

## EDUCATION

- CPI: 8.18 out of a scale of 10
- **High School Score:** 92.5%
- **Senior Secondary School Score:** 92.6%
- **TOEFL iBT Score:** 112/120
- **GRE Score:** 322/340  
Verbal: 159/170, Quantitative: 163/170 Analytical Writing: 3.5/6

## ACHIEVEMENTS

- Selected in **Visiting Summer Research Program (VSRP-2012)**, TIFR-Mumbai among 35 students.
- Selected in **Summer Research Fellowship Program (SRFP-2010)**, IIT-Delhi among 25 students.
- Awarded **IIT-Color Award**: Highest honor given by IIT-Gymkhana to a student for commendable performance in academics and co-curriculars.

## EXTRA CURRICULARS

- Secretary of **Dance Club** (2010-11) and Joint Secretary of **English Literary Society** (2009-10) of IIT-Gymkhana
- ✓ 1st in IIT-Guwahati on case study entitled "Reduction of **water pollution** in river Ganga".
- ✓ 2nd in Golden design competition, IIT-Madras for designing "**cheap portable water filter based on photo-catalysis for rural Indian customers**".
- ✓ 3rd in IIT-Kharagpur on analysis of "**Food Crisis** in India".

## RELEVANT COURSEWORK

- **Chemistry** (Solid-state, Inorganic, Analytical and Electrochemistry, Polymers, Sensors, Quantum mechanics, Molecular simulation, Statistical thermodynamics)
- **Materials Science** (Synthesis, preparation and characterization of materials, Nano-materials and nanostructures, Electronic devices)
- **General** (Fluid Mechanics, Fluid mechanics, Thermodynamics, Chemical reactor analysis, Mass and heat transfer)
- **Mathematics** (Linear Algebra, Integral and Vector Calculus, Numerical Analysis, Probability and Statistics)

## SKILLS

**Languages:** English, Hindi, Spanish

**Software Packages:** MATLAB, MS-Excel

**Programming Language:** C, C++, Java

## WORK EXPERIENCE

- **Research Associate, The Abdul Latif Jameel Poverty Action Lab (J-PAL)** Jan'13-Current  
*'Design, implementation and evaluation of pilot Emissions Trading Scheme(ETS) for particulate matter'*  
Principal Investigators: *Prof. Michael Greenstone, Prof. Rohini Pande,*
- India's 1st ETS project and World's 1st Continuous Emission Monitoring (CEMS) ETS project for Particulate Matter. A pilot project in collaboration with Ministry of Forest & Environment, Central and State (Gujarat, Maharashtra, TN) Pollution Control Boards.

## RESEARCH PROJECTS

- **Summer student, Tata Institute of Fundamental Research-Mumbai** May-July '12  
*'Evaluation of parameter involved in hydrothermal synthesis of TiO<sub>2</sub> nanostructures'*  
Guide: *Prof. Deepa Khushalani*, TIFR - Mumbai
- Evaluated parameters: pH, nature of anions and type of alkoxide precursor in hydrothermal reaction condition to alter the architecture and crystallinity of TiO<sub>2</sub> for synthesis of high aspect ratio aligned anatase TiO<sub>2</sub> **nanowires**.
- **Master's thesis Project at IIT-BHU, Varanasi and TIFR - Mumbai** July '11-March '12  
*'Synthesis and characterization of vertically/radially aligned TiO<sub>2</sub> nanowires for applications in energy conversion'*  
Guide: *Prof. Dhanesh Tiwari*, IIT-BHU and *Prof. Deepa Khushalani*, TIFR – Mumbai
- Synthesized oriented highly crystalline rutile TiO<sub>2</sub> nanowires on various substrates under mild hydrothermal conditions, studied mechanism of growth, optimized the influence of reaction parameters on properties of product.

## INDUSTRIAL INTERNSHIPS

- **Nalco Technology Centre, Pune** May-July '11  
*'Multivariate statistical analysis to predict structure-activity-relationship of wax inhibitors on crude oil'*  
Guide: *Dr. Sriram Santhanagopalan*, Senior Research Engineer, Nalco, India
- Developed a model using multidimensional oil-field data to classify crude oils and chemical inhibitors in different families for early stage screening of suitable inhibitors for oil leading to substantial reduction in time and man power expended.
- **SolarPrint Limited, Dublin** Dec '10 – Jan '11  
*'Effect of co-adsorbents in dye solution on performance of Dye Sensitized Solar Cells (DSSCs)'*  
Guide: *Dr. Michele Keyes*, Scientific Consultant, SolarPrint Ltd., Dublin
- Studied the mechanism by which the adsorbent co-grafted with a dye onto TiO<sub>2</sub> nanoparticles, leading to alteration in photovoltage (Voc) and photocurrent (Jsc) of DSSCs using different coadsorbents-dye combinations at various concentrations. A net increase of 15% in J<sub>sc</sub> and 10% in efficiency was achieved for SolarPrint DSSCs.

## INDEPENDENT PROJECTS

- **'SaRa Energy': Renewable energy service provider company**  
Prepared a techno-financial model for **rural electrification using decentralized off-grid solar plants**. The project was acclaimed in every competition entered: 2010-11
- 1st in IIT-BHU for "Development of techno-commercial model by study of solar energy resource in India".
- 2nd in Youth Summit on Climate Change, IIT-Kharagpur for novel solutions on **Grid Electricity**.
- 3rd in AI Gore Sustainable Technology Venture Competition, Asia's most prestigious Business plan competition.
- Amongst top 20 teams in Eureka, India's biggest business plan competition, IIT-Bombay.

## OTHER PROJECTS

- **Research projects at IIT-Delhi**
- 'Wet Chemical Techniques to fabricate DSSCs' advised by *Prof. Ashok Bhaskarwar*.
- 'Study of photochemical degradation of dyes by semiconductor oxide nanoparticles to tackle water pollution caused by **textile industry**' advised by *Prof. Ashok Bhaskarwar*.
- 'Study of concentrated polymer surfactant system for Enhanced Oil Recovery from **abandoned Oil fields**' advised by *Prof. Sudip Pattanayak*.