

## RESUME

**Dr. Chetan M. Patel**  
**Assistant Professor**  
**Department of Chemical Engineering**  
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**3-A, JALPARI APARTMENT, B/H AMBICA NIKETAN MANDIR, PARLE POINT, SURAT – 395007, GUJARAT**

### PERSONAL DETAILS:

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DATE OF BIRTH: 15<sup>th</sup> September, 1979  
MARITAL STATUS: Married  
FATHER'S NAME: Manharlal L. Patel

### EDUCATIONAL QUALIFICATIONS/ AFFILIATIONS:

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- **Ph. D., SVNIT-Surat (2014)**
- **M. Tech. (Process Engineering & Design), IIT, Delhi (2009)**
- **B.E. (CHEMICAL), SVNIT-Surat ( Formerly R.E.C., Surat ) (2001)**

### COMPUTER SKILLS

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- MS Office, Basics of C/ C ++, Aspen plus, Fluent, MATLAB, Statistical software MINITAB, ORIGIN, STATISTICA, Artificial neural network (Multiple Back Propagation Software), Genetic algorithm, Excel Solver, Excel Analysis Tool pack.
- Python, Simulation by Discrete Element Method (DEM) using LIGGGHTS (Open Source Software).
- X-ray line broadening analysis and microstructural analysis: XFIT, WINFIT, BREADTH.

### PROFESSIONAL EXPERIENCE:

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- **ORGANIZATION:** S.V. National Institute of Technology, Surat.
- **Worked as Adhoc-Lecturer from 15-01-2002 to 31-03-2004.**
- Working as a Assistant Professor in the Department of Chemical Engineering since 1<sup>st</sup> April 2004
- Appointed Visiting Faculty for **M. Sc. (Industrial Chemistry)** in the **Department of Chemistry, South Gujarat University, Surat.**

### Research areas of interest

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- Nanoparticles production and processing by nanomilling/wet media milling/agitated bead milling in stirred media mills. (Paints, pigments, inks, pesticides, ceramic materials, pharmaceutical drugs, biomaterials, nanofluids,
- Liquid phase exfoliation to 2D materials, ultrasonication and sonochemistry, Preparation of nanostructured materials for lithium ion batteries and supercapacitors.
- Modeling & Simulation of Particulate processes by Discrete element method (DEM)
- Characterization and analysis of particulate/powder/bulk solids.

- Stability and rheological characterization of nanosuspension.
- Molecular Simulation of Nanocomposites.
- Optimization of chemical processes by soft computing techniques. (Use of Statistical design of experiments, Artificial neural network, Genetic algorithm, Multivariate data analysis)

