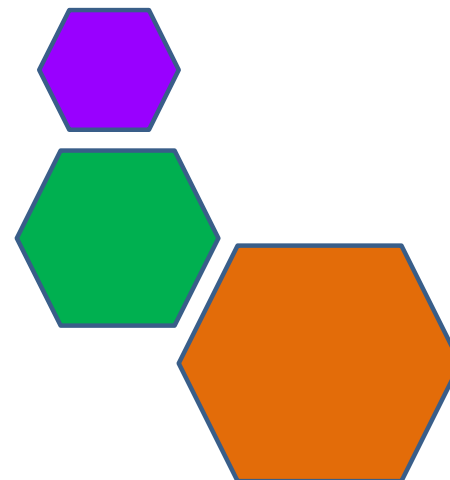
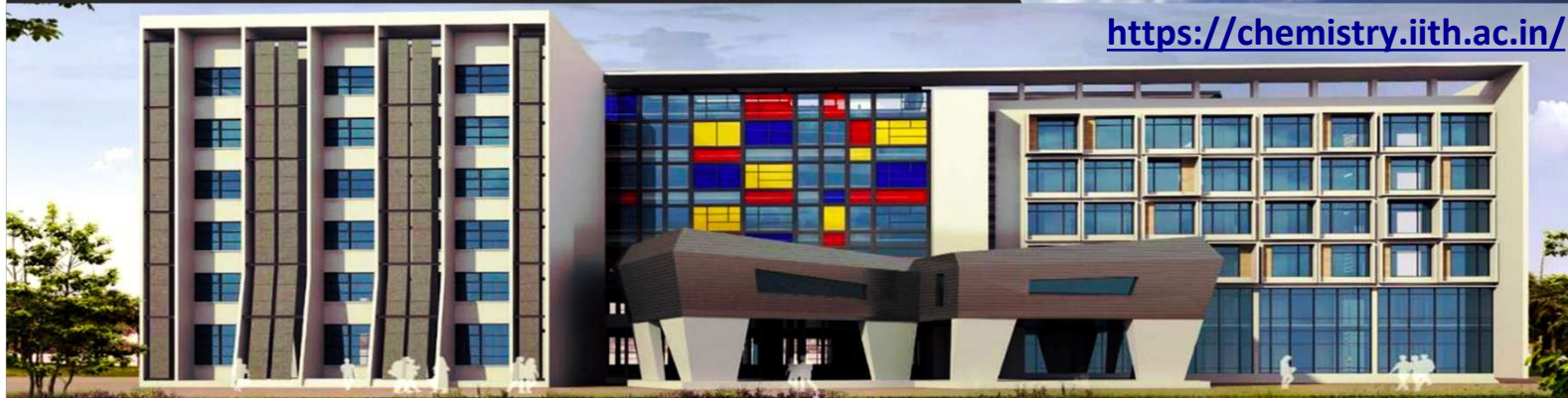




భారతీయ సాంకేతిక విజ్ఞాన సంస్థ హైదరాబాద్  
भारतीय प्रौद्योगिकी संस्थान हैदराबाद  
Indian Institute of Technology Hyderabad



# Department of Chemistry



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



.....“Welcome to the Department of Chemistry. The Department started functioning from the very inception of IITH in 2008. The Department has the distinction of starting the first PG program in science at IITH in 2010. In 2021, the department started B.Tech Industrial chemistry. The Department enjoys advanced and comprehensive research facilities, providing strong support for academic research and innovation. 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”.

