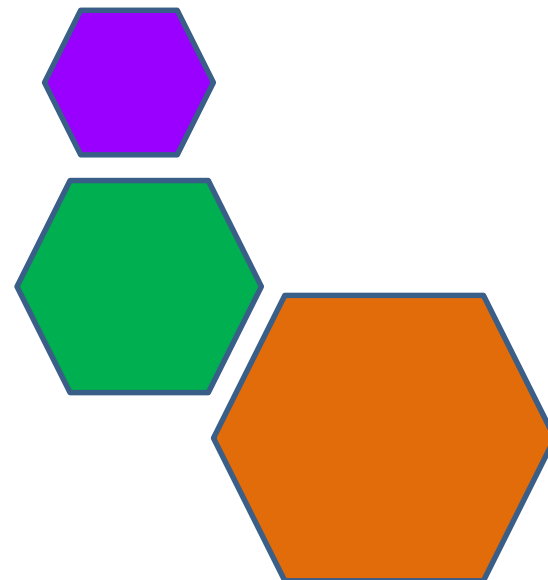




భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్  
भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology Hyderabad



# Department of Chemistry

<https://chemistry.iith.ac.in/>





Welcome to the Department of Chemistry. The Department started functioning from the very inception of IITH. Both theory and laboratory teaching programs for UG have started from the very first day of IITH. The Department has the distinction of starting the first PG program in science at IITH. This M.Sc chemistry degree program was started in 2010. Besides, the state-of-the-art PG and research laboratories were established. The Department is committed to excellence in chemistry by establishing research programs for meeting scientific and technological challenges faced by the ever changing, science centered world of the 21st century. Our aim is to produce highly sought after and knowledgeable graduates for pursuing careers with academia, industry and government.

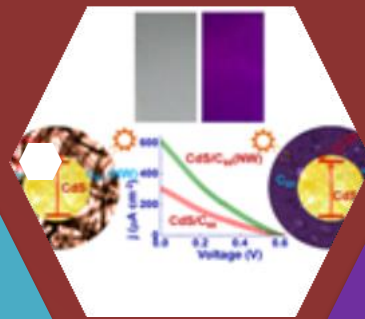


**Prof. Surendra K. Martha**

Head of the Department

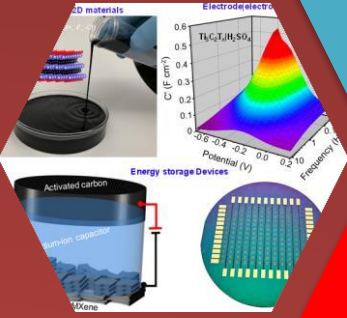
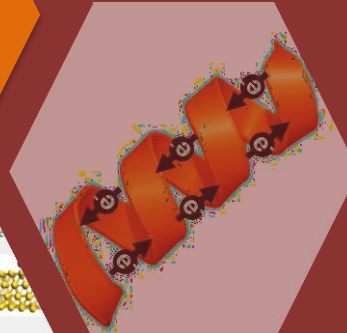
E-mail: [head@chy.iith.ac.in](mailto:head@chy.iith.ac.in)

Faculty



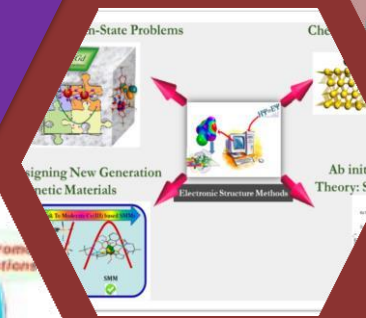
Teaching

Research



Students

Staff



# Computational Chemistry

❖ Prof. Bhabani Shankar Mallik



Catalysis

Li-ion battery

Biosolvation

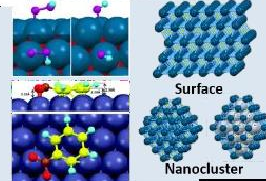
Spectroscopy

❖ Dr. Arup Mahata

Computational Materials Science,  
Density Functional Theory,  
Perovskites Optoelectronics, Surface  
Catalysis, Molecular Catalysis,  
Spintronics, Energy Storage Materials



