

PhD Admissions in the Department of Chemistry, IISER Bhopal

Applications are invited for the PhD program in the Department of Chemistry, IISER Bhopal for the semester commencing from December 31, 2011

Research Areas:

- ✓ Deciphering new reactivity of various functional groups and their applications in the development of new catalytic enantioselective reactions
- ✓ Development of catalytic methodologies which provides *regio*-, *chemo*-, and/or *stereo*-selective products
- ✓ Asymmetric synthesis, developing methodologies for the construction of natural product skeletons, and synthesis and development of bio-degradable polymers and self-assembled systems
- ✓ Optoelectronic properties of pi-conjugated materials, designing and synthesis of molecule based functional materials, understanding the chemistry of transition metals for small molecule activation and functionalization, surface coordination chemistry for designing smart surface
- ✓ Molecular Nanomagnets, polyoxometalate chemistry and Metal-Organic Framework for Gas adsorption and catalysis
- ✓ Investigation of Structure-Property Relationships in Crystalline Solids
- ✓ Development of new synthetic methodologies for organo-chalcogen compounds and their applications in bromination reactions
- ✓ Computational Chemistry; Molecular Modeling and Simulations of Biomolecules (Protein Folding, Protein Aggregation, Protein-Drug and Protein-DNA interactions); Statistical Mechanics of Liquids and Green Solvents.
- ✓ Exploring the excited state dynamics and photo-physics of organized assemblies using ultrafast spectroscopy
- ✓ *Ab initio* simulations of structural and electronic properties of functional materials

Infrastructure Available:

- 500 and 400 MHz NMR
- IR Spectrometer, UV-Vis Spectrophotometer, Polarimeter, HPLC, Spectrofluorometer
- Mass Spectrometer (LC-MS and GC-MS)
- Time Correlated Single Photon Counting setup
- Single Crystal and Powder X-ray Diffractometer
- Transient Absorption and Femto-second up-conversion laser
- Physical Property Measurement Systems, SQUID
- Differential Scanning Calorimeter (DSC), Thermogram Analyzer (TGA), Isothermal Titration Calorimeter (ITC)
- Atomic Force Microscope (AFM) and Scanning Electron Microscope (SEM)
- Inert Atmosphere Glove Box
- Variable Angle Spectroscopic Ellipsometer

➤ High Performance Computing Facility for Large Scale Computer Simulations

Eligibility Criteria:

- (a) Applicants must have completed M.Sc. or B. Tech with at least 55% marks or equivalent. SC/ST and Physically Challenged applicants should have at least 50% marks or equivalent. Final year students are also eligible to apply.
- (b) Besides condition (a) applicants MUST have a valid CSIR-UGC NET JRF/LS, or GATE or equivalent examination score

Selection Procedure:

Selections will be based on the performance at the interviews. The short listed candidates will be informed by email/postal mail regarding the exact date and timing of the interview.

No accommodation or travel reimbursement will be provided to any candidate. Only TA/DA will be paid to SC/ST candidates.

Interested applicants are strongly advised to visit the following links:

<http://www.iiserbhopal.ac.in/chemicalsciences.htm>

http://www.iiserbhopal.ac.in/doaa_admissions.htm

Important Dates:

- (i) Last date of receiving applications: November 04, 2011
- (ii) Dates of interviews: November 30, 2011 and December 01, 2011