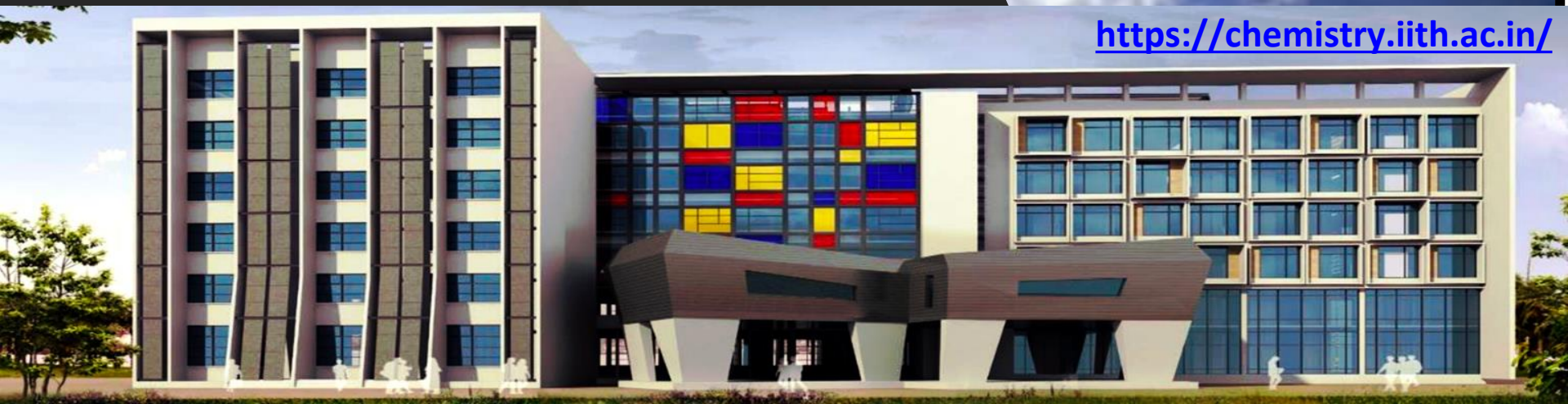
భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్
भारतीय प्रौद्योगिकी संस्थान हैदराबाद
Indian Institute of Technology Hyderabad