**Vision of the dept:** To be a world-renowned institution in chemistry, delivering high quality teaching and research.

**Mission:** The Department of Chemistry is committed to excellence in chemistry by establishing world class research programs for meeting major scientific and technological challenges. Our aim is to produce highly sought after and knowledgeable graduates for pursuing careers with academia, industry and government

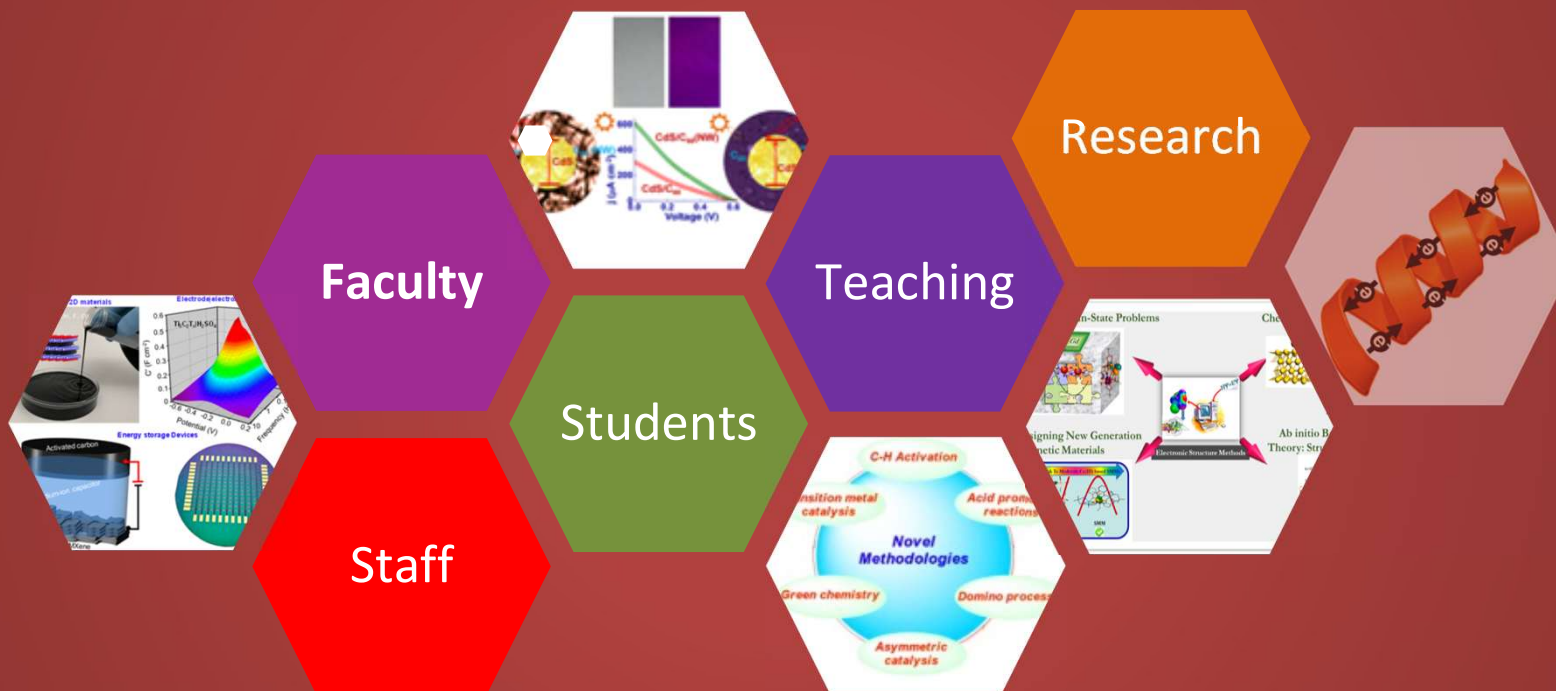


**Prof. Ch. Subrahmanyam**

*Head of the Department*

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

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



## An overview of the Department's strength

---

- Department Faculty - 27 + 1 (Lien)
- Adjunct Faculty - 2
- Adjunct Faculty - 4
- Department Technical Staff - 11
- Department Admin Staff - 2
- Current Ph.D. Students - 178
- No. of PhDs graduated - 128
- M.Sc. Students - 76
- B.Tech. IC Students - 88
- **TOTAL PUBLICATIONS - +1200**

