Book Chapters


Publications
(in peer reviewed journals)


M.P.R.S. Kiran and P. Rajalakshmi, Saturated Throughput Analysis of IEEE 802.11ad EDCA
for High Data Rate 5G-IoT Applications, IEEE Transactions on Vehicular Technology, March 2019, 1-1, 10.1109/TVT.2019.2903890.


Kalloor Joseph, Francis, Chinni Bhargava, Channappayya Sumohana, P. Rajalakshmi, Dogra Vikram Rao Navalgund, Two sided residual refocusing for acoustic lens based photoacoustic imaging system, IOP Physics in Medicine and Biology (ioscience-2018), 10.10881361-6560aac8c5.

R. Bharath, P. Rajalakshmi, and M.A. Mateen, Multi-modal framework for automatic detection of diagnostically important regions in nonalcoholic fatty liver ultrasonic images, Elsevier Biocybernetics and Biomedical Engineering, 2018.


B.S. Chandra, C.S. Sastry, and S Jana, Robust heartbeat detection from multimodal data via CNN-based generalizable information fusion, IEEE Transactions on Biomedical Engineering, 66(3), 2019, 710-717.


K. Murali, Gajendranath Chowdary, and Ashudeb Dutta, et al, A 100 mV to 2.5 V
Burst Mode Constant On-Time Controlled Battery Charger with 92% Peak Efficiency and Integrated FOCV Technique, IEEE Transactions on Very Large Scale Integration (VLSI) Systems 27(2), February 2019, 430-443.


Suresh Mopuri, Swati Bhardwaj, and A. Acharyya, Coordinate Rotation based Design Methodology for Square root and Division computation, IEEE Transactions on Circuits and Systems II: Express Briefs, October 2018.


Santhosh Sivasubramani, Sanghamitra Debroy, Swati Ghosh Acharyya, and A. Acharyya, Tunable intrinsic magnetic phase transition in pristine single-layer graphene nanoribbons Nanotechnology, IOP Publishing, 29(45), September 2018, 455701.

Ronit Ganguly, Soumya Bandypadhyay, Kumaraswamy Miriyala, Vijayabhaskar Gunasekaran, Saswata Bhattacharya, A. Acharyya, and Ranjit Ramadurai, Tunable polarization components and electric field induced crystallization in polyvinylidenefluoride (PVDF); a piezo polymer, Polymer Crystallization, John Wiley & Sons, Inc., September 2018.


Suresh Mopuri, Sivaramakrishna Vanjari, and A. Acharyya, Low-complexity and Reconfigurable DHT Architecture Design


Srinivasulu Kanaparthi and Shiv Govind Singh, Chemiresistive Sensor Based on Zinc Oxide Nanoflakes for CO$_2$ Detection, January 2019, 10.1021/acsanm.8b01763.


Jose Joseph, Shiv Govind Singh, and Siva Rama Krishna Vanjari, Piezoelectric micromachined ultrasonic transducer using NiSe$_2$ on cellulose paper: A low cost, flexible, wearable with smartphone
enabled multifunctional sensing platform for customized non-invasive personal healthcare monitoring, ACS Applied Electronic Materials, 2019, 10.1021/acsaelm.9b00022.


R. Sha, S. Jones, and S. Badhulika, Controlled synthesis of platinum nanoflowers supported on carbon quantum dots as a highly effective catalyst for methanol electro-oxidation. Surface and Coatings Technology, 360, 2019, 400-408.


P. Sahatiya, A. Shinde, and S. Badhulika, Pyro-phototronic nanogenerator based on flexible 2D ZnO/graphene heterojunction and its application in self-powered Near Infrared photodetector and active analog...
frequency modulation, Nanotechnology, 10, 29(32), 2018, 325205.


M.K. Rajendran, V. Priya, S. Kansal, G. Chowdary and A. Dutta, A 100-mV–2.5-V Burst Mode Constant on-Time-Controlled Battery Charger With 92% Peak Efficiency and Integrated FOCV Technique, IEEE Transactions on Very Large Scale Integration (VLSI) Systems, 27(2), February 2019, 430-443.

Publications
(in peer reviewed conferences)


Roopak R. Tamboli, Balasubramanyam Appina, Peter A. Kara, Maria G. Martini, Sumohana S. Channappayya, and Soumya Jana, Effect of Primitive Features of Content on Perceived Quality of Light Field Visualization, Tenth International Conference on Quality of Multimedia Experience (QoMEX), 2018, 1-3.


B. Prathap Reddy, K. Siva Kumar, Distributed Short-Pitch Winding for Multi-Phase Pole-Phase Modulated Induction Motor Drives, IEEE PEDES 2018 – 8th International Conference on Power Electronics, Drives and


T. Uday, A. Kumar, and L. Natarajan, Flicker mitigating high rate RLL codes for VLC with low complexity encoding and decoding, *IEEE iSES, 2018.*


R. Yoghitha and A. Kumar, Uplink and downlink resource allocation for energy efficient cellular networks with dual connectivity, *ACM MobiCom 2018.*


G.V.S.S. Praneeth Varma, G.V.V. Sharma, and A. Kumar, Resource allocation for visible light communication using stochastic geometry, *IEEE CSNDSP 2018.*


Smart Grid Technologies-Asia (ISGT Asia), 2018, 569-574.


G.V.S.S. Praneeth Varma, G.V.V. Sharma, and A. Kumar, Closed-form approximations for coverage and rate in a Multi-tier heterogeneous network in Nakagami-m fading, NCC, 2018.


C.P. Konkimalla, M.S. Yellapragada, T. Gayam, S. Mandal, and S.S. Channappayya, Optical Character Recognition (OCR) for Telugu: Database, Algorithm and Application, ICIP 2018, Athens, Greece, October 2018.


Discrimination, AFITA/WCCA, Bombay, India, 24-26 October 2018.


Funded Research Projects 2018-19

K. Sri Rama Murty, Development of Speech Interface to Command Control System, DRDL, Hyderabad, 2018, Rs. 23.4 Lakhs.

Kiran Kumar Kuchi, Indigenous 5G Testbed, Department of Telecommunications, 2018, Rs. 64.44 Lakhs.

Ashudeb Dutta, Design and Development of Dual Frequency Phased Locked Loop (PLL) for IRNSS Receiver, SAMEER Kolkata, 2018, Rs. 9.99 Lakhs.

Gallium Nitride (GaN) Power Amplifier, DSST, Research Centre Imarat (RCI), DRDO, 2018, Rs. 172.00 Lakhs.

G.V.V. Sharma, Development of a Transciever System with Variable Rates and Blocklengths for Digital Video Broadcast (DVB-S2), CRL, Bharat Electronics Limited, 2018, Rs. 10.62 Lakhs.

Rajalakshmi (Co-Investigator), 5G Testbed, DoT, 2018, Rs. 660.00 Lakhs

Shishir Kumar, Graphene nanopores for selective molecular filtering, DST Nanomission, 2018, Rs. 25.41 Lakhs.

Gajendranath Chowdary, Solar and Vibration based Hybrid Energy Scavenging System for Self-Sustainable Defense Applications in 180 nm CMOS, CARS, ANURAG DRDO, August 2018, Rs. 45.3 Lakhs.

Rajalakshmi, AI based High Throughput Phenotyping to Accelerate Crop Improvement through Crop images Captured from Unmanned Aerial Vehicle (UAV) with On-Vehicle Sensors, Meity, November 2018, Rs. 100.00 Lakhs.

Rajalakshmi (Co-Project Investigator), IoT-based 3D printed time lapse smart microscope for embryo monitoring in IVF clinics, SERB, DST, IMPRINT, 24 December 2018, Rs. 71.89 Lakhs.

Amit Acharyya, IoT based deMonstrator design using proposed methOdology with CNN and BSS for Rehabilitated ParaLYZed Patients (i-MOBILYZE, Xilinx, February 2019, Rs. 68.00 Lakhs.

Amit Acharyya, Intelligent IoT enabled Autonomous Structural Health Monitoring System for Ships, Aeroplanes, Trains and Automobiles, IMPRINT-II.B, Govt. of India, March 2019, Rs. 34.00 Lakhs.

Amit Acharyya, IoT Based Holistic Prevention and Prediction of CVD (i-PREACT), Department of Science and Technology, March 2019, Rs. 215.00 Lakhs.

Gajendranath Chowdary, Ultra-low power circuits for autonomous sensor nodes in IoT networks, SERB ECR Scheme, March 2019, Rs. 45.14 Lakhs.

Seshadri Sravan Kumar V, Development of Coordination and Control Schemes for Grid Connected Variable Speed Wind Generators under Unbalanced and Low Voltage...
Ehani Naresh Kumar, Investigation of the carrier surface recombination in III-V semiconductors for on-chip nanophotonic applications, SERB ECR Scheme, March 2019, Rs. 45.26 Lakhs.

Rajalakshmi (Co-Project Investigator), Design and Fabrication of Passenger Drone, Meity, 15 March 2019, Rs. 854.00 Lakhs.

Aditya Sripuram, Signal processing perspectives on unsupervised graph learning, Rs. 21.59 Lakhs.

Abhinav Kumar, Privacy preserving framework for location based services, Collaboration Kick-Starter Program (CKP), JICA, Rs. 34.00 Lakhs.

Talks Given in National / International Conferences

Dr. Aditya Sripuram, LP relaxations and Fuglede's conjecture, IEEE International Symposium on Information Theory (ISIT), Vail, CO, USA, 2018.


