Curriculum Vitae

Education

- PhD from the **Indian Institute of Technology (IIT) Kharagpur**, 2008 Dissertation Title: Absorption of Carbon Dioxide into Piperazine Activated Alkanolamines.
- Master of Technology (M. Tech) in Chemical Engineering from the **Indian Institute of Technology (IIT) Kharagpur**, 1998.
- Bachelor of Technology (B. Tech) in Chemical Engineering from the **University of Calcutta**, 1996.
- Bachelor of Science (B.Sc., Honors in Chemistry) from the **University of Calcutta**, 1993.

Research Interest

- Carbon Dioxide Capture and Sequestration, Separation Processes, Gas Treating, Hot Gas Cleanup, Chemical Looping Combustion, Thermal Extraction of Coal, and Modeling & Simulation

Professional Experience

- More than **12** years of Experience in Teaching and Research.
- **3+** years of experience as a Postdoctoral Research Fellow (from University of Alberta) in the field of Separation Processes: design and development of high performance mesoporous solid sorbents for removal of acid gases.
- Published **40+** journal and conference papers.
- Experience in project coordination and execution, and team leading and training.
- Experience in operation and maintenance of equipment including, but not limited to: Gas Chromatography, Quadrupole Mass Spectroscopy, Thermogravimetric Analyzer, Autosorb-iQ, UV–Spectrophotometer, Fourier Transform Infrared Analyzer, Particle Size Analyzer, etc.
- Working with Alberta Innovates Technology Futures (AITF), Canada to design and develop a structured bed reactor system for post-combustion CO_2 capture.
- Functional experience includes software such as ASPEN, HTRI, MATLAB used in modeling and simulation.

Work Experience

- April 2010 – May 2013: Postdoctoral research fellow, in Chemical Engineering at Canadian Centre for Clean Coal/Carbon and Mineral Processing Technologies (C^5MPT) in the Department of Chemical and Materials Engineering at University of Alberta, Edmonton, Canada.
- July 2003-April 2010: Assistant Professor, September 1998-June 2003: Lecturer, Department of Chemical Engineering, G.H.PatelCollege of Engineering and Technology (SPUniversity), Gujarat.
- July 2004-2008: Research Scholar, Indian Institute of Technology Kharagpur, WB.

Technical Activity at University of Alberta

1. **Development of High Performance Amine Impregnated Solid Sorbents for Post Combustion CO_2 Capture & Techno-Economic Assessment.**
   - **Status:** On-going
   - **Sponsor:** Carbon Management Canada Inc. and C^5MPT center
   - **Responsibility:** Preparation of project proposal and a key research team member in executing the project. We are focusing on developing a low-cost, novel sorbent and associated process to remove CO_2 from coal-fueled power plant flue gas in a cost effective manner.

2. **Chemical Looping Combustion**
   - **Status:** On-going
   - **Sponsor:** C^5MPT Research Centre
     Responsibility: Key team member in executing the project. This objective of the project is to develop a cost effective oxygen carrier to support the application of CLC as a technology to produce steam for Steam Assisted Gravity Drainage (SAGD) in bitumen production with reduced GHG emissions. The carrier development will focus on raw materials available in North America, particularly mineral processing wastes, which will overcome existing shortcomings of attrition resistance, cost and sour fuel tolerance.

3. **Hot gas Cleanup (Developing Sorbents for H_2S Capture)**
   - **Status:** Completed
   - **Sponsor:** C^5MPT Research Centre and Alberta Innovates Technology Futures(AITF)[iCORE Strategic External Networking Grant], Canada
   - **Responsibility:** Preparation of project proposal and key team member in executing the project. This is a program in collaboration with the Alberta Innovates-Technology Futures (AITF), Edmonton focused on the development of novel hot-gas desulfurization sorbents for relatively high-temperature application that show stable and high reactivity at 400-650°C.

4. **Study of the Behavior of Lump Coal at High Temperature**
    - **Status:** Completed
    - **Sponsor:** The Baoshan Iron and Steel Co. Ltd., China
    - **Responsibility:** A key team member in executing the project. The objective of the industrially sponsored collaborative research project was to study the behavior of coal at high temperature that may have direct or indirect impact on the performance of the plant.

Analytical Instrument Handled

- Non Dispersive Infra-red Analyzer (NDIR), HORIBA, JAPAN
- Gas Liquid Chromatography, Shimadzu GC-16A, Japan
- GC-MS(GC: CP 3800, MS 2000), Varian, USA
- OmniStar Quadrupole (QMS 220) Mass Spectroscopy, USA
- UV –Spectrophotometer, Shimadzu, Japan
- MB 3000 Fourier transform infrared (FTIR) spectrometer, ABB, Canada
- Autosorb 1, Autosorb-iQ-MP-XR, Quantachrome, USA
- Q500 thermogravimetric analyzer, TA Instruments, USA

Software Proficiency

- *Programming Languages:* Fortran-90/95, C and Visual Basic
- Software: MATLAB, SIMULINK, Aspen Plus, DESIGN-II, (Winsim Inc.), ST-Educational (HTRI)

Member of Professional Bodies

- **Member:** Chemical Institute of Canada (Membership No.: 604242)
  : American Institute of Chemical Engineers (Membership No.: 009900153330)
- **Life Member:** Indian Society of Technical Education (LM No.: 53064)

Awards & Honors

- Received National Scholarship award consecutively in 1988 and 1990 from MHRD, Govt. of India.
- Received Gold medal from Ramkrishna Mission Vidya Mandir, Belur Math, Howrah, WB, 1993.

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