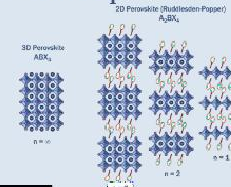
Surface Catalysis



Surface

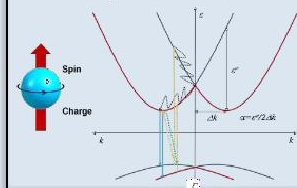
Nanocluster

Perovskites Optoelectronics

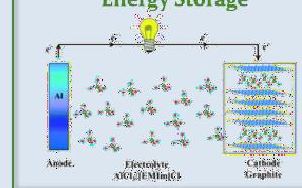


Computational  
Materials Science

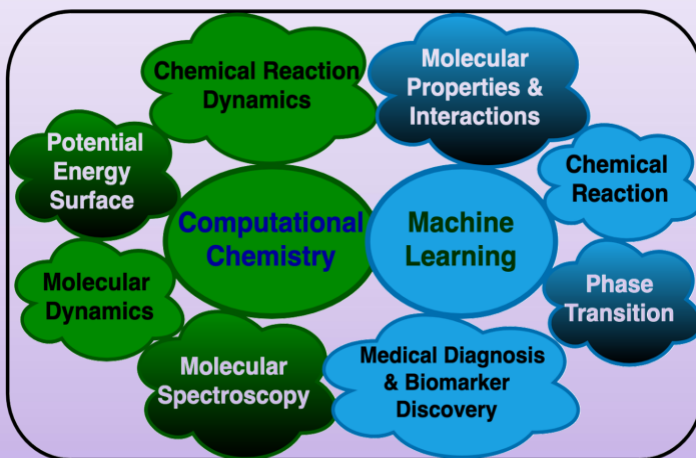
Spintronics



Energy Storage

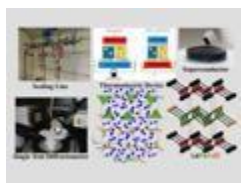
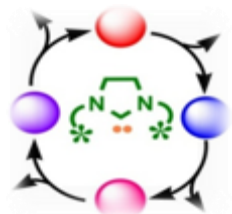


❖ Dr. Debasish Koner





# Inorganic Chemistry



- Inorganic Synthesis
- Catalysis
- Organometallic Chemistry
- Metal catalyzed Water Splitting
- Carbon Dioxide Reduction
- Hydrogen Generation
- Strongly Correlated Materials for Thermoelectric & Superconducting Applications
- Small Molecule Crystallography
- Computational Inorganic chemistry
- Magnetic Exchange Interaction in Molecules and Molecular Solids
- Lanthanide Luminescence, Phosphor Materials, Organic fluorophores for Organic light emitting diodes



**Dr. Jai Prakash**



**Dr. Saurabh K. Singh**



**Dr. Sivakumar Vaidyanathan**



**Dr. Somnath Maji**



**Prof. Tarun Kanti Panda**



**Prof. G. Prabusankar**

**Dr. Venkata Rao K**



**Dr. Kishore Natte**



**Dr. Abhijit Sau**



**Dr. Ashutosh K. Mishra**



# Organic Chemistry



**Prof. G. Satyanarayana**



**Prof. Faiz Ahmed Khan**



**Prof. C Malla Reddy**

## Expertise:

- Transition Metal-mediated reactions in organic synthesis
- Discovery of New Methodologies and Stereochemistry in organic synthesis
- Asymmetric Synthesis and Medicinal Chemistry
- Bioorganic Chemistry
- Functional Organic Materials and Supramolecular Chemistry
- Organic synthesis and Carbohydrate Chemistry
- Organofluorine Chemistry
- Crystal Engineering
- Self-healing Organic Functional Crystals



**Dr. Surajit Maity**

Spectroscopy of molecular clusters, chemical evolution of interstellar ice  
Computational studies