Awards / Recognitions

Dr. Kiran Kumar Kuchi, Vasvik Industrial Research Award in Electrical and Electronic Sciences category for 2018.


Ajay Kumar, Mahersh Taparia, won Best oral presentation at ICRISAT CORTEVA Plant Science Symposium 2018 at ICRISAT, Patancheru, Hyderabad India.

Dr. Amit Acharyya, Visiting Research Fellow in the University of Southampton, UK from 2018-2019.

Dr. Amit Acharyya, Young Investigator’s Award for Basic Science in the Heart Rhythm Congress, UK 2018 – Mr. Naresh V and Dr. Acharyya’s collaborative work with the Southampton General Hospital, UK won the prestigious Young Investigators Competition, at Heart Rhythm Congress 2018, Birmingham, UK organized jointly by the Arrhythmia Alliance and the British Heart Rhythm Society. (The future of S-ICD sensing; 'IMPROVE' significantly increases R:T ratio and generates universal device eligibility without impairing VF detection; Reference: EP Europace, Volume 20, Issue suppl_4, 1 October 2018, Pages iv1).

Dr. Amit Acharyya, B. Tech project titled Modified Huffman based compression methodology for Deep Neural Network Implementation on Resource Constrained Mobile Platforms done by Mr. Sunil Pankaj and Mr. Wasim Akram is selected for AMD Best BTech Project Award.
Number of patents filed: 6, successfully completed introduction of a new waveform in Rel-15 and Rel-16 of 5G New Radio global standard. Development of end-to-end 5G testbed is on track. Development of NB-IoT SoC initiated.

Primary focus research areas can be broadly classified into the following areas: 1) Agricultural sector: where we developed IoT based ground and aerial networks for monitoring important soil and crop parameters. In conjunction with AI, using this data, we developed intelligent algorithms for significantly improving the speed of crop phenotyping; 2) Intelligent and autonomous transportation: We developed a LiDAR testbed at WiNet Lab, IITH for utilizing the point cloud data for accurate real-time obstacle detection which can be used in autonomous ground and aerial vehicles; 3) Healthcare: We are putting continuous efforts in developing computer aided diagnosis frameworks using both ultrasound and EEG, along with state of the art AI algorithms for autonomous diagnosis which are more reliable, especially in developing countries; 4) Theoretical aspects of IoT: We work in theoretical modeling of efficient data aggregation methods, channel access mechanisms and security for large scale and dense traffic IoT networks.

Implementing an indigenous Phased Locked Loop (PLL) in Complementary metal oxide semiconductor (CMOS) for dual frequency IRNSS SPS receiver (for L5 and S bands) with brief system specification: L5 band: 1176.45 MHz (24 MHz) and S-band: 2492.028 MHz (16.5 MHz), Receiver Sensitivities: -136 dBm for L5-band and -139 dBm for S-band.

Implementing an indigenous power amplifier suitable to work under X-band space grade applications with higher output power and efficiency in GaN process.

Implementing the entire physical layer in the DVB-S2 standard: modulation techniques like APSK, frame, phase, frequency and time synchronization, coding techniques like BCH and LDPC.
The Department of Liberal Arts comprising of 16 faculty members offers courses in various disciplines including Anthropology, Cultural Studies, Development Studies, Economics, English, Linguistics, Psychology, and Sociology. Liberal Arts faculty have published book chapters, and several journal papers in the year 2018-2019. Additionally, faculty in the area of anthropology and sociology have published two books. Also, faculty have been invited for talks at various conferences and seminars, both national and international; and have received research grants in the area of economics and psychology in 2018-19. Several faculty and students have received awards and recognitions by various international bodies. The department organized seminars in the disciplines of medical humanities and psychology in February 2019. Furthermore, the department has launched a masters program in Development Studies that will commence from the next academic semester.
FACULTY

Haripriya Narasimhan
Ph.D – Syracuse University - NY, USA
Associate Professor
Research Areas: Media, Gender, Health, India

Badri Narayan Rath
Ph.D – ISEC, Bangalore
Associate Professor

Indira Jalli
Ph.D – Hyderabad Central University
Associate Professor
Research Areas: Nation and Culture

K.P. Prabheesh
Ph.D – IIT Madras
Associate Professor
Research Areas: Macroeconomics, International Finance and Applied Econometrics

Amrita Deb
Ph.D – BHU, Varanasi
Associate Professor
Research Areas: Positive Psychology, Clinical Psychology and Personality Psychology

M.P. Ganesh
Ph.D – IIT Bombay
Associate Professor
Research Areas: Cross-Cultural Virtual Teams, Workplace Bullying, Cross-Cultural Collaborations

Srirupa Chatterjee
Ph.D – IIT Kanpur
Assistant Professor
Research Areas: American Literature, Body Studies, Gender Studies, Literary Theory

Mahati Chittem
Ph.D – University of Sheffield, UK
Assistant Professor
Research Areas: Chronic Disease Management, Health Behaviours

Shubha Ranganathan
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Culture and Mental Health, Qualitative Research Methods, Gender, Critical Psychology, Chronicity and Care-Giving

Nandini Ramesh Sankar
Ph.D – Cornell University, USA
Assistant Professor
Research Areas: 20th Century and Contemporary Poetry, Visual Arts, Theories of the Gift, Literature and Philosophy

Prakash Mondal
Ph.D – IIT Delhi
Assistant Professor
Research Areas: Theoretical Linguistics, Language and Computation, Language and Biology, Philosophy of Language and Mind

Anindita Majumdar
Ph.D – IIT Delhi
Assistant Professor
Research Areas: Medical Anthropology, Kinship, Reproduction, Infertility
Aalok Khandekar  
Ph.D – Rensselaer Polytechnic Institute  
**Assistant Professor**  
**Research Areas:** Science, Technology, and Society Studies (STS), Environmental Sustainability, Urban Studies, Cultural Anthropology

Chandan Bose  
Ph.D – University of Canterbury, New Zealand  
**Assistant Professor**  
**Research Areas:** Ethnography, Historiography, Visual Anthropology, Artisanal Communities and Production, Critical Heritage Studies, Memory, Futures

Shuhita Bhattacharjee  
Ph.D – University of Iowa  
**Assistant Professor**  
**Research Areas:** Nineteenth-Century Literature and Culture, Religion and the Post-Secular, Gender and Sexuality Studies, Postcolonial Studies, Graphic Novels, Literature and Culture of The Diapora

Amrita Datta  
Ph.D – International Institute of Social Studies, Erasmus University Rotterdam  
**Assistant Professor**  
**Research Areas:** Development Studies, Migration and Development, Gender and Development, Village and Longitudinal Studies

**Book Published**


**Book Chapters**


**Publications (in peer reviewed journals)**


M. Chittem, P. Norman, and P. Harris, Primary family caregivers’ reasons for disclosing versus not disclosing a cancer diagnosis in India, Cancer Nursing, 2018, 10.1097/NCC.0000000000000669.


Publications
(in peer reviewed conferences)

Talks Given in National / International Conferences

M. Chittem, Miles to go before we sleep: How public perceptions, structural barriers and illness experiences shape cancer outcomes in India, Invited paper, Asia-Pacific region, the International Psycho-oncology Society (IPOS) conference, Hong Kong, 2018.

M. Chittem, T. Epton, and R. Tanikella, Is it all in the label? The role of using a medical term vs euphemism on psychological outcomes and health behaviours among Indian cancer patients, International Psycho-oncology Society (IPOS) conference, Hong Kong, 2018.

M. Chittem and C. Rowland, Supportive care needs and their association with psychological well-being, illness beliefs and quality of life among cancer patients in India, the Multinational Association of Supportive Care in Cancer conference, Vienna, Austria, 2018.


Anindita Majumdar, Banning a select few: Conversations on reproductive justice and reproductive labour in commercial surrogacy in India, Sexual and Reproductive Rights in India: Social Movements and Legal Battles, Centre for Law and Policy Research in association with University of Sussex and Centre on Law and Social Transformation, University of Bergen, Norway, Bangalore, 14-15 April 2018.

Aalok Khandekar, Kim Fortun, Mike Fortun, Lindsay Poirier, Alli Morgan, Brian Callahan, Brandon Costelloe-Kuehn, Alison Kenner, and Brad Fidler Hosting the platform for experimental, collaborative ethnography, Digital Humanities Alliance of India conference. Indian Institute of Management Indore and Indian Institute of Technology Indore, 1-2 June 2018.

Anindita Majumdar, The rogue doctor: Imagining legitimacy in assisted conception in India, Remaking reproduction: The global politics of reproductive technologies, Reproductive Sociology Group, Department of Sociology, University of Cambridge, UK, 27-29 June 2018.

Amrita Deb, Incorporating resilience into textbooks: Positive education practices in an institute of higher education in India, Fourth World Congress on Resilience and Culture, University Aix-Marseille, Marseille, France, 28-30 June 2018.


K.P. Prabheesh, Intra-industry trade between India and Indonesia, maintaining stability, Strengthening momentum of growth amidst high uncertainties, Bali, Indonesia, 29-31 August 2018.

Badri Narayan Rath, Does total factor productivity converge among ASEAN countries? 12th BM&E International Conference, Bank of Indonesia, Bali, 30-31 August 2018.

Badri Narayan Rath and Bhushan Praveen Jangam, Does Productivity Differential Drive the Real Exchange Rate Movements? A Re-Examination of the Balassa Samuelson Hypothesis in Selected EMEs, 12th BM&E International Conference, Bank of Indonesia, Bali, 30-31 August 2018.