# Publications

Some of the Q1 journals where we publish

Chemical Reviews  
Nature Chemistry  
Angewandte Chemie International Edition  
Advanced Energy Materials  
JACS, Advanced Materials  
ACS Nano  
ACS Energy Letters  
ACS Applied Materials and Interfaces  
Chemical Communications  
ACS Catalysis  
ACS Materials Letters  
Inorganic Chemistry  
Journal of Catalysis  
Organic Letters  
Chemical Engineering Journal  
Journal of Power Sources  
JPC, PCCP, Dalton Transactions  
Journal of Materials Chemistry  
Journal of Energy Storage

**Total publications with IITH affiliation: > 1200**

**Total patents (applied & granted): > 40**



Prof. Faiz Ahmed Khan



Prof. G. Satyanarayana



Prof. C. Malla Reddy



Dr. Ashutosh Mishra



Dr. Venkata Rao Kotagiri

# Organic Chemistry

## 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
- Valorization of gases and small molecules
- Electrochemistry
- Photochemistry, Mechanochemistry
- Crystal Engineering
- Solid-state Pharmaceutical Chemistry
- Mechanically Flexible and Self-healing Organic Functional Crystals



Dr. Kishore Natte



Dr. Abhijit Sau



Dr. Anup Bhunia

# Computational Chemistry

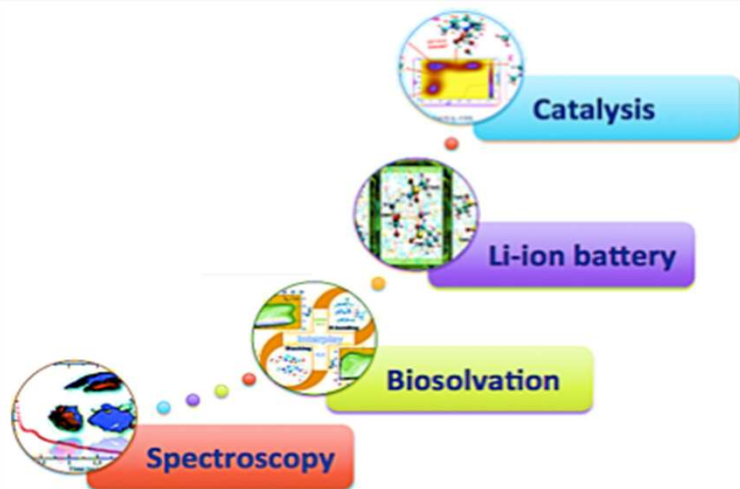
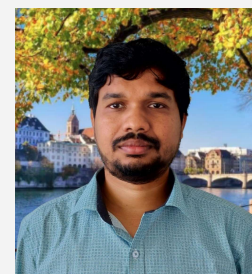
**Prof. Bhabani Shankar Mallik**



**Dr. Arup Mahata**



**Dr. Debashish Koner**

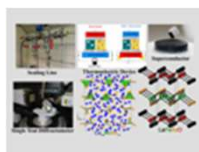
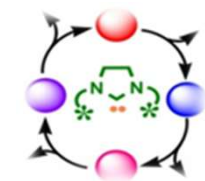


Computational Materials Science, Density Functional Theory, Perovskites Optoelectronics, Surface Catalysis, Molecular Catalysis, Spintronics, Energy Storage Materials

Computational Chemistry, Machine Learning in Chemistry, Machine Learning in Medical Diagnosis, Biomarker Discovery, Chemical Reaction Dynamics, Molecular Spectroscopy. Atmospheric and Astro-chemistry



