

# CHINMAY PATHAK

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## EDUCATION

**Master of Science, Chemical Engineering**  
Rutgers the state University of New Jersey  
Cumulative **GPA 4.0/4.0**

2012-2015  
New Brunswick, NJ

**Bachelor of Technology, Chemical Engineering**  
Visvesvaraya National Institute of Technology (VNIT)  
Cumulative **GPA 8.75/10**

2007-2011  
Nagpur, India

## RESEARCH PROJECTS

### CURRENT PROJECTS

#### **Characterization of Hetero-aggregates of alginate microparticles and chitosan nanoparticles using fluorescence spectroscopy**

MS Thesis project, Advisor: Dr. Nina Shapley

- Quantify interaction regime boundaries (dispersed vs. aggregated morphologies) using a novel fluorescence spectroscopy technique
- Examine effect of varying pH values as well as alginate concentration on interaction regime boundaries
- Developed protocol for accurate measurement and sample preparation resulting in highly reproducible data

#### **Axial Dispersion in Rotating Cylinders for Single and Binary Systems**

Engineering Research Center for Structure Organic Particulate System (ERC-SOPS), Rutgers

- Studied and established relation between flowability and bed behavior (cascading, cataracting, centrifuging) for Acetaminophen, Lactose Monohydrate and MCC
- Determined axial dispersion coefficient from concentration versus axial position profiles measured for a series of time points

### PREVIOUS PROJECTS

#### **Determination of size and charge density of surfactant micelles**

- Evaluated effect of surfactant addition on particle size distribution and zeta potential of zein protein particles in aqueous solution.
- Identified best surfactant resulting in reduced particle size from 1200 to 200 nm.

#### **Development and Characterization of Novel Insulation Material Using Industrial Waste**

Thesis Project, Advisor: Dr. Sachin Mandavgane

- Developed effective insulating material with thermal conductivity 0.16 W/m.<sup>0</sup>K.
- Applied to pipes obtaining temperature difference of 20<sup>0</sup>C across insulation layer.

## SKILLS

### Laboratory Skills

- Knowledge of Nanoparticle Synthesis, Polymers and Biopolymers, Emulsions
- Proficient in Fluorescence Spectroscopy, Laser Diffraction Scattering Particle Size Analyzer, UV-Vis Spectroscopy, Zeta sizing, pH meter

### Technical Skills

- AutoCAD, MATLAB, MINITAB, Polymath, ChemCAD, ProPipe
- Design of Experiment, ANOVA
- Heat Exchanger Design, PFD, P&ID

### **Professional Skills**

- Ability to work Independently, detail oriented and organized
- Strong inter-personal and teamwork skills
- Demonstrated leadership and management skills

### **WORK EXPERIENCE**

**Rutgers Dining Services**, New Brunswick

05/2013-05/2014

**Student Meal Manager**

- Supervised student workers ensuring proper dining room set up, clean-up and shut down
- Trained new workers on responsibilities and procedures
- Developed and maintained positive work environment

**Bharati Web Pvt. Ltd**, Nagpur

08/2011-07/2012

**Management Trainee**

- Administered client communications and social media editing
- Managed social media platforms of company increasing Facebook page likes over 100,000 thereby improving company's cyber presence and user awareness.

**Satyan Consulting Engineers**, Pune

05/2010-06/2010

**Engineering Intern**

- Analysed PFD's, P&ID's, Floor Plan, Plant layout
- Introduced to ChemCAD, ProPipe.

### **TEACHING EXPERIENCE**

**Visvesvaraya National Institute of Technology**, Nagpur

**Tutor**

- Tutored sophomore students for subject Fluid Mechanics
- Conducted problem solving sessions for subject Chemical Process Calculations

### **PRESENTATIONS & PUBLICATIONS**

- "Application of recycle paper mill waste as thermal insulator for engineering applications", 30<sup>th</sup> National Convention of Chemical Engineers on the theme "Recent Trends In Research, Development and Innovations in Chemical Industries", NIT Agartala, India
- "QSPR Studies on Viscosities of Aromatic compounds", 63<sup>rd</sup> Annual Session of Indian Institute of Chemical Engineers CHEMCON-2010, Annamalai University, Chennai, India
- "Viscosity co-Relation of Coolant with Temperature", International Conference on Challenges and Application of Mathematics in Science and Technology, NIT Rourkela, India

### **RELEVANT COURSEWORK**

- Advanced Transport Phenomena
- Advanced Chemical Engineering Thermodynamics
- Analytical Methods in Chemical and Biochemical Engineering
- Kinetics, Catalysis, Reactor Design
- Statistical Analysis and Design of Pharmaceutical Operations
- Pharmaceutical Process Design
- Introduction to Colloid and Interface Science
- Pharmaceutical Material Engineering

### **EXTRACURRICULAR ACTIVITIES**

- Member of core organizing committee of IIES-2011, International conference organized by MNRE (Ministry of New and Renewable Energy, Govt. of INDIA)
- Member of core organizing committee of AXIS, Technical Festival Of VNIT
- Won 2<sup>nd</sup> prize in STIRLING ENGINE Model Making Competition at VNIT, Nagpur.