Aalok Khandekar, Studying air pollution governance in 6+ cities: Theory, tactics, findings. Centre for Public Awareness of Science, Australian National University, Canberra, Australia, 3 September 2018.


Aalok Khandekar, Studying air pollution governance in 6+ cities: Theory, tactics, findings. School of Humanities and Social Sciences, Birla Institute of Technology and Science Pilani, Hyderabad Campus, India, 24 October 2018.

Aalok Khandekar, Crafting knowledge, anchoring innovation in handloom weaving in India, Conference on Rethinking Indian Industrialization of Crafts, Chirala, India, 11-18 November 2018.


Aalok Khandekar, Resource Faculty, Short-Term Programme on Disaster Management, Human Resource Development Centre (HRDC), University of Hyderabad, India, 16 November 2018.


Aalok Khandekar, Hosting the platform for experimental, collaborative ethnography, Hitotsubashi University, Tokyo, 18 December 2018.


Seminars Conducted

Jeyavelu, Professor and Dean, VIT-AP Business School delivered a talk on Liberal Education, 20 August 2018.

Devesh, Controller of Examinations, University of Hyderabad, RTI Act, 2005, 29 August 2018.

Sheela Prasad, Professor and Head of Regional Studies, University of Hyderabad, A Small Family is a Happy Family? Population Control Modernity and Women in India, 5 September 2018.

B.S. Sherin, The English and Foreign Languages University, Hyderabad, Public Universities and the Precarity of Humanities, 12 September 2018.
Rahul Menon, Assistant Professor, School of Livelihoods and Development, Tata Institute of Social Science, Hyderabad, Secular stagnation and excess savings: A Keynesian view, 19 September 2018.

Johny Stephen, Department of Natural Resources and Governance, TISS Hyderabad, Fishing for Space- Understanding conflicts over natural resources from a spatial perspective, 26 September 2018.

Varalakshmi, School of Medical Sciences, University of Hyderabad, Gender dimensions of health and social status among older adults, 3 October 2018.

Nishant Sinha, Consultant Pulmonologist, Care Hospital, Patient’s expectations and health care delivery in India: Doctor’s role more than a Doctor? 17 October 2018.

Vinoo Alluri Assistant Professor, Cognitive Science, IIIT Hyderabad, Decoding Brain States Using Music, 24 October 2018.

N. Rekha, Mahatma Gandhi National Council of Rural Education, Hyderabad, Factors influencing mentor’s learning from mentoring relationships: Insights from a serial mediation study in Indian context, 30 October 2018.

S. Kousik, Department of Biomedical Engineering, IIT Hyderabad. Parkinson’s disease – beyond the motor cliché, 14 November 2018.


Kavita Chauhan, University of Hyderabad, Communication in Art, 16 January 2019.

Mini Thomas, BITS-Pilani, Hyderabad, New Insights from a structural approach to India’s Services-led Growth story, 6 February 2019

Ayla Joncheere, Ghent University, Belgium, Travelling among Kalbeliya Dancers: From staging of authenticity to intercultural dialogues in Indian dance practice, 27 February 2019.

Sunita Vatuk, Independent scholar, Kolams: Mathematical Thinking in a South Indian Art Form, 27 March 2019.

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**Workshops / Symposiums**

Two-day seminar on The performing body: Conversations on Medical Humanities, organized by Haripriya Narasimhan and Shubha Ranganathan, Department of Liberal Arts, IIT Hyderabad, 1-2 February 2019.

One-day Resilience Seminar funded by Indian Council of Medical Research, organized by Amrita Deb, Department of Liberal Arts, IIT Hyderabad, 15 February 2019.

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**Awards / Recognitions**


Badri Narayan Rath, *Member in the Scientific Committee*, 1st APAEA PhD Scholar Conference, Xi’an International Studies University, China, 18-19 June 2018.


Utsab Ray, *Fulbright Doctoral Fellowship*, US.

Rajalekshmi K, *Charles Wallace India Trust short-term Research Fellowship*, UK.


Aalok Khandekar, *Visiting Researcher*, Department of Anthropology, University of California Irvine, USA.


Prakash Mondal’s recent research work proposes a fresh formulation of conceptually grounded meaning relations by way of construction of certain well-defined relations over the lexicon of a natural language. These relations are constrained by the logical structures of linguistic meanings across sentence and discourse contexts. One of the biggest advantages of such meaning relations is that they are not defined over, or do not ride on, the syntactic structure of a given language. Nor do they turn on compositional relations for the computation of meaning values. This helps in the formulation of meaning relations to be defined on the symbolic elements of a lexicon on the one hand, and to be extracted from the surface structure of linguistic constructions on the other. This has consequences not merely for the nature of lexical meaning but also for the construction of a kind of (shallow) semantic networks that can be used for semantic processing in natural language understanding or machine translation systems that are driven by a kind of shallow processing of linguistic meanings. AI research on natural language will hopefully benefit from this formalism because it reduces the computational burden of relying on heavy syntactic resources of natural languages.

Aalok Khandekar launched a new digital research platform, infraStrucTureS (http://stsinfrastructures.org), for the field of Science and Technology Studies (STS) in collaboration with Society for Social Studies of Science (4S). They have hosted a digital and gallery exhibition, STS Across Borders, at the 2018 annual 4S conference in Sydney, Australia, with over 20 participating groups internationally. We continue with a new exhibit, Innovating STS, which will be hosted as part of the 2019 annual 4S conference in New Orleans.

Chandan Bose’s current work is on craft practices and knowledges, learning and sharing of skill, relationship between work and identity, colonial discourse on artisanal production, construction of ‘craft’ and ‘craftspeople’ as subjectivities by the nation-state, new emerging markets and technologies in urban spaces, and global commodification of heritage.
The department of Materials Science and Metallurgical Engineering (MSME) at IITH started in 2008 with the vision ‘Atoms to Applications’, aiming to be a globally recognized centre of excellence in materials research, translating fundamental understanding into development of innovative, sustainable and environment-friendly technologies and products for social needs. Currently, MSME has twelve faculty members with research interests spanning across various disciplines of structural, functional and computational materials science. One of the recent focuses of the cumulative and collaborative effort of the department is to understand the materials genome by correlating composition, structure, processing, characterization and properties (‘The MSME Pentagon’).

The MSME department at IITH offers unique innovative courses, which are unparalleled with courses at other IITs. Research programs are closely designed with national research laboratories and industries. Currently MSME has annual intake of 20 B.Tech. and 12 M.Tech students and has over 50 registered PhD scholars who are working in fundamentals to advance and emerging areas. The department has over INR 3 Cr of project funding and publishes a large number of articles every year in reputed international journals. The department offers a unique curriculum comprised of fractal courses which facilitates expansion of the core subject acumen as well as personal skills. The department prepares its students for professional roles to perform in industry and cutting edge R&D, as well as encourages them for the entrepreneurship.
FACULTY

Bharat B. Panigrahi
Ph.D – IIT Kharagpur
Associate Professor & HoD
Research Areas: Powder Metallurgy; Sintering; Nanocrystalline Materials; High Entropy Alloys; Max Phase and MXene; Microstructure-Properties of Steels; Titanium Alloys; Composites, Additive Manufacturing

Pinaki Prasad Bhattacharjee
Ph.D – IIT Kanpur
Associate Professor
Research Areas: High Entropy Alloys; Thermo-Mechanical Processing; Crystallographic Texture; Mechanical Properties

Suhash Ranjan Dey
Ph.D – University Paul-Verlaine - Metz, France
Associate Professor
Research Areas: Multi-Component Alloys; Titanium Alloys; CIGS/CZTS Solar Cells; Electrodeposition; Biomaterials; Interstitial Free Steels

Ranjith Ramadurai
Ph.D – IISc Bangalore
Associate Professor
Research Areas: Multifunctional Thin Films; Piezoresponse Force Microscopy; Hybrid Piezoelectrics; Piezoelectric Sensors and Actuators

Pinaki Prasad Bhattacharjee
Ph.D – IIT Kanpur
Associate Professor
Research Areas: High Entropy Alloys; Thermo-Mechanical Processing; Crystallographic Texture; Mechanical Properties

Saswata Bhattacharya
Ph.D – IISc Bangalore
Associate Professor
Research Areas: Phase-Field Modeling of Microstructural Evolution in Alloys and Oxides; Phase Transformations; Micromechanical Modeling

Atul Suresh Deshpande
Ph.D – Max-Planck Institute of Colloids and Interfaces - Potsdam, Germany
Assistant Professor
Research Areas: Nanomaterial Synthesis; High Entropy Oxides; Superhydrophobic Materials; Energy Storage Materials

Mudrika Khandelwal
Ph.D – University of Cambridge, UK
Assistant Professor
Research Areas: Cellulose Composites; Drug Delivery; In Situ Modifications; Food Packaging

Subhadeep Chatterjee
Ph.D – IISc, Bangalore
Assistant Professor
Research Areas: Phase Transformations; Electron Microscopy; Welding and Solidification Processing; Microstructural Modelling

Rajesh Korla
Ph.D – University of Cambridge, UK
Assistant Professor
Research Areas: Deformation Behavior of Materials at Room Temperature and High Temperature

Sai Rama Krishna Malladi
Ph.D – Technische Universiteit Delft, The Netherlands
Assistant Professor
Research Areas: In Situ Transmission Electron Microscopy; Phase Transformations in Materials; Electrochemistry and Corrosion; Graphene Based Super Capacitors; Materials for Energy Applications

Shourya Dutta Gupta
Ph.D – Swiss Federal Institute of Technology Lausanne
Assistant Professor
Research Areas: Plasmonics; Nanophotonics; Biosensing; Raman Spectroscopy; Nanofabrication; Active Devices; Graphene Devices

Chandrasekhar Murapaka
Ph.D – Nanyang Technological University (NTU) Singapore
Assistant Professor
Research Areas: Nanomagnetic Materials; Spintronic Based Memory and Logic Devices
Patents Filed
Mudrika Khandelwal, Shivakalyani Adepu, Pharmaceutical Compositions And Delivery Systems For Prevention And Treatment Of Candidiasis, 17 September 2018, Provisional Application No. 201841034939.