# 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.

**Dr. Surendra Kumar Martha**

*Head of the Department*

E-mail: martha@chy.iith.ac.in

head@chy.iith.ac.in

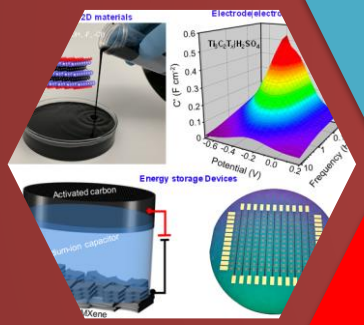
Faculty

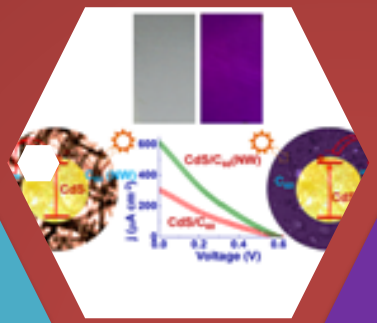
Research

Teaching

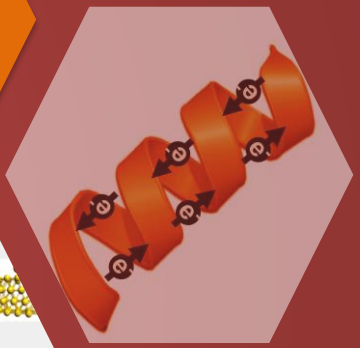
Students

Staff



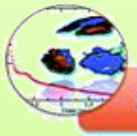


# Computational Chemistry

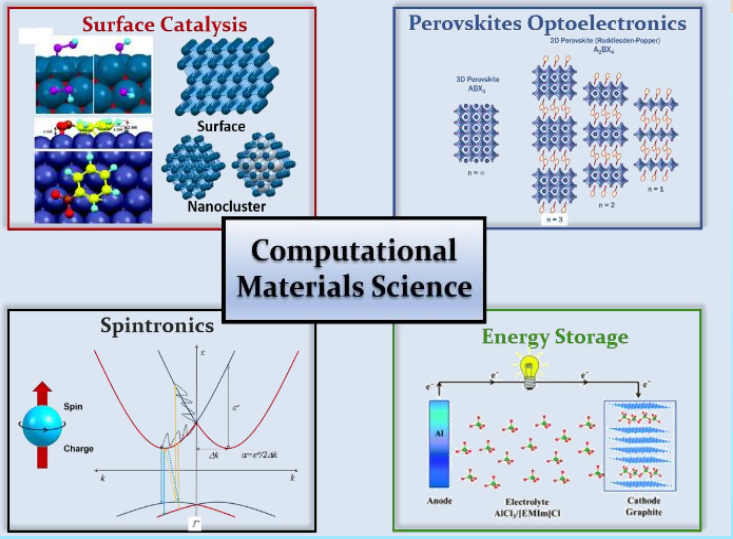
## ❖Prof. Bhabani Shankar Mallik



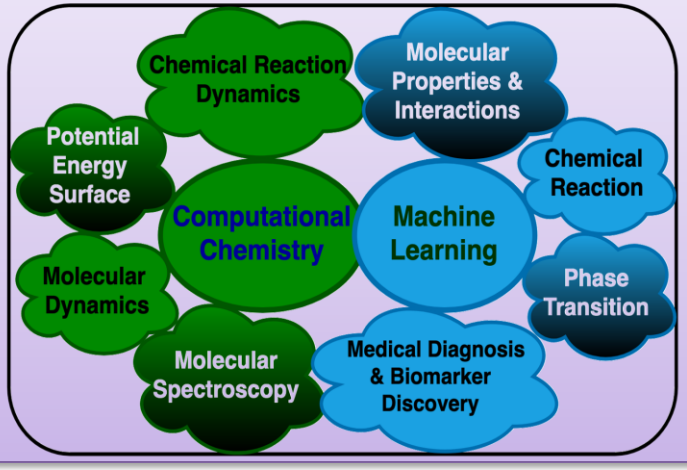




## ❖Dr. Arup Mahata

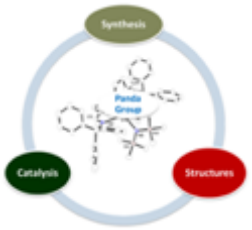
Computational Materials Science, Density Functional Theory, Perovskites Optoelectronics, Surface Catalysis, Molecular Catalysis, Spintronics, Energy Storage Materials

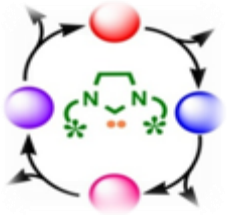


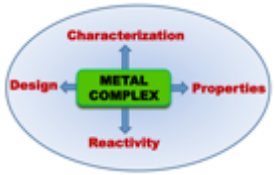

## ❖Dr. Debasish Koner

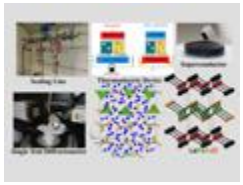


# Inorganic Chemistry





- 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 Kotagiri

Dr. Kishore Natte

Dr. Abhijit Sau

Dr. Ashutosh Mishra

# Organic Chemistry

Prof. G. Satyanarayana

Prof. Faiz Ahmed Khan

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

# Physical Chemistry

**Dr. Surajit Maity**

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

**Dr. Surendra K. Martha**

Energy Storage Materials especially Batteries and Supercapacitors

**Dr. Krishna Gavvala**

Biophysical Chemistry Time-Resolved Spectroscopy

**Dr. Narendra Kurra**

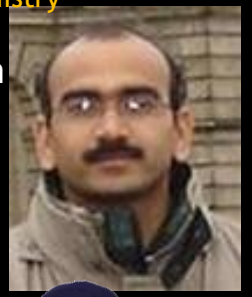
Materials (electro)chemistry, Energy Storage, multivalent metal-ion batteries, Fast charging devices