# 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
- Phosphor/OLED
- Bioinspired bioinorganic chemistry



**Prof. Tarun Kanti Panda**



**Prof. G. Prabusankar**



**Dr. Somnath Maji**



**Dr. Jai Prakash**



**Dr. Sivakumar Vaidyanathan**



**Dr. Saurabh K. Singh**



**Dr. Tarali Devi**



**Prof. Ch. Subrahmanyam**



**Prof. M. Deepa**



**Dr. Surendra K. Martha**



**Dr. Surajit Maity**



**Dr. Krishna Gavvala**



**Dr. Narendra Kurra**



**Dr. Koyel B. Ghosh**



**Dr. Sudarsanam Putla**



**Dr. Priyadarshi Chakraborty**



**Dr. M. Annadhasan**

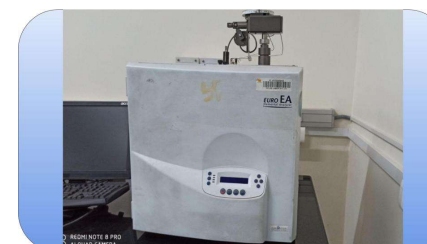
# Physical Chemistry

- Catalysis
- Nanomaterials
- Energy Systems
- Photovoltaics
- Batteries
- Supercapacitors
- Polymers
- Supramolecular biomaterials
- Conducting polymers
- Tissue Engineering
- Drug delivery
- Electrochromic Devices

- Applied Electrochemistry
- Solution Processed Solar Cells
- Spectroscopy of molecular clusters
- chemical evolution of interstellar ice
- Biophysical Chemistry, Time-Resolved Spectroscopy
- biomass conversion, selective C-N coupling reactions
- Green chemistry
- Spin dependent electrochemistry and its application,
- Molecular electronics
- Organic/inorganic flexible crystals, Mechano-photonics
- Optical waveguides & resonators,
- Photonic integrated circuits, Single-particle photonic studies

# Research Facilities at Chemistry Department

1. Multi-Mode Atomic Microscope
2. Powdered X-Ray Diffractometer
3. 400 & 600 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
14. ZEM
15. Close cycle cryostat with resistivity setup
15. And many more.....



Please visit <https://chemistry.iith.ac.in/facilities.html>  
For more details



# Research Facilities at Chemistry Department



UG & PG Lab



UG & PG Lab



Research Lab



UV-Vis



GC-MS



TGA



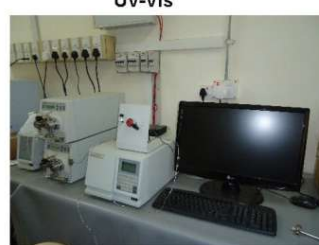
Research Lab



Research Lab



XPS



HPLC



DSC



FT-IR



Glove Box



FT-IR



MW Syn



NMR



XRD



Mat Syn



UV-Vis



CHNS Analyzer



Polarimeter



SC X-Ray



HRMS



ICP

# Funders



ROYAL  
ACADEMY OF  
**ENGINEERING**

**UKIERI**  
UK-India Education  
and Research Initiative



नवीन एवं  
नवीकरणीय ऊर्जा मंत्रालय  
MINISTRY OF  
**NEW AND  
RENEWABLE ENERGY**