Book Published

Publications (in peer reviewed journals)
Sreekanth Mandati, Suhash R. Dey, Shrikant V Joshi, and Bulusu V Sarada, Cu(In,Ga)Se2 Films with Branched Nanorod Architectures Fabricated by Economic and Environment-friendly Pulse-reverse Electrodeposition Route, ACS Sustainable Chemistry & Engineering, 6, 2018, 13787-13796.
Harendra Kumar, Rajamallu K, Rameez R. Tamboli, and Suhash R. Dey, Fabrication of beta Ti$_{29}$Nb$_{13}$Ta$_{4.6}$Zr alloy through powder metallurgy route for biomedical applications, Transactions of PMAI, 44(1), 2018.


Kumaraswamy Miriyala and Ranjith Ramadurai, Microstructural Influence on Ferroelectric Domain Pattern and Piezoelectric Properties of Na$_{0.5}$Bi$_{0.5}$TiO$_3$ thin Films, Ceram. Int., 44, 2018, 14556-14562.

Ronit Ganguly, Soumya Bandyopadhyay, Kumaraswamy Miriyala, Vijayabhaskar Gunasekaran, Saswata Bhattacharya, Amit Acharyya, and Ranjith Ramadurai, Tunable polarization components and electric field induced crystallization in polyvinylidene-fluoride: A piezo polymer, Polymer crystallization, 2(1), 2018, e10027.


D. Singh, B. Mallesham, A. Deshinge, K. Joshi, R. Ranjith, and V. Balakrishnan, Nanomechanical behavior of Pb (Fe$_{0.5-x}$Sc$_x$Nb$_{0.5}$)$_2$O$_5$ multi-ferroic ceramics, Materials Research Express, 5(11), 2018, 116303.


Rahul B. Mane and B. B. Panigrahi, Comparative study on sintering kinetics of as-milled and annealed CoCrFeNi high entropy alloy powders, Materials Chemistry and Physics, 210, 2018, 49-56.


M.P. Illa, M. Khandelwal, and C.S. Sharma, Bacterial cellulose-derived carbon nanofibers as anode for lithium-ion batteries. Emergent Materials, 2018, 1-16.

Gaydhane, M.K., and et al., Cultured meat: state of the art and future, Biomanufacturing Reviews, 3(1), 2018, 1.

N. T. B. N. Koundinya, Nandha Kumar E, Niraj Chawake, Rajesh Korla, and Ravi Sankar Kottada, A simple and versatile machine for creep testing at low loads (6–300 N) and on miniaturized specimens: Application to a Mg-base alloy, Review of Scientific Instruments 89, 2018, 105102.

N. T. B. N. Koundinya, Nandha Kumar E, Niraj Chawake, Rajesh Korla, and Ravi Sankar Kottada, A simple and versatile machine for creep testing at low loads (6–300 N) and on miniaturized specimens: Application to a Mg-base alloy, Review of Scientific Instruments 89, 2018, 105102.


Publications
(in peer reviewed conferences)


Funded Research Projects 2018-19

Dr. Saswata Bhattacharya, Microstructural degradation under supercritical conditions, DST (Clean Coal Project), September 2018, Rs. 13.00 Lakhs.

Dr. Subhradeep Chatterjee, National Centre for Clean Coal Research & Development (joint project under a consortium coordinated by IISc): WP8 Microstructure-property relationship in welds, DST, 13 September 2018, Rs. 99.96 Lakhs.

Dr. Sai Rama Krishna Malladi, New insights into the localised corrosion of advanced metallic alloys using electron microscopy, DST-SERB Early Career Research Award, 15 September 2018, Rs. 52.47 Lakhs.

Dr. Pinaki Prasad Bhattacharjee, Development of High Entropy Alloys with Outstanding Strength-Ductility for various Applications, TATA Steel, Jamshedpur, India, November 2018, Rs. 12.84 Lakhs.

Dr. Mudrika Khandelwal, Development of bacterial cellulose eco-friendly depth filter by in situ modifications suitable for food and beverage industry, Eaton Pvt. Ltd, December 2018, Rs. 70.00 Lakhs.

Dr. Suhash Ranjan Dey, Tuning the magnetic properties of nanocrystalline multi-component alloy thin film coatings through a single step electrodeposition for sensor applications (Two years with Shanghai Jiao Tong University, Chaina), SPARC, DST, March 2019, Rs. 50.00 Lakhs.

Dr. Mudrika Khandelwal, Bacterial cellulose derived tunable nanostructured carbon as high performance anode for lithium ion battery, DST-SERB, March 2019, Rs. 49.00 Lakhs.

Dr. Shourya Dutta Gupta, Spinodal decomposition in Cu-Ag alloy thin films: A route to tunable plasmonics, DST-SERB Early Career Research Award, 18 March 2019, Rs. 49.70 Lakhs.

Dr. Chandrasekhar Murapaka, Spin-orbit torque induced magnetization dynamics in perpendicular magnetic anisotropy materials for non-volatile memory and logic applications, DST-SERB Early Career Research Award, 21 March 2019, Rs. 49.96 Lakhs.

Dr. Ranjith Ramadurai, Strain, Microstructure
and Defect Induced Effects on Ferroic Domains of Morphotropic Phase Compositions in Lead Free Ferroelectric Thin Films, DST-SERB EMR, 31 March 2019, Rs. 58.00 Lakhs.

**Talks Given in National / International Conferences**


Sahil Rohila, S. Naskar, Rahul B. Mane, and Bharat B. Panigrahi, *Enhancement in sintering and properties of AlCoCrFeNiSi HEA by Ni addition*. International conference on high entropy materials, Jeju, South Korea, 9-12 December 2018.


Srinivas Dudala, S. Chenna Krishna, and Rajesh Korla, *Influence of grain size and temperature on the deformation behavior of Al$_{65}$CoCrFeNi High entropy alloy*, International conference on high entropy materials, Jeju Island, South Korea, 9-12 December 2018.

Yasam Palguna and Rajesh Korla, Microstructure and Mechanical Behaviour of Al(0.5,2)CoCrFeNiMo0.5 High Entropy Alloy, NMD-ATM, Jamshedpur, Kolkata, 11-13 November 2018.

Srinivas Dudala, S. Chenna Krishna, and Rajesh Korla, Microstructural Evolution and Grain Growth Kinetics in Al0.2CoFeNi High Entropy Alloy, NMD-ATM, Jamshedpur, Kolkata, 11-13 November 2018.


Sairam K Malladi, Recent trends in MEMS based in-situ TEM studies, Invited lecture at the Japan Fine Ceramics Centre, Nagoya, Japan, 7 December 2018.


Shourya Dutta-Gupta, Surface enhanced IR absorption spectroscopy for non-destructive diagnosis, AP Science Congress 2018, Yogi Vemana University, Kadapa, 9-11 November 2018.


Seminars Conducted

Dr. M.P. Gururajan, Associate Professor, IITB, Molecular dynamics (MD) simulations of interface stresses, 19 December 2018.


Awards / Recognitions

Pinaki Prasad Bhattacharjee, Best paper award for Microstructure and texture of severely warm-rolled nano-lamellar AlCoCrFeNi2.1 eutectic high entropy alloy, S.R. Reddy, P.P. Bhattacharjee, NMD-ATM 2018, Kolkata, India, 14-16 November 2018, P.K. Kannan from the research group of Dr. Suhash Ranjan Dey, has received SERB-Purdue University Overseas Visiting Doctoral Fellowship 2018 from Department of Science and Technology (DST), India to spend one year at Professor Rakesh Agrawal’s (Purdue University, USA) laboratory.

Shourya Dutta Gupta, Visiting Assistant Professor at Applied and Engineering Physics (AEP), Cornell University, May-July 2018.
Jayaram Balasubramaniam
Ph.D – Sri Satyasai Institute of Higher Learning
Associate Professor & HoD
Research Areas: Approximate Reasoning; Connectives in Multi-Valued Logic

C S Sastry
Ph.D – IIT Kanpur
Associate Professor
Research Areas: Wavelets; Inverse Problems and Sparse Representation Theory

Puranam Anantha Lakshmi Narayana
Ph.D – IIT Kharagpur
Associate Professor
Research Areas: Fluid Mechanics; Convection in Porous Media; Linear and Non-Linear Stability Analysis

Venku Naidu Dogga
Ph.D – IIT Madras
Associate Professor
Research Areas: Harmonic Analysis; Functional Analysis

Daniel Sukumar
Ph.D – IIT Madras
Associate Professor
Research Areas: Functional Analysis; Banach Algebra

G. Ramesh
Ph.D – IIT Madras
Associate Professor
Research Areas: Functional Analysis; Operator Theory

Tanmoy Pal
Ph.D – ISI Calcutta
Assistant Professor
Research Areas: Functional Analysis

Narasimha Kumar
Ph.D – IIT Bombay
Assistant Professor
Research Areas: Number Theory

Pradipto Banerjee
Ph.D – University of South Carolina
Assistant Professor
Research Areas: Number Theory

Bhakti Bhusan Manna
Ph.D – TIFR CAM
Assistant Professor
Research Areas: Partial Differential Equations

Amit Tripathi
PhD – IISc Bangalore
Assistant Professor
Research Areas: Algebraic Geometry and Commutative Algebra

Sameen Naqvi
PhD – IIT Kanpur
Assistant Professor
Research Areas: Reliability Theory; Stochastic Orders; Applied Statistics; Risk Theory
Publications
(in peer reviewed journals)


Surjeet Kaushik, Narasimha Kumar, Naomi Tanabe, Equidistribution of signs for Hilbert modular forms of half-integral weight, Research in Number Theory, 4, 2018, n 4-13.