## RESEARCH PUBLICATIONS IN INTERNATIONAL JOURNALS

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1. **Chetan M. Patel**, Z.V.P. Murthy\* and Mousumi Chakraborty, Effects of Operating Parameters on the Production of Barium Sulfate Nanoparticles in Stirred Media Mill, *Journal of Industrial and Engineering Chemistry*, Vol.18 (No.4) (2012) 1450-1457. DOI: 10.1016/j.jiec.2012.02.005 (Elsevier Scientific Publication, USA) (Impact Factor: 2.145/2012)
2. **Chetan M. Patel**, Mousumi Chakraborty and Z.V.P. Murthy\*, Study on the Stability and Microstructural Properties of Barium Sulfate Nanoparticles Produced by Nanomilling, *Advanced Powder Technology*, Vol. 25 (No.1) (2014) 226-235. DOI: 10.1016/j.appt.2013.04.003 (Elsevier Scientific Publication, The Netherlands) (Impact Factor: 1.642/2013)
3. **Chetan M. Patel**, Mousumi Chakraborty and **Z.V.P. Murthy\***, Preparation of Fenofibrate Nanoparticles by Combined Stirred Media Milling and Ultrasonication Method, *Ultrasonics Sonochemistry*, Vol. 21 (No.3) (2014) 1100-1107. DOI: 10.1016/j.ultsonch.2013.12.001 ((Elsevier Scientific Publication, The Netherlands) (Impact Factor: 3.816/2012)
4. **Chetan M. Patel**, Mousumi Chakraborty and **Z.V.P. Murthy\***, Enhancement of Stirred Media Mill Performance by a New Mixed Media Grinding Strategy, *Journal of Industrial and Engineering Chemistry*, Vol. 20 (No.4) (2014) 2111-2118. DOI: 10.1016/j.jiec.2013.09.040 (Elsevier Scientific Publication, USA) (Impact Factor: 3.512/2013)
5. **Chetan M. Patel**, Mousumi Chakraborty, and Z.V.P. Murthy, Influence of pH on the Stability of Alumina and Silica Nanosuspension Produced by Wet Grinding, *Particulate Science and Technology*, Vol.33 (3) (2015) 240-245. DOI: 10.1080/02726351.2014.978425 (Taylor & Francis Group Publication, USA) (Impact Factor: 0.523/2014)
6. **Chetan M. Patel**, Mousumi Chakraborty, and Z.V.P. Murthy, Fast and scalable preparation of starch nanoparticles by stirred media milling, *Advanced Powder Technology*, Vol. 27 (4), (2016) 1287-1294 (Elsevier Scientific Publication, The Netherlands) DOI: 10.1016/j.appt.2016.04.021 (Impact Factor: 2.638/2014-15)
7. J. H. Jhaveri, **C. M. Patel**, Z.V.P. Murthy, Preparation, characterization and application of GO TiO<sub>2</sub>/PVC mixed matrix membranes for improvement in performance. *Journal of Industrial and Engineering Chemistry* 52 (2017), 138-146. (Elsevier Scientific Publication, USA) DOI: <https://doi.org/10.1016/j.jiec.2017.03.035> (Impact Factor: 4.421/2016)
8. Vijay Kumar Singh, **Chetan M. Patel**, A novel method to prepare two-dimensional manganese dioxide and its potential application as a sensor to detect hydrogen peroxide and L-ascorbic acid in water. Accepted for Publication in *Separation Science and Engineering*, Taylor and Francis Publications.
9. Patel Chetan M., Preparation of Lamotrigine Drug Nanoparticles by Nanomilling, *Research Journal of Chemistry and Environment*, Vol. 22 (2018), 7-11.
10. Raj Kumar, Arun K. Jana, Srikanth R. Gopireddy, **Chetan M. Patel**, Prediction of Hopper Discharge Rate Using Combined Discrete Element Method and Artificial Neural Network. Article in Press. <https://doi.org/10.1016/j.appt.2018.08.002> in *Advanced Powder Technology*.

11. **Chetan M. Patel**, Characterization and Analysis of Particle Size and Particle Size Distribution of Particulate Materials, Accepted for Publication in **Chemical Engineering**. Chemical Week Associates Publishers.
12. Ashwin R. Kamble, **Chetan M. Patel**, and Z. V. P. Murthy, Modification of PVDF membrane by two-dimensional inorganic additive for improving gas permeation. Accepted for Publication in Separation Science and Technology, Taylor and Francis Publications. <https://doi.org/10.1080/01496395.2018.149611>,
13. Jainesh H. Jhaveri, **Chetan M. Patel**, Z. V. P. Murthy, Reactive Modification of PVC Membranes for the Improved Performance, Accepted for Publication in Membrane Water Treatment, (Techno-Press, Korea)
14. **Chetan M. Patel**, Preparation of Nanoparticles of Poorly Water Soluble Drugs (PWSDs) by Nanomilling" accepted for publication in the Research Journal of Biotechnology.
15. Ashwin R. Kamble, **Chetan M. Patel**, and Z. V. P. Murthy, Effects of inorganic additive of two-dimensional hexagonal boron nitride on the gas separation/permeation for PVDF derived membranes, Accepted for Publication in Separation Science and Technology, Taylor and Francis Publications.

## RESEARCH PROJECT

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1. "Fabrication of cathode nanocomposites for applications in supercapacitor and lithium-ion battery by nanogrinding" granted under the research grant to Assistant professor of SVNIT-Surat.
2. Dr. Z.V.P. Murthy, Dr. V. N. Lad, Dr. C. M. Patel, Development of Course "Mechanical Operations" Project of Ministry of Human Resource Development, Government of India for Pedagogy Research Project. 2013-2017.