**Prof. Surendra K. Martha**

**Energy Storage Materials especially Batteries and Supercapacitors**



**Dr. Krishna Gavvala**

Biophysical Chemistry  
Time-Resolved Spectroscopy



**Dr. Narendra Kurra**

Materials (electro)chemistry, Energy Storage, multivalent metal-ion batteries, Fast charging devices



**Dr. Sudarsanam Putla**

Heterogeneous catalysis, nanosized and shape-controlled metal-based catalysts, biomass conversion, selective C-N coupling reactions, green chemistry



**Prof. Ch. Subrahmanyam**

Catalysis  
Nanomaterials  
Energy Systems

# Physical Chemistry



**Dr. Debasish Koner**

Machine Learning in Chemistry  
Medical Diagnosis, Biomarker Discovery, Chemical Reaction Dynamics, Molecular Spectroscopy.



**Prof. M. Deepa**

Applied Electrochemistry: Solution Processed Solar Cells, Electrochromic Devices, Batteries & Supercapacitors.



**Dr. Koyel Banerjee Ghosh**

**Spin dependent electrochemistry and its application, surface chemistry, spin-dependent electron transfer through protein**



**Dr. Arup Mahata**

Density Functional Theory, Perovskites  
Optoelectronics, Surface Catalysis, Molecular Catalysis, Spintronics, Energy Storage Materials



**Dr. Priyadarshi Chakraborty**

Supramolecular biomaterials, Rheology of gels, Conductive polymers, Tissue Engineering, Peptide/amino acid-based co-assembly, Drug delivery



**Dr. M. Annadhasan**

Materials chemistry, Organic/inorganic flexible crystals, Mechano-photonics, Optical waveguides, Optical resonators, Photonic integrated circuits, Plasmonic nanoparticles, Stimuli-responsive materials, Single-particle photonic studies.

# Facilities:

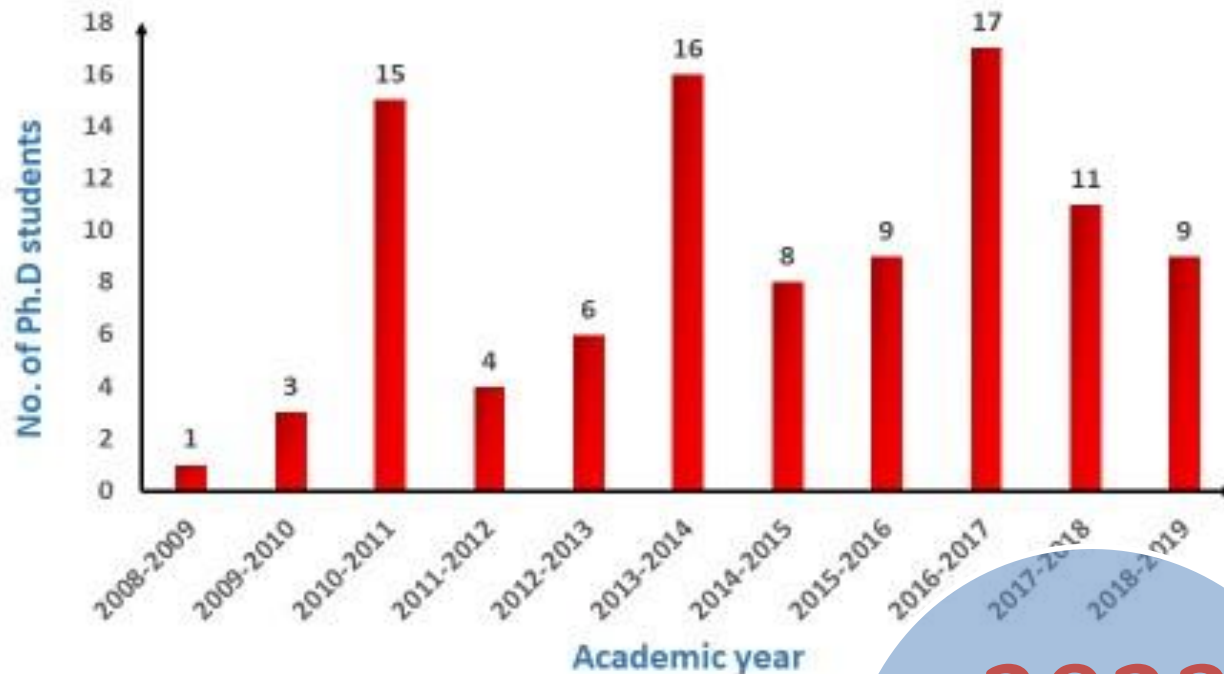
1. Multi-Mode Atomic Microscope
2. Powdered X-Ray Diffraction
3. 400 MHz NMR
4. HR-MS
5. Single Crystal XRD
6. Thermogravimetric Analysis
7. IR spectrometers
8. UV-Vis. spectrometers
9. Dispersive Raman Spectrometer
10. Photoluminescence
11. Solar Simulator
12. ESR
13. CHNS Analyzer