Narasimha Kumar, A variant of multiplicity one theorems for half-integral weight modular forms, to appear in Acta Arithmetica.


Publications
(in peer reviewed conferences)


Funded Research Projects
2018-19

Puranam Anantha Lakshmi Narayana, The effect of heat source on non-Newtonian fluid flow through a horizontal porous bed, SERB-TARE, 8 February 2019, Rs. 2.50 Lakhs.

Tanmoy Pal, Some new variants of Bishop-Phelps-Bollobas theorem for spaces $X^{*}$ Lip$_{(0)}(X)$, MATRICS-SERB, June 2018, Rs. 6.00 Lakhs.

Talks Given in National / International Conferences

Tanmoy Pal, Best approximation in normed linear spaces, University of Memphis, USA, May 2018.

Tanmoy Pal, Some geometric properties of relative Chebyshev centers in Banach spaces, University of Memphis, USA, May 2018.

Narasimha Kumar, Invited speaker at Institute of Mathematical Sciences, Chennai, May 2018.


Narasimha Kumar, Invited speaker at Iwasawa theory and $p$-adic automorphic forms, Fudan University, Shanghai, China, 10-14 December 2018.


Narasimha Kumar, Invited speaker at International conference on Number Theory, IISER Thiruvananthapuram, 11-13 March 2019.

Seminars Conducted

Dr. Gugan Thoppe, Duke University, Durham, USA, Betti numbers of Gaussian excursions in the sparse regime, 19 May 2018.

Prof. Sashikumar Ganesan, Chair, CDS, IISc, Bangalore, Career as a computational scientist: opportunities and challenges, 23 January 2019.

Prof. S. Nanda, IIT Kharagpur, retired, From logic to fuzzy logic, 28 January 2019.

Dr. Shaunak Deo, TIFR, Mumbai, Effect of level raising on pseudo-deformation rings, 26 March 2019.
The Department of Mechanical & Aerospace Engineering had a very productive year in terms of academics and research. The department offers postgraduate programs in three specializations: Mechanics & Design, Thermo-Fluids Engineering and Integrated Design and Manufacturing. We have embarked on a significant upgrade of research infrastructure through institute support and funding through JICA. Some of the highlights from this year are:

- Five Ph.D. students graduated from our department
- Two new faculty Dr. M. Gopinath and Dr. S Banerjee joined the department
- Dr. K. Badarinath was selected as a Suzuki Fellow and will be spending the summer of 2019 in Shizuoka University
- Anjishnu Choudhury, the Ph.D. student of Dr. Harish, has been selected for the prestigious Overseas Visiting Doctoral Fellowship awarded by SERB. He will be spending twelve months at the University of British Columbia on research collaboration
- Professor Pratap Vanka from University of Illinois Urbana-Champaign has joined our department as Adjunct Professor
- A new lab course on automation has been introduced to first-year undergraduate students
- Prof. Eswaran received the best teacher award for the 2018-19 academic year.
- Prof. N V Reddy, Dr. Mahesh M. Sucheendran and Dr. R Prasanth Kumar had filed one patent each

In numbers, department filed 3 patents, 48 peer reviewed journals and 27 conference publications and 2 book chapters.
FACULTY

R Prasanth Kumar  
Ph.D – IIT Kharagpur  
Professor  
Research Areas: Multibody Dynamics; Robotics; Control Systems

N. Venkata Reddy  
Ph.D – IIT Kanpur  
Professor  

M. Ramji  
Ph.D – IIT Madras  
Professor  
Research Areas: Composite Structures and Repair; Fundamental Fracture Mechanics; Material Characterisation; Computational Fracture and Damage Mechanics; Experimental Mechanics

Ashok Kumar Pandey  
Ph.D – IISc, Bangalore  
Associate Professor  
Research Areas: Linear and Nonlinear Vibration; MEMS; Vehicle Dynamics

Chandrika Prakash Vyasarayani  
Ph.D – University of Waterloo, Canada  
Associate Professor  
Research Areas: Nonlinear Dynamics and Control

K. Venkatasubbaiah  
Ph.D – IIT Kanpur  
Associate Professor  
Research Areas: Computational Heat Transfer and Hypersonic Flows

B. Venkateshama  
Ph.D – IISc, Bangalore  
Associate Professor  
Research Areas: Acoustics and Vibration

Badarinath Karri  
Ph.D - National University of Singapore  
Assistant Professor  
Research Areas: Experimental Fluid Mechanics; High-Speed Imaging; Cavitation; Bubble Dynamics

Gangadharan Raju  
Ph.D – IISc, Bangalore  
Assistant Professor  
Research Areas: Composite Structures; Buckling and Post-Buckling Analysis; Variable Angle Tow Composite Plates; Damage Modeling in Composite Structures; Non-Destructive Evaluation; Structural Health Monitoring

Suryakumar S  
Ph.D – IIT Bombay  
Associate Professor  
Research Areas: Metal Additive Manufacturing; 3D Printing; CAD/CAM

Vinayak Eswaran  
Ph.D - State University of NY at Stony  
Professor  
FACULTY

Mahesh M. Sucheendran
Ph.D – UIUC, USA
Assistant Professor
Research Areas: Vibroacoustics; Aerelasticity; Computational Mechanics; Aeracoustics

Pankaj Sharadchandra Kolhe
Ph.D - The University of Alabama, USA
Assistant Professor
Research Areas: IC Engines; Gas Turbine Engines; Alternative Fuels; Combustion and Spray Diagnostics; Sprays in Smart Farming

Syed Nizamuddin Khaderi
Ph.D - University of Groingen, Netherlands
Assistant Professor
Research Areas: Solid Mechanics; Impact Mechanics; Fluid-Structure Interaction; Lattice Materials; Metal Foams

Viswanath R Chinthapenta
Ph.D – Brown University, USA
Assistant Professor
Research Areas: Computational Solid Mechanics

Harish N. Dixit
Ph.D – Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore
Assistant Professor
Research Areas: Interfacial Flows – Moving Contact Lines; Drop; Bubbles and Thin Films; Hydrodynamic Stability Theory

Saravanan Balusamy
Ph.D - University of INSA of Rouen, France
Assistant Professor
Research Areas: Combustion; Laser Diagnostics; Fluid Mechanics; IC Engines; Gas Turbines; Alternative Fuels

Raja Banerjee
Ph.D – University of Missouri Rolla - USA
Associate Professor & HoD
Research Areas: Computational Fluid Mechanics with Emphasis on Multiphase Flow; High Fidelity Solver Development on Accelerators Like Gpu; Experimental and Numerical Study of Interfacial Flows Like Primary Jet Breakup, Sloshing of Liquid In Partially Filled Tanks; Spray And Atomization of Liquid Fuel And Turbulent Non-Premixed Combustion; Nucleate Boiling Using Two-Phase Lattice Boltzmann Method
Patents Filed
Manish Tripathi, Ajay Misra and Mahesh Sucheendran, Skewed grid fin for aerospace applications, 4 January 2019, Appl No.201811049281.
Prof. R Prasanth Kumar, A Vacuum Cleaner, 26 March, 2019, Appl No: E-2/956/2019/CHE.

Book Chapters

Publications
(in peer reviewed journals)

S. Surya, C.P. Vyasayarayani, and Tamas Kalmar-Nagy, Homotopy continuation for characteristic roots of delay differential equations using the Lambert W function,


Naresh R. Kolanu, Gangadharan Raju, M. Ramji, Damage assessment studies in CFRP composite laminate with cut-out subjected to in-plane shear loading, Composites Part B, 166, 2019, 257-271.


A. Bhosale, M.A. Rasheed, S.S. Prakash, and


Naresh Reddy Kolani, Gangadharan Raju and M. Ramji, Damage assessment studies in CFRP composite laminate with cut-out subjected to in-plane shear loading, Composites Part B: Engineering, 166, 2019, 257-271.


V. Janardhan and R. Prasanth Kumar, Generating real-time trajectories for a planar biped robot crossing a wide ditch with landing uncertainties, Robotica, 37(1), 2019, 109-140.


C. Akiwate Deepak, D. Date Mahendra, B. Venkatesham, and S. Suryakumar, Acoustic measurement of additive manufactured concentric tube reverse flow resonators, Mechanics of Advanced Materials and Structures, 26(1), 2019, 56-61.


M. Ramji, Study of stepped lap and scarf joint CFRP adherends using CZM, Structural Integrity Conference and Exhibition, DRDL, Hyderabad, India, 24 July 2018.


Siva Teja Golla, B. Venkatesham and R. Banjeeere, Experimental study on the effect of vertical baffles on liquid sloshing noise in a partially filled rectangular tank under periodic excitation, Inter-Noise, Chicago, USA, 26-29 August 2018.

Deepak C. Akiwate, Mahendra D. Date, B. Venkatesham and S. Suryakumar, Acoustic characterization of additive manufactured micro-perforated panel backed by honeycomb structure, Inter-Noise 2018, USA, 26-29 August 2018.

