

Meet Shah

7575 Office City Dr, Apt 3414, Houston, Tx 77012

713-791-2689 ◊ mvshah@uh.edu ◊ mvshah.com

EDUCATION

University of Houston, Houston

August 2017 - Present

Doctoral Candidate, Advisor Dr. Vemuri Balakotaiah

Department of Chemical and Bio-molecular Engineering *CGPA 3.89/4*

Indian Institute of Technology, Mumbai

July 2013 - July 2017

Bachelors of Technology (Honors)

Department of Chemical Engineering *CPI 9.23/10*

Minor in Department of Mechanical Engineering *CPI 8.2/10*

RESEARCH PROJECTS AND INTERNSHIPS

Stability analysis of autothermal shallow bed reactors

August 2017 - Present

(Guide: Prof. Vemuri Balakotaiah)

- Developed generalized 2-phase reactor cell models to describe stable pattern formation in region of multiplicity not predicted by continuum models
- Determined region of stable operation using linear stability analysis to avoid hot-spot formation
- Obtained neutral stability curves and impact of various physical and reactor properties on reactor stability in the region of multiple steady states

Intern at Research and Development division, Hindustan Unilever

May 2016 - June 2016

- Created model for surfactant interaction and conducted experiments with various surfactant mixture and abrasive materials to obtain cost optimum composition
- Reformulated Vim hand dish-wash bar with 30% reduced cost and parity in performance with competition considering foam and cleansing as parameters

Integration of DWSIM and OpenModelica

June 2015 - May 2016

(Guide: Prof. Kannan Moudgalya)

- Implemented the DWSIM Standalone Thermodynamics library, an open-source COM-callable Dynamic Link Library, into OpenModelica using Python and C Programming
- Developed models in OpenModelica for dynamic simulation of chemical engineering systems

Industrial training at Gulf Petrochemical Industries Company

May 2015 - June 2015

- Analyzed ammonia, methanol and urea plant manufacturing process, equipment details and energy consumption data as part of company's project of adapting ISO 14001 standard

Biosynth IIT Bombay

June 2014 - May 2015

(Guide: Prof. Sanjay Mahajani)

- Produced bio-diesel on a pilot plant basis and performed multiple lab runs to determine the efficiency of various catalyst and operating conditions on reactor yield and conversion

PUBLICATIONS

- **Shah M.**, West D., Balakotaiah V. "Thermal Pattern formation in short autothermal reactors", In preparation.

TECHNICAL STRENGTHS

Mathematical Proficiency:

Bifurcation analysis, Reduced order models, Stability analysis, Numerical Methods, Continuation, Nonlinear systems

Programming Languages:

C, C++, FORTRAN, Java, MATLAB, Python

Simulation:

COMSOL, ASPEN, ANSYS Fluent, OpenFOAM, OpenModelica

Publishing:

Microsoft Office, L^AT_EX, Scientific word