

Curriculum Vitae: Suresh K. Bhatia

Name : SURESH KUMAR BHATIA

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Education

1978-1980 : UNIVERSITY OF PENNSYLVANIA (Ph.D. in Chemical Engineering