**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



**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. Debasish Koner**

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

# 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

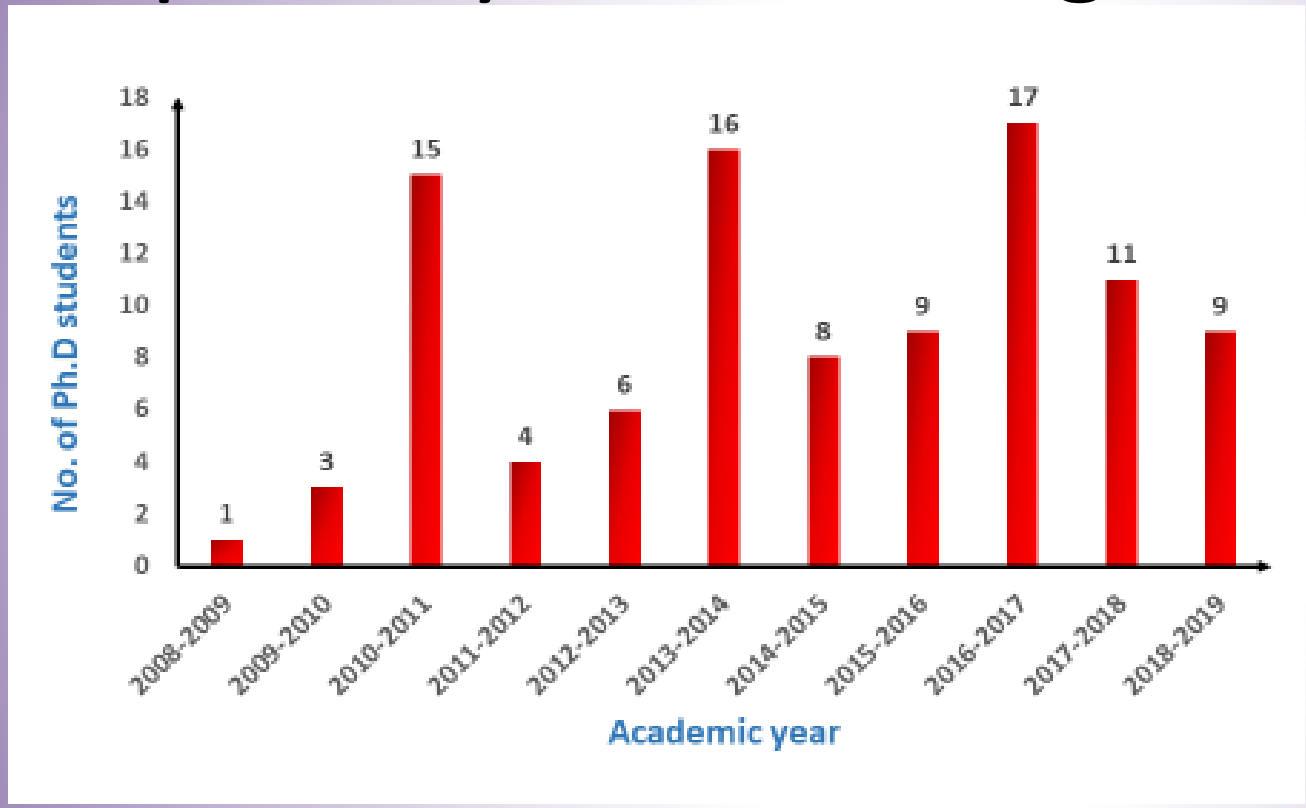
10. Photoluminiscence

11. Solar Simulator

12. ESR

13. CHNS Analyzer


# Department of Chemistry
# Popularity of PhD Program




2020
**32**

2021
**35**

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 Electrodics,

Main Group Organometallic Chemistry,

Nanochemistry & Applications,

Drug Discovery, Design & Development,

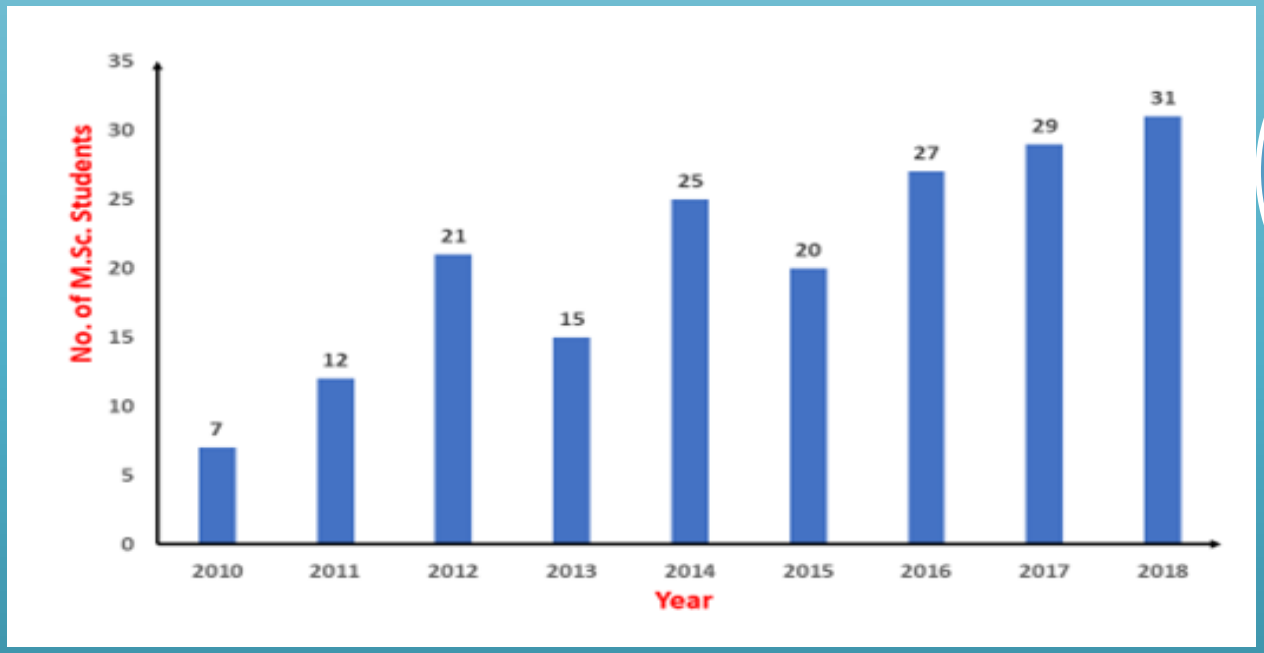
Asymmetric Synthesis

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

2020
47

2021
46

2022
35

# Support System

## Faculty advisers

Dr. Venkata Rao Kotagiri
kvrao@chy.iith.ac.in

## Convener DPGC

Dr. Somnath Maji
dpgc@chy.iith.ac.in

## HoD

Dr. Surendra Kumar Martha
head@chy.iith.ac.in

# Outreach and Other programs

- In-House Symposium
- Safety training
- Open day

- MSc poster session
- Teqip
- Seminars

# Alumni










# PhD Program

## ELIGIBILITY CRITERIA:

### For Regular Candidates:

Master's (MSc) degree in Chemical Sciences with good academic record.
Valid GATE-score/UGC-JRF/CSIR-JRF or DST INSPIRE or any other relevant Scholarship.

### For Sponsored Candidates:

**Category A:**
Students working under sponsored projects (i.e. DST, CSIR, BRNS, DBT, etc.) of Indian Institute of Technology Hyderabad (IITH), with valid GATE-score/CSIR-JRF/UGC-JRF/Lectureship (LS) at the time of joining the project are also eligible to apply for the PhD 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 sponsored Ph.D. program (candidates from sponsored program are not eligible for any scholarship from Ministry of Education).
A proof of sponsorship from parent organization must be provided at the time of interview.
The selected candidates must complete their coursework in the Department of Chemistry at IIT Hyderabad.

## SELECTION PROCESS:

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 discipline.
- 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 their application.
- SC/ST and OBC reservation 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 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**