# Department of Chemistry

## Popularity of PhD Program



2020

32

2021

35

2023

40 + 6<sub>(ID)</sub>

2022

29

- Postdoctoral studies
- Academic positions in reputed educational institutes
- Industries

# COURSES

**Advanced Organic Chemistry,**

**Advanced Organometallic Chemistry,**

**Chemical & Electrochemical Energy Systems,**

**Chemistry of Natural Products and Biomolecules,**

**Organolanthanide Chemistry,**

**Heterogeneous Catalysis,**

**Separation Techniques & Dynamic Electrodeics,**

**Main Group Organometallic Chemistry,**

**Nanochemistry & Applications,**

**Drug Discovery, Design & Development,**

**Asymmetric Synthesis**

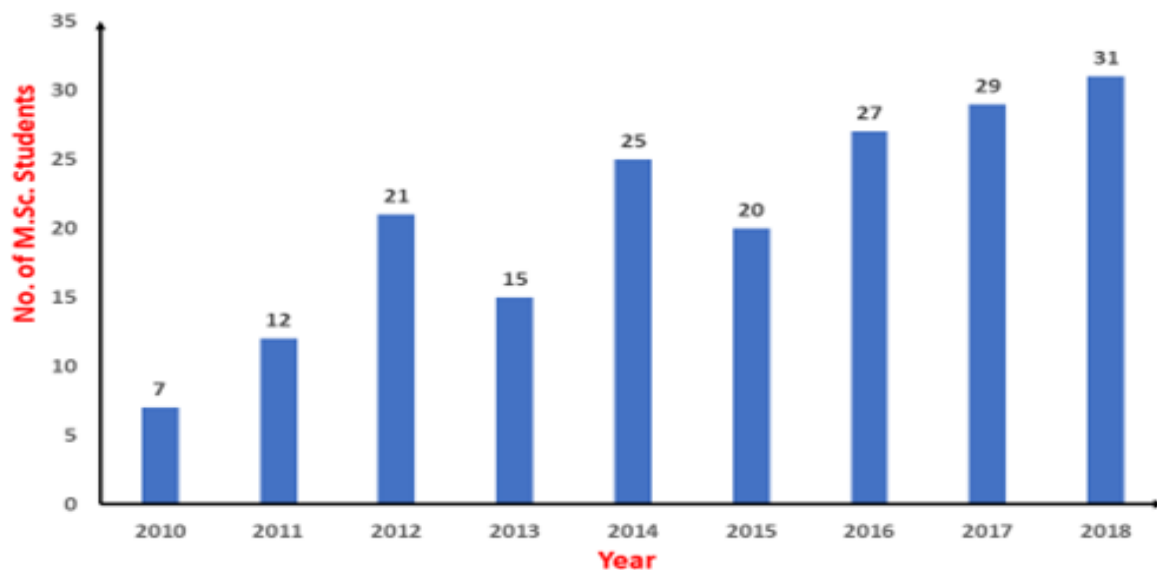
**DNA Nanotechnology: structure and Application**