ज्ञान-विज्ञान विमुक्तये  
**UGC**  
University Grants Commission



Alexander von  
**HUMBOLDT  
STIFTUNG**



Ministry of Environment, Forest  
& Climate Change



**nanospan**



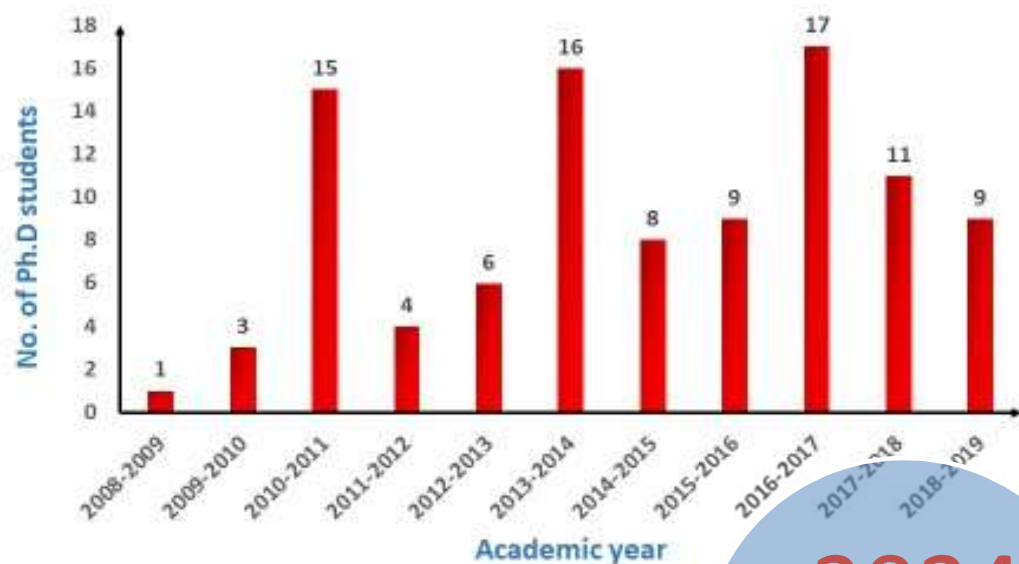
**GLASS  
DYNAMICS**



**ROSHAN ENERGY  
TECHNOLOGIES (P) LTD.**

# Department of Chemistry

## Popularity of PhD Program



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

2021

35

2022

29

2024

50+

2023

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

Current  
Ph.D.  
Students

178

Total  
Graduated  
Ph.D.  
Students

128

## **COURSES**

**Advanced Organic Chemistry**

**Advanced Organometallic Chemistry**

**Chemical & Electrochemical Energy Systems**

**Chemistry of Natural Products and Biomolecules**

**Organolanthanide Chemistry**

**Heterogeneous Catalysis**

**Separation Techniques & Dynamic Electrode**

**Main Group Organometallic Chemistry**

**Nanochemistry & Applications**

**Drug Discovery, Design & Development**

**Asymmetric Synthesis**

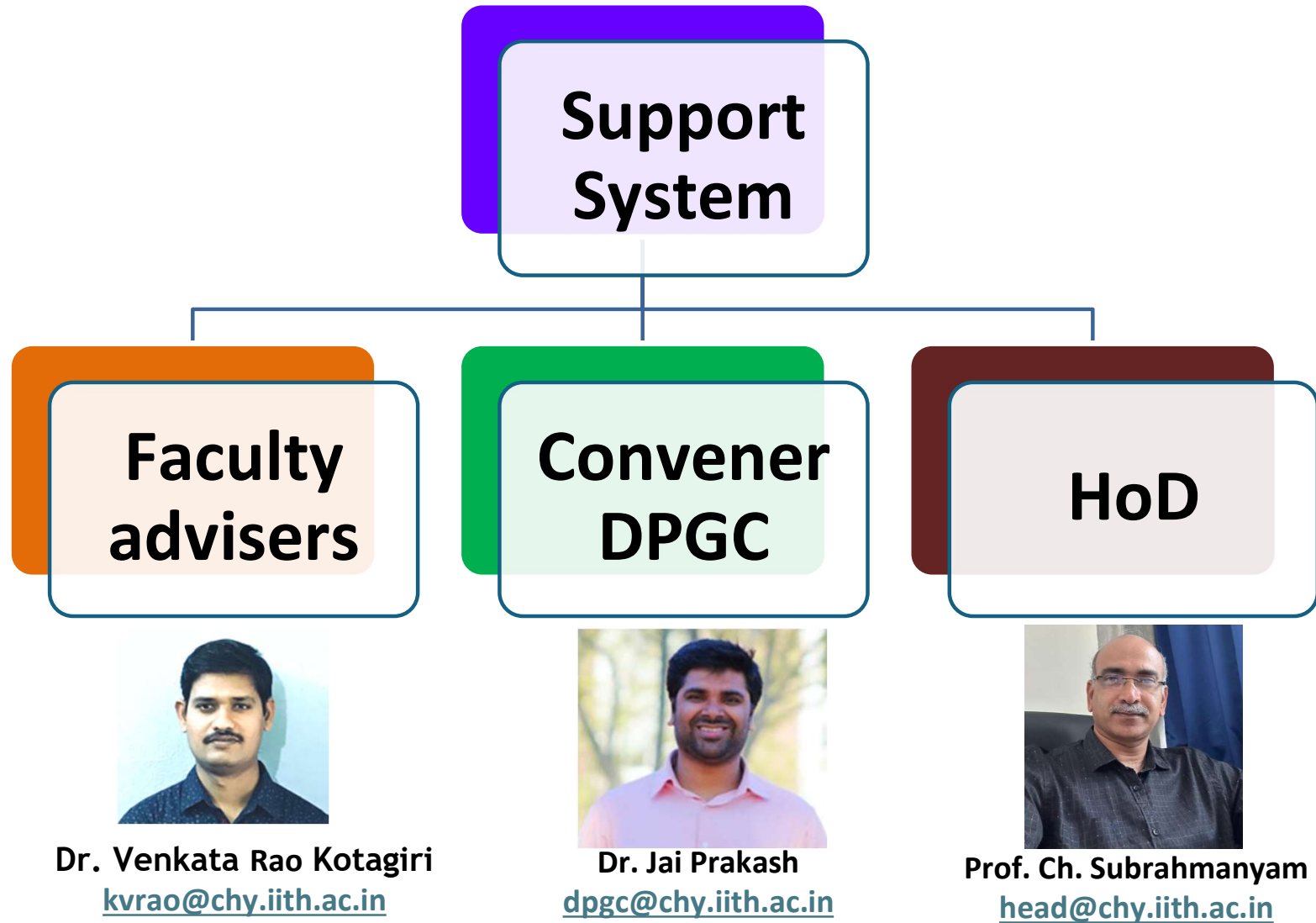
**DNA Nanotechnology: structure and Application**