D. Veerababu and B. Venkatesham, Acoustic analysis of extended inlet/outlet concentric tube resonator using Green’s function, Inter-Noise 2018, USA, 26-29 August 2018.

Siva Teja Golla and B. Venkatesham, Preliminary evaluation methodology of car audio system, FISITA World Automotive Congress, Chennai, India, 2-5 October 2018.


M. Yoganandh, Nagaraja Jade, and B.
Venkatesham, A Simplified model to predict the transverse transmission loss using radiation efficiency, WESPAC-2018, New Delhi, India, 11-15 November 2018.


M. Ramji, Progressive failure analysis of flexural loaded CFRP specimen with multiple interacting holes involving 3D finite element analysis and various non-destructive techniques, ICONS 2019, IIT Madras, Chennai, India, 16 December 2018.


**Publications**

*(in peer reviewed conferences)*


**Funded Research Projects 2018-19**

M. Ramji, *Calibration of Constitutive Models for Aluminum Foam*, ODF Medak, 1 April 2018, Rs. 12.56 Lakhs.

B. Venkatesh, *Acoustic Characterization*
Talks Given in National / International Conferences


N.V. Reddy, Double Sided Incremental Forming: Capabilities and Challenges, Key Note, NUMISHEET 2018, Tokyo, 2 August 2018.


B. Karri, Y. V. P. Reddy, and K. Sahu, Experimental study of a rising air bubble in liquid medium through confinement, 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, 18-20 November 2018.

Praveen K. Sharma and Harish N. Dixit, Dynamics of a bouncing drop near a solid surface, 71st Annual Meeting of the APS Division of Fluid Dynamics, Atlanta, Georgia, 18-20, November 2018.


Harish N. Dixit, Role of surface viscosity in
rupture of thin films, Invited Talk, Department of Chemical Engineering, IIT Madras, India, 11 March 2019.

Madhu Kiran Karanam and Viswanath R. Chinthapenta, Study on the effect of crystallographic orientations on the tensile behavior of FCC single crystal, Accepted in 62nd Congress of The Indian Society of Theoretical and Applied Mechanics (ISTAM-2017), At University College of Engineering, Osmania University, India, December 15-18, (2017).

Seminars Conducted


Prof IftekharAKarimi, National University of Singapore, Design and Operation of LNG Regasification Terminals, 18 February 2019.

Mr. Ashish Kulkarni, Tridiagonal Solutions, Multi Phase Flows in Industrial Systems, 26 March 2019.

Workshops / Symposiums

Dr. Ashok Kumar Pandey, Two days workshop on Numerical Methods for Engineers conducted, BHEL R&D, Balanagar, 10-11 December 2018.

Awards / Recognitions

Dr. Ashok Kumar Pandey, Best poster award to Aparna Gangele for the paper titled Vibrational characteristics of carbon nanosheet composites including surface effects, authored by Aparna Gangele and Ashok Kumar Pandey in International conference on Carbon-MEMS 2018, Hyderabad, India, 5-7 December 2018.

Dr. Gangadharan Raju, Lala Bahadur Andaraju, Awarded 1st prize for the best paper - Damage Characterization of CFRP Composite Curved Beam (L-Bend) Specimen using AE and DIC, IGNiting NDE In Technical and Engineering Institutions (IGNITE), 1st International NDE Symposium for Research Scholars and Students, IIT Madras, Chennai, India, 3-4 November 2018.

Anjishnu Choudhury under guide Dr. Harish N. Dixit, selected for Overseas Doctoral Visiting Fellowship (OVDF), SERB to spend 12 months at University of British Columbia, Vancouver, Canada.

Prof. M. Ramji, Outstanding reviewer – Journal of Materials Processing Technology, Dec 2019. Awarded this status as he is within the top 10 percentile of reviewers for the Journal.
Materials are subjected to a variety of static and dynamic loading conditions. Examples range from the dead loads acting on a building to impact loads experienced in a typical car crash. Conventionally, the testing of materials is performed in a universal testing machine, in which the force required to slowly stretch a cylindrical sample is measured. This data tells us about the mechanical strength of the material. This information is very useful for most of the mechanical design purposes. However, when a component is subjected to an impact loading, the response may be very different. A split-Hopkinson or a Kolsky bar is a device that is used to characterize the impact response of materials. This set-up has been indigenously developed by MAE recently. The impact behavior of materials ranging from ceramics to biomaterials (such as nacre, bones, and tissues) can be easily studied now. This set-up will be modified in the future to study the ballistic performance of armor devices such as bulletproof jackets and helmets.
The Department of Physics at IIT Hyderabad is a rapidly growing department, presently the department has 17 permanent faculty members, 8 technical staff, ~180 students (PhD, MSc. and B.Tech. (Engineering Physics)). The department had significant success at academic as well as research fronts during the FY 18-19. Department graduated B.Tech, M.Sc batches and few PhD students. The department has included several advanced teaching experiments in the earlier established labs. The department has several groups pursuing research in diverse areas of physics. Presently, their efforts are concentrated mainly in the area of High Energy Physics, Optics, Spectroscopy, Laser-Plasma Physics, Computational Condensed Matter Physics and Experimental Condensed Matter Physics. The department is in the process of establishing state-of-the-art research laboratories from the sponsored (DST, FIST, DSIR, DAE, CSIR and so on) and institute supported projects. The department has procured several high end equipment such as BLS, LASER, MFM SQUID, XRD etc funded by JICA. The faculty of the department have published nearly 100 international journals and also delivered several talks at prestigious national / international workshops / conferences.
FACULTY

Saket Asthana
Ph.D – IIT Bombay
Associate Professor & HoD
Research Areas: Ferroelectrics; Energy Storage; Piezoelectrics; Multiferroics; Piezoluminesence

Anjan Kumar Giri
Ph.D – Utkal University
Professor
Research Areas: Flavor Physics and CP Violation; Neutrino Physics; BSM

Prem Pal
Ph.D – IIT Delhi
Professor
Research Areas: MEMS Technology; Silicon Micromachining; MEMS-based Sensors; Thin Films; Solar Cell

Venkatakrishnan Kanchana
Ph.D – Anna University
Professor
Research Areas: Condensed Matter Theory; Thermodclectric Properties; Fermi Surface Topology; Optical Properties; Topological Materials; Magnetic Properties

Manish K. Niranjan
Ph.D – University of Texas at Austin, USA
Associate Professor
Research Areas: Theoretical Condensed Matter Physics; Electronic Structure; Surface and Interface Physics; Quantum Transport

Shantanu Desai
Ph.D – Boston University, USA
Associate Professor
Research Areas: Galaxy Clusters and Cosmology; Pulsars; Astrostatistics and Data Mining; Gravitational Wave Searches

Narendra Sahu
Ph.D – IIT Bombay
Associate Professor
Research Areas: Dark Matter Phenomenology; Neutrino Mass; Baryon Asymmetry of the Universe

Suryanarayana Jammalamadaka
Ph.D – IIT Madras
Associate Professor
Research Areas: Magnetic Materials; Device Physics; Spintronics; Data Storage; Non Volatile Memory; Multiferroics; Mesoscopic Physics; Atomic Junction; Molecular Magnetism

Vandana Sharma
Ph.D – PRL, Ahmedabad
Associate Professor
Research Areas: Intense Laser Field Interaction with Micro to Nano Particles; Table-Top Hard X-Ray Generation; Ultrafast Imaging of Small to Complex Molecules; A Few Body Quantum Dynamics

Jyoti Ranjan Mohanty
Ph.D – Humboldt University, Germany
Associate Professor
Research Areas: Nanomagnetism; Magnetic Microscopy; Ultrafast Magnetism; Multiferroics; Data Storage; Tera-Hertz Spectroscopy

Raghavendra Srikanth Hundi
Ph.D – Harish Chandra Research Institute
Assistant Professor
Research Areas: Physics Beyond Standard Model, Neutrino Masses

Raavi Sai Santosh Kumar
Ph.D – University of Hyderabad
Associate Professor
Research Areas: Optics and Spectroscopy of Energy Conversion Materials
Publications
(in peer reviewed journals)


Kumara Raja Kandula, Sai Santosh Kumar Raavi, Saket Asthana, Improved electrical and photoluminescence properties in Nd substitution of 0.94(Na_{0.3}Bi_{0.5}TiO_3)-0.06BaTiO_3 lead free multi-functional ceramic, Adv. Mater. Lett. 9 (2018) 656.


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Kumara Raja Kandula, Sai Santosh Kumar Raavi, Saket Asthana, 'Correlation between structural, ferroelectric and luminescence properties through compositional dependence of Nd + ion in lead free Na0.5Bi0.5TiO3', J. Alloys and Comp. 732 (2018) 233.

T Karthik, Dhanya Radhakrishanan, Chandrabhas Narayana, Saket Asthana, 'Nature of electric field driven ferroelectric phase transition in lead-free Na0.5Bi0.5TiO3: In-situ temperature dependent ferroelectric hysteresis and Raman scattering studies' J. Alloys and Comp. 732 (2018) 945.

Sudarshan Vadnala, Saket Asthana, 'Magnetocaloric effect and critical field analysis in Eu substituted La0.7-xEuxSr0.3MnO3 (x = 0.0, 0.1, 0.2, 0.3) manganites' J. Magn. Magn. Mater. 446 (2018) 68.


P C Sreepravathy and V. Kanchana, 'Quantum fluctuation in thermopower at the topological phase transition in CaSrxK(1-x): Si, Ge, Sn, Pb) studied from first principles theory', J.Phys.:Conden. Matter, 31, 2019 095501.