**Fundamentals of DNA Photonics, Bio Inspired Catalysis in Modern Research**

**Fundamentals and Applications of Small Molecule X-Ray Crystallography**

# Department of Chemistry

## Popularity of MSc Program



2019

40

2021

46

2020

47

2022

35

2023

39

**Support  
System**

**Faculty  
advisers**

**Convener  
DPGC**

**HoD**



**Dr. Venkata Rao Kotagiri**  
[kvrao@chy.iith.ac.in](mailto:kvrao@chy.iith.ac.in)



**Dr. Somnath Maji**  
[dpgc@chy.iith.ac.in](mailto:dpgc@chy.iith.ac.in)



**Prof. Surendra Kumar Martha**  
[head@chy.iith.ac.in](mailto:head@chy.iith.ac.in)

# Outreach and Other programs

- **In-House Symposium**
- **Safety training**
- **Open day**



- **MSc poster session**
- **Workshops**
- **Seminars**
- **International conferences**

# Alumni



# Ph.D. Program

## ELIGIBILITY CRITERIA:

### **For Regular Candidates:**

Master's (MSc) degree in Chemistry and related areas with good academic record.

Valid GATE-Score/ UGC-JRF/ CSIR-JRF/ DST INSPIRE/ Any other relevant Scholarship.

### **For Sponsored Candidates:**

#### **Category A:**

Students working under sponsored projects (i.e. DST, CSIR, BRNS, DBT, etc.) of the Indian Institute of Technology Hyderabad (IITH) with a valid GATE-Score/CSIR-JRF/UGC-JRF/Lectureship (LS) at the time of joining the project are also eligible to apply for the Ph.D. program (Candidates from sponsored program are not eligible for any stipend from Ministry of Education).

#### **Category B:**

Candidates working in reputed research/industrial organizations may also apply under a sponsored Ph.D. program (candidates from sponsored programs are not eligible for any scholarship from the Ministry of Education).

A proof of sponsorship from the parent organization must be provided at the time of the interview.

The selected candidates must complete their coursework in the Department of Chemistry at IIT Hyderabad.

"External Direct PhD Student should have at least 2 years of relevant experience with NOC can be eligible for admission as External Direct PhD. Further, they should be treated as 'External Students' and will be eligible for 12 credits of course requirements as applicable for 'External Students'. All such external direct Ph.D. students will be awarded Ph.D. without M Tech."

**SELECTION PROCESS:** The department may follow certain cut-off criteria:

Depending on the departmental requirement and based on the total number of applications received.

Based on the number of applications received for individual research disciplines.

The number of applications received in preference to each research discipline (i.e., first preference given by the candidate).

In general, more weightage will be given to the first choice of research interest (i.e., area of interest) given by candidates during the time of filling out their application.

SC/ST and OBC reservations will be implemented as per the Government rules.

Rules set by the IITH Senate will be applied.

## **APPLICATION PROCEDURE & LAST DATE:**

Visit - <https://www.iith.ac.in/phdadmissions/> For detailed information and to apply online.

## Some important guidelines to the candidates while filling the application form:

1. The candidate must mention very clearly about his/her qualifying exam details such as CSIR/UGC-JRF and/or GATE in appropriate columns.
2. Also, the candidate should provide the rank, score and valid date of his/her qualifying exam adequately in the respective columns.
3. Without fail, the candidate should mention his/her category (Gen / EWS or OBC-Creamy layer or OBC-Non creamy layer or SC or ST).
4. Also, the candidate must specifically describe his/her area of interest (research discipline) as “Computational”, “Inorganic”, “Organic” or “Physical” Chemistry.
5. Incomplete applications will be rejected.
6. For more details of ongoing research interests in the “Department of Chemistry”, please visit the following link: <https://chemistry.iith.ac.in/>

**Contact:** Dr. Somnath Maji, [dpgc@chy.iith.ac.in](mailto:dpgc@chy.iith.ac.in) for any queries.