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

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

**Pharmaceutical solid-state chemistry and formulation technologies**

**Safe laboratory practices and Scientific Writing in Chemical Research**



# Outreach and Other programs

- In-House Symposium
- Safety training
- Open day

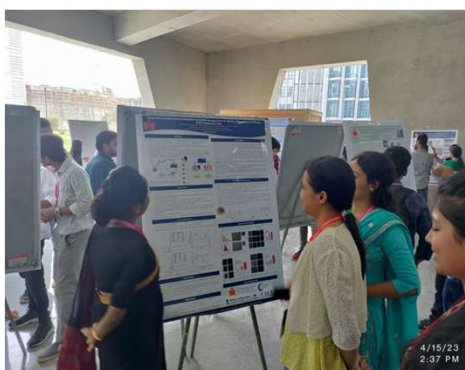


- MSc poster session
- TEQIP
- Seminars

# Activities



## IN-HOUSE SYMPOSIUM CONDUCTED BY THE DEPARTMENT OF CHEMISTRY AT IIT HYDERABAD ON 15.04.2023



The department has organized an **In-house symposium** on 15.04.2023, and **Prof. V Chandrasekhar, Director, TIFR-Hyderabad**, attended as the guest of honor

## Activities



### INTERNATIONAL CONFERENCES ORGANIZED BY THE DEPARTMENT OF CHEMISTRY AT IIT HYDERABAD



**International Conference on Chemistry for  
Sustainability  
(ICCS-2025)**



**3rd International Conference on Main-group  
Molecules to Materials  
(MMM III- 2023)**

# Alumni

## Some notable alumni....



**Ms. Rini Choudhury**

Indian Information Service (IIS)

**AIR 396 (UPSC)**



**Dr. Priyanka Verma**

Assistant Professor, IIT Delhi

University of Stuttgart, Germany

Georgia Tech, Atlanta

Drexel University

University of Illinois

University of Massachusetts

University of California

University of Delhousie

University of Texas, Austin

# Industry Collaborators



Hyderabad Photonics Initiative Group (HyPhI)



MOMENTIVE  
performance materials



## Ph.D. Program

### **ELIGIBILITY CRITERIA:**

#### **For Regular Candidates:**

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

- (a) Depending on the departmental requirement and based on the total number of applications received.
- (b) Based on the number of applications received for individual research disciplines.
- (c) 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 for the candidates while filling out 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. Jai Prakash, [dpgc@chy.iith.ac.in](mailto:dpgc@chy.iith.ac.in) for any queries.