AK Jena, S Satapathy, J Mohanty, Magnetic and dielectric response in yttrium (Y)-manganese (Mn) substituted multiferroic Bi1−x Yx Fe1−y Mn y O3 (x = y = 0; x = 0.03, 0.06, 0.12, y = 0.05) ceramics, *Journal of Applied Physics* 124 (17), 2018, 174103.


Ganesh Kotnana, V. G. Sathe and S. Narayana Jammalamadaka Spin-Phonon Coupling in $\text{H}_2\text{Cr}_{x}\text{Fe}_{1-x}\text{O}_3$ ($x = 0$ and 0.5) compounds J. Raman Spectroscopy 49, (2018) 764.

Ganesh Kotnana, and S. Narayana Jammalamadaka Magnetic and magnetocaloric properties of $\text{H}_2\text{Cr}_{0.75}\text{Fe}_{0.25}\text{O}_3$ compound AIP Advances 8, (2018) 056407.


Publications
(in peer reviewed journals)

Radha Yanamandra, Kumara Raja Kandula, Posidevi Bandi, Saket Asthana and Tirupathi Patri, Enhanced Energy Storage density in lead free (Na$_{0.5}$Bi$_{0.48}$Eu$_{0.02}$)Ti$_3$Nb$_2$O$_{12}$ ($x$= 0.00, 0.01 & 0.02) ceramics, AIP Conf. Proc., 1953, 2018,050065.


Kumara Raja Kandula, Krishnarjun Banerjee, Sai Santosh Kumar Raavi, and Saket Asthana, A lead free 0.96(Na$_{0.5}$Bi$_{0.48}$Nd$_{0.02}$)TiO$_3$ -0.04BaTiO$_3$ piezoceramic for possible optoelectronic device applications, AIP Conf. Proc., 1942, 2018, 030011.

Cilaveni Goutham, Kumara Raja Kandula, Sai Santosh Kumar Raavi, and Saket Asthana, Improved ferroelectric and photoluminescence properties in Pr$^3+$ substituted Na$_{0.5}$Bi$_{0.5}$TiO$_3$ synthesized using hydrothermal route, AIP Conf. Proc., 1942, 2018,050130.


Ganesh Kotnana, V.G. Sathe, and S. Narayana Jammalamadaka, Structural and spectroscopic studies on HoCr$_{1-x}$Fe$_x$O$_3$ ($x$= 0 and 0.5) Compounds, AIP Conference Proceedings 1942, 2018, 090040.

Suddhasattwa Mandal, Bhas Bapat, Sivarama Krishnan, Ram Gopal, Robert Richter, Marcello Coreno, Marcel Mudrich, Hemkumar Srinivas, Alessandro D’Elia,


### Funded Research Projects 2018-19

**Anurag Tripathi**, The grant Perturbative QCD for Precision Physics at the LHC (The Institute of Mathematical Sciences in Chennai, INDIA, and from the University of Turin, ITALY, and the University of Amsterdam, NETHERLANDS), SPARC, MHRD, March 2019, Rs. 81 Lakhs.

V. Kanchana, *Computational study of layered materials*, CSIR, June 2019, Rs. 30.67 Lakhs


Priyotosh Bandyopadhyay, *CORE Research grant*, SERB, Rs. 31.44 Lakhs.

Priyotosh Bandyopadhyay, *Symposium, SERB*, Rs. 2.00 Lakhs.

Sai Santosh Kumar Raavi, *Interface-engineered and energy-efficient organic solar cells based on porphyrin small molecules (In partnership of China and Brazil)*, BRICS-STI 2017 grant, 30 March 2019, Rs. 31.8 Lakhs.


Shantanu Desai, *Explorations in astrophysics data mining and machine learning*, ICPS-DST, March 2019, Rs. 45.00 Lakhs.

Vandana Sharma, *Unraveling radiation damage processes in biologically relevant mesoscopic systems*, MHRD (SPARC), 15 March 2019, Rs. 74.00 Lakhs.

Vandana Sharma, *India-UK partnership in laboratory astro-particle physics*, MHRD (SPARC), 15 March 2019, Rs. 94.8 Lakhs.

**Talks Given in National / International Conferences**


Priyotosh Bandyopadhyay, *Supersymmetric extended Higgs sectors in at the LHC*, University of Pittsburgh, 15 May 2018.


Prem Pal, *Determination of Precise
Crystallographic Directions on Silicon Wafers, National Conference on Advancement in Materials Science and Physics (NCAMP 2018), Manipal University Jaipur, Rajasthan, India, 1-2 November 2018.

Priyotosh Bandyopadhyay, Extended Higgs sectors at the LHC, The 8th KIAS workshop on Particle and Cosmology 2018, KIAS, Seoul, South Korea, 30 October 2018.

J. Mohanty, Modification of nanoscale magnetic domains in thin films and multilayers, ICMAGMA 2018, NISER Bhubaneswar, Orissa, India, December 2018.

Sai Santosh Kumar Raavi, Transient Optical Probes to follow the the photogenerated charges in organic photovoltaics, 1st INYAS Frontiers of Science Brainstorming Meeting, Hyderabad, 9-11 December 2018.

A. Haldar, Bias-field free magnonic devices, International conference on magnetic materials and applications (ICMAGMA), NISER, Bhubaneswar, India, 9-13 December 2018.

A. Haldar, Reconfigurable and bias-field-free magnetic waveguides for channeling spin waves, International conference on complex and functional materials (ICCFM), S. N. Bose National Centre for Basic Sciences, Kolkata, India, 13-16 December 2018.


Shantanu Desai, Indian Pulsar Timing Array Experiment 30th meeting of IAGRG, BITS-Pilani, Hyderabad, India, 3-5 January 2019.


Priyotosh Bandyopadhyay, Extended Higgs (charged and neutral) boson phenomenology at the LHC, International meeting of High energy Physics 2018, Institute of Physics Bhubaneswar, India, 22 January 2019.

Priyotosh Bandyopadhyay, Extended Higgs bosons at the LHC, Indian Institute of Technology Kanpur, India, 31 January 2019.


Sai Santosh Kumar Raavi, FRET based Polymer Solar Cells, National Photonics Symposium, Cochin University of Science and Technology, 27-28 February 2019.

Priyotosh Bandyopadhyay, Extended Higgs bosson in supersymmetry at the LHC, Activity week at Harish-Chandra Research Institute, 2019, Prayagraj (Allahabad), 5 March 2019.

V. Kanchana, Thermoelectric Properties of Transition Metal Dichalcogenides, Workshop and Symposium on Advanced Simulation Methods: DFT, MD and Beyond, Delhi, 6-10 March 2019.


Seminars Conducted

Sreeram Valluri, University of Western Ontario, Lambert W-Functions, 8 August 2018.

Dr. Christoph Sürgers, KIT, Germany, Anomalous Hall effect in noncollinear antiferromagnets, 28 September 2018.

Cosimo Bambi, Fudan University, Testing black Holes using X-ray Spectroscopy, 4 October 2018.
Dr. Christoph Sürgers, KIT, Germany, Thermoelectric effects in CMOS-compatible Mn5Ge3Cx, 5 October 2018.

Subha Majumdar, TIFR, Darkness that surrounds us, 12 November 2018.

Sarmista Banik, BITS-Hyderabad, Properties of rapidly rotating hot neutron stars with exotic matter, 10 January 2019.

Dr. Devendra K Namburi, Cambridge University, High temperature superconducting technology; current status and future potential, 24 January 2019.

Prof E V Sampath Kumaran, Distinguished Professor, TIFR, Geometrically frustrated magnetism, 29 January 2019.

Sanjay Reddy, University of Washington, Seattle 'Neutron star mergers and r-process nucleosynthesis', 7 February 2019.

Hideki Asada, Hirosaki University, Gravitational Lensing of Exotic Objects, 28 February 2019.

Bharat Ratra, Kansas State Univ, Spatial Curvature, Dark Energy Dynamics, Neither, or Both?, 11 March 2019.


Stefan Liebler, Institute for Theoretical Physics (ITP) of KIT, Collider phenomenology of extended Higgs-boson sectors, 14 March 2019.

Prof. Hari Srikanth, Physics Department, University of South Florida, USA, Caloric Effects in Magnetic Materials, IEEE Distinguished Lecture), 25 March, 2019.

Prof. Sushil K. Misra, Physics Department, Concordia University, Canada, A review of magnetization of nanoparticles of dilute magnetic semiconductors doped by transition-metal ions and carbon based materials as studied by EPR, 28 March 2019.

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Awards / Recognitions

Anjan Kumar Jena, Received *MMM student travel award.*

Anjan Kumar Jena, Selected for IEEE Magnetic Summer School at Virginia Commonwealth University in Richmond, Virginia, USA.

Anjan Kumar Jena, Received Best Poster award (Third Prize) at NCCM/BARC.

Priyotosh Bandyopadhyay, SERB CORE Research grant of INR 3144732 which includes a Postdoctoral Postion.

Mr. Saunak Dutta, Got funding of local hospitality and free tuition for ICTP summer school 2019.

Chandrima Sen, Certificate of Excellence for MSc in the year 2018.

B. Ramakrishna, *Royal Society Fellowship* to visit Scotland.

J. Suryanarayana, DAAD Fellow through DAAD - IIT Faculty exchange programme (Through bi-lateral exchange of academics).
A first-principles study reveals effects of cation ordered nanoregions in a lead-free relaxor ferroelectric, $K_{1/2}Bi_{1/2}TiO_3$ (Group of Dr. Manish Niranjan and Dr. Saket Asthana)

Featured article and also covered by media in Scilight.