## Papers Presented & Published In International Conferences Proceedings

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1. Paper presented on "Effect of bed porosity on shape of particles", at Fourth Asian Particle Technology Symposium during September 14-16, 2009, New Delhi.
2. Paper presented on "Influence of pH on the Stability of Alumina and Silica Nanosuspension Produced by wet grinding", at PGBSIA-2013 during November 28-30, 2013, Patiala.
3. Paper presentation: "Simulations of Nylon-6/Starch Nanocomposites to Analyze the Mechanical Behaviour" at 5<sup>th</sup> International Conference on "Nanotechnology and Materials Science" on October 14<sup>th</sup>-16<sup>th</sup> 2017.
4. Raj Kumar, Chetan M. Patel, Arun K. Jana Srikanth R. Gopireddy, Numerical Study of the Effects of Vibration on Segregation and Mass Discharge Rate From a Conical Hopper, presented at Asian Particle Technology Symposium, July 30- August 3, 2017, Taoyuan, Taiwan.
5. Sanjay Krishna<sup>1</sup> and Dr. Chetan M. Patel., MD Simulations of Mechanical behaviour of Nylon-6/Nano-Starch Nanocomposites, paper presented at 3<sup>rd</sup> International World Research Journals Congress on 10<sup>th</sup> to 12<sup>th</sup> January, 2018, Bangalore.
6. Sanjay Krishna<sup>1</sup> and Dr. Chetan M. Patel, Mechanical Simulations of Nylon6/nano-Alumina Nanocomposites, paper presented at 3<sup>rd</sup> International World Research Journals Congress on 10<sup>th</sup> to 12<sup>th</sup> January, 2018, Bangalore.

7. Chetan M. Patel, Optimization and Preparation of Calcium Carbonate Nanoparticles using Taguchi and Artificial Neural Networks at 3<sup>rd</sup> International World Research Journals Congress on 10<sup>th</sup> to 12<sup>th</sup> January, 2018, Bangalore.
8. Raj Kumar, Chetan M. Patel, Arun K. Jana Srikanth R. Gopireddy, Investigation of Mass Discharge Rate and Segregation from Hopper by Discrete Element Method, Proceedings of the "V International Conference on Particle-Based Methods. Fundamentals and Applications (PARTICLES 2017)", Hannover, Germany, September 26-28, 2017, pp. 351.
9. Raj Kumar, Chetan M. Patel, Arun K. Jana Srikanth R. Gopireddy, The relationship between flow density, hopper angle and particle-size distribution during conical hopper discharge: Experimental and Numerical Analysis. Proceedings of the "9<sup>th</sup> International Conference on Conveying and Handling of Particulate Solids (CHoPS-2018)", London, UK, September 10 -14, 2018.
10. Ashwin R. Kamble, Chetan M. Patel & Z. V. P. Murthy, Modification of PVDF membrane by two dimensional inorganic additive for improving gas separation, *Presented at the National Conference on "Recent Trends on Membranes & Separation Technology" (RTMST-17), Organized by CSIR-Central Salt and Marine Chemicals Research Institute, Bhavnagar, November 22-23, 2017.*
11. Ashwin R. Kamble, Chetan M. Patel & Z. V. P. Murthy, Effects of inorganic additive of two-dimensional hexagonal boron nitride on the gas separation / permeation for PVDF derived membranes, *Presented at the DAE – BRNS Biennial Symposium on Emerging Trends in Separation Science and Technology, (SESTEC – 2018), BITS Pilani, K.K. Birla Goa campus, Goa, India, May 23-26, 2018.*
12. Ashwin R. Kamble, Chetan M. Patel & Z. V. P. Murthy, Recent development in the polymer-inorganic composite membranes for gas separation: A review, *Presented at the 6th IWA Regional Membrane Technology Conference (IWA-RMTC2018) Vadodara, Gujarat, India, December 10-12, 2018.*

## EXPERT LECTURES

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1. 4 hrs of expert lecturers were delivered on Ammonia & Urea Production Technology in "L & T Young Hydrocarbon Professionals Engineering Domain Training Programme" conducted by SPT, Pandit Dindayal Petroleum University, Gandhinagar on 21<sup>st</sup> april 2011.
2. Modeling and optimization using artificial neural network, ChED, SVNIT-Surat 7<sup>th</sup> August, 2014.
3. ANN: Theory and Concepts and ANN using STATISTICA, ChED, SVNIT-Surat 26<sup>th</sup> June, 2015 in STTP on Design of Experiment for Artificial neural network
4. Preparation of Nanomaterials by Nanomilling, ChED, SVNIT-Surat 13<sup>th</sup> August , 2015 in STTP on Interfacial Engineering and Nanotechnology for Sustainable Environment
5. Fundamentals of Artificial Neural Network, ChED, SVNIT-Surat 9<sup>th</sup> June, 2016 in STTP on Design of Experiment for process optimization.
6. Dispersion and Preparation of Nano-materials, ChED, SVNIT-Surat 14<sup>th</sup> July, 2016 in STTP on Recent trends in Chemical Engineering.
7. 3 hrs of expert lecture on Particle and Shape Characterization, ChED, SVNIT-Surat, 1st August, 2016 in STTP on Particle Technology: Characterization and Modeling of Particulate Materials (PT-CMPT-2016).
8. Particle Size Measurement by Dynamic Light Scattering (DLS), ChED, SVNIT-Surat, 2nd August, 2016 in STTP on Particle Technology: Characterization and Modeling of Particulate Materials (PT-CMPT-2016).
9. X-Ray Line Broadening Analysis, ChED, SVNIT-Surat, 3rd August, 2016 in STTP on Particle Technology: Characterization and Modeling of Particulate Materials (PT-CMPT-2016).
10. Image processing by ImageJ for Nano materials Characterization, ChED, SVNIT-Surat, 4th August, 2016 in STTP on Particle Technology: Characterization and Modeling of Particulate Materials (PT-CMPT-2016).
11. Particle Size Measurement by DLS, Applied Chemistry Department, SVNIT-Surat, 21<sup>st</sup> September, 2016 in STTP on Sophisticated Analytical Techniques in Surface Chemistry
12. Energy Efficient methods for production of Nanomaterials, ChED, SVNIT-Surat, 14<sup>th</sup> December, 2016 in STTP on Green concepts in engineering and Chemistry
13. Nanosizing-Versatile Technique for Nanoparticles production , Applied Chemistry Department, SVNIT-Surat, 7<sup>th</sup> October, 2016 in STTP on Micro- & Macro-chemistry Meets Technological Developments.

14. Particle Size Measurement by Dynamic Light Scattering, Applied Chemistry Department, SVNIT-Surat, 20<sup>th</sup> December, 2016 in STTP on Journey of Analytical Techniques in Chemical and Biological Sciences (JATCBS-2016)
15. Optimization of Nanomilling Process by Artificial Neural Network, ChED, SVNIT-Surat, 10<sup>th</sup> February, 2017 In STTP on Process Intensification in Chemical Industries

#### **SEMINAR/ WORKSHOP/SHORT TERM TRAINING PROGRAMME:**

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- “ Introductory Fluent & GAMBIT Training ”, Fluent India Pvt. Ltd., Pune, 12<sup>th</sup> to 15<sup>th</sup> Dec, 2005
- “Gasification of Carbonaceous Feed stocks & SYNGAS Generation”, IIP Dehradun, 19-20 Dec, 2005 at Delhi.
- “ Energy Conservation in Various Industry ”, SCET, Surat, 26<sup>th</sup> to 30<sup>th</sup> Dec, 2005
- “ Modeling & Optimization of Bio & Environmental Processes ”, IIT Bombay, 10<sup>th</sup> to 11<sup>th</sup> Feb, 2006
- “ Introduction to Computational Fluid Dynamics ”, MED, SVNIT, Surat, 10<sup>th</sup> to 12<sup>th</sup> May, 2006
- “ Faculty Development Programme ”, VNIT, Nagpur, 19<sup>th</sup> to 30<sup>th</sup> June, 2006.
- “ Treatment and Disposal of Wastewaters”, SVNIT, Surat, 05<sup>th</sup> -09<sup>th</sup> October, 2009.
- “Soft Computing Techniques for Optimization”, ABV-IITM, March 04 -09, 2013.
- “Outcome based education systems”, Equate-Gudgaon, July 02-05, 2014.

#### **RESPONSIBILITIES/ ACTIVITIES:**

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- Actively involved in different Department & Institute level committee
- Member-Secretary, Department Academic Advisory Committee, ChED.
- Ph. D. Coordinator, ChED.
- PG In charge, ChED.
- Appointed Departmental TEQIP (Phase –I) Coordinator.
- Worked as CAD Lab in charge
- Member of Institute Information Management Committee
- Served as member of Institute Gymkhana committee
- Member of Departmental Board of Under Graduate studies (**DBUGS**)
- Served as Factotum in the final examination, invigilator In different national level competitive exam

CHETAN M. PATEL