Lead-based oxides such as lead zirconatetitanate (PZT) feature in a wide variety of technological applications, such as high-performance sensors, actuators and transducers. Results published in the Journal of Applied Physics (vol 123 (2018) 244106) present a first-principles study of cation ordering and its influence on Raman intensity and infrared reflectivity spectra for one of these promising piezoceramics, $K_{1/2}Bi_{1/2}TiO_3$ (KBT)

A reconfigurable ferrimagnetic-type magnetic metamaterial (Group of Dr. Arabinda Haldar)

Magnetic metamaterials – similar to photonic metamaterials – are the key building blocks for future microwave devices that are small and reconfigurable. Research published in the *Journal of Applied Physics* (Vol. 123, page 243901 (2018)) describes a new method to create a stable, reprogrammable ferrimagnetic-type magnetic state for these metamaterials. A ferrimagnet refers to uncompensated anti-parallel magnetic spin orientation within a magnetic material. Here, we have created a ferrimagnetic-type configuration in an array of dipolar coupled magnetic elements which are of rhomboid shape with two different widths alternated in the array. Tunable microwave properties are realized by switching between two different remanent magnetic states. Metamaterials like this are important for technology continuing to shrink. Typically, arrays require tuning with external magnetic fields, which hinders device integration and low-power operation. This research presents a new solution for reconfigurable magnetization on a small scale without needing external bias fields. The new material is also more reliable than previous array designs based on dipolar-coupling, which often suffer from unavoidable structural defects and require careful and complex field initialization.
Open Day 2019

NSS-IIT Hyderabad organized ‘Sixth Open Day cum one-day workshop for technological awareness among rural children’ on Saturday, 2 Mar 2019. Around 300 students from the government schools of nearby villages namely ZPHS-Kandi, ZPHS-Cheriyal, ZPHS-Yeddumailaram, have participated along with their faculty members.

IIT Hyderabad has initiated Open Day program to enable students of government schools to get a taste of IIT culture and enhance their understanding of technological growth and developments of 21st century. The students enjoy special live demonstrations from various engineering and science departments at IIT Hyderabad. Later the students explored classrooms, interacting with the faculty and research students, the Sci-tech clubs, visited Physics and Chemistry labs and also enjoyed a sumptuous lunch sponsored by IIT Hyderabad. The students participated with full enthusiasm till the end.

• Lightening the Inauguration Lamp • Chemistry Demo Expo (Prof. Tarun K. Panda) • Physics Labs Visit • Chemical Labs Visit • Sci-Tech Clubs Exhibition • Cultural Performance • Conclusion Ceremony are different events of the Open Day programme.

Lightening the Inauguration Lamp

Lighting a lamp before a ceremony shows everyone who is present how to rise upwards and dispel darkness. The function began with Lamp Lighting Ceremony by the Prof. Prem Pal, NSS Coordinator joined by Prof. Tarun K. Panda, and Dr. Sharadha and some school girls from different government schools.

It was followed by briefing about IITH and a warm welcome to students by Prof. Prem Pal, followed by small speech about how societal contribution by technical students matters and told them safety measures to be followed by the students while in the IITH and to guide school students around 20 NSS volunteers and 6 Guards were arranged. Students introduced themselves and told their first impression about IITH.
Chemistry Demo Expo (Prof. Tarun K. Panda)

The demonstrations were kick started by Prof. Tarun K Panda, Dept. of Chemistry along with his research students. Around 18 experiments which fascinated students and the students enjoyed special live demonstrations with full enthusiasm till the end. Students asked many doubts regarding these experiments and other Chemistry related ones. Prof. Tarun explained how interestingly Chemistry can be learnt practically and theoretically.

The afternoon session of the camp resumed after the serving of lunch to the students. Students were taken to various labs at IITH.
Physics Lab Visit
In Physics labs, students were shown basic physics experiments explaining diffraction of light, laser, Newton rings, etc. Some experiments of basic physics were performed and students were shown various instruments in the lab and their functioning was explained by the staff and research scholars. Students have got a better understanding in fundamentals of physics.

Chemistry Lab Visit
This was followed by students visit to Chemistry labs. Students were shown various lab equipments and made to understand the way in which they are used by the lab staff. Students were shown basic experiments that helped them to get a clear idea on concepts.

Conclusion Ceremony
In the end, there was a short Conclusion Ceremony which involved taking group photos, distribution of snacks, etc. They were given send off by the student volunteers of IITH and were asked to visit again next year.
Blood Donation Camp

NSS, IIT Hyderabad organized Blood Donation Camp in association with Niloufer Blood Bank on 26 January 2019 marking the 70th Republic Day of India. 90 volunteers have registered in that 74 volunteers have donated blood.

Colorful Holi was celebrated by IIT Hyderabad Students as a part of Ek Bharat Shresht Bharat, which unites the students and brings everyone to a single point on 21 March 2019. Students celebrated a dry Holi, using only eco-friendly colors and keeping in view of hot summer wastage of water was also very less. Students maintained great joy and enthusiasm with full of fun till the end by splashing colored water and spraying colored powder on each other.
Open mic was conducted on 19 January 2019, it was a fun filled night at IIT Hyderabad with a stage open to all the students providing an opportunity to present the best of their talents to the entire of IIT Hyderabad.

The event began at 7:45 PM and went on till 11:00 PM.
ELAN & ηvision - 2019

ELAN & ηvision, the annual techno-cultural fest of IIT Hyderabad has been conducted from 22 to 24 February, 2019. The fest is confluence of two worlds created and enjoyed by the thousands of people who step out for these three days. Whether you end up coding your mind away, dancing your heart out, grasping the audience with your captivating performances, meeting people, making friends and memories.
With a strength of around 600 students, the National Sports Organization started its full-fledged schedule for the academic year 2018-19 in the month of August. The list of events goes as follows:

**Friendship Race**
It was conducted on 5 August 2018 as a part of freshmen interaction on eve of the International Friendship Day-2018. It had a huge participation of around 500 from students, staff and faculty with their family members. Prizes for the event were distributed on 15 August on the eve of Independence Day.

**International Day of Yoga**
Sports department of IIT Hyderabad has organized fourth international day of yoga fest 2018 from 16 to 21 June. On 16 June started with the lightning of lamp by Director Prof. U B Desai along with faculty, staff and students at academic block. It was followed by yoga practice with meditation and pranayama. From 17 to 20 June daily at D block terrace between 8:30 to 9:00 AM the yoga experts demonstrated deferent yoga asanas to all the participants regularly. On 21 June, fourth International Day of Yoga celebrations, started at UDDH by Prof. U B Desai, Director IITH along with Dr. Prempal, Dean Students a speech about yoga and its uses in practicing on a daily basis. It followed by practicing of yoga asanas and meditation demonstrated by yoga experts. Later there was short speech followed by vote of thanks by Dr S G Singh, Chairman Sports.

**Interaction Matches**
As major part of freshmen interaction program, football, cricket, volleyball, basketball, badminton etc. were conducted from the date of registration till 15 August 2018.

**NSO**
Our first NSO interaction with freshmen was conducted on 28 July. The main aim of NSO, IIT Hyderabad is to inculcate sportive spirit in the students. With six coaches in total for various events and sports equipment for about eight team events and athletics, it has been and is functioning smooth. New registrations for NSO were invited from the freshmen. After enrolment, NSO hours have been conducted on every Wednesday and Friday for all the NSO registered B.Techs.
Intramural sports
Informal leagues for Basketball, Cricket, Football, Hockey, TT, Tennis and Volleyball were conducted. The 11th Annual Sports Meet was Inter year. We organised Inter Year Sports Meet in which UG, PG, faculty and staff participated better than ever and made Students compete in the same level as in Inter IIT Sports Meet. Prizes were distributed on the occasion of Gymkhana Day Celebrations.

Inter IIT Sports Meet 2018
Camp for Inter IIT Sports Meet 2018 started on 26 November with a total participants of 112 in various events like Badminton (M&W), Basketball (M&W), Cricket, Football, Hockey, Lawn Tennis (M&W), Table Tennis (M&W), Volleyball (M&W) and athletic events. Inter IIT Sports Meet 2018 was held at IIT Guwahati from 11 to 21 December 2018.

Run for Unity
It was organized on 31 Oct 2018 on the eve of Rashtriya Ekta Diwas. It had huge participation from students, faculty and staff.

Friendly Tournaments
Students of IIT Hyderabad have played friendly practice matches with institutes like BITS Hyderabad campus, GITAM University Hyderabad, WOXEN MBA College, Sangareddy District and BHEL Township teams.

Students also participated in friendly tournaments with IIIT and BITS Hyderabad etc.

Gymkhana Day
On 12 April 2018, prizes were distributed for winner teams of various events and rolling cup for General Championship for the 2nd year B.Tech boys and PhD girls teams which bagged highest points in inter year sports meet-2018. Mementos for emerging player of the year and for the outgoing sports secretary were also given.

Intramural Sports
Informal leagues for Basketball, Cricket, Football, Hockey, TT, Tennis and Volleyball were conducted. The 11th Annual Sports Meet was Inter year. We organised Inter Year Sports Meet in which UG, PG, faculty and staff participated better than ever and made Students compete in the same level as in Inter IIT Sports Meet. It covered all the team events along with athletic events as that of the Inter IIT sports meet. Prizes were distributed on the occasion of Gymkhana Day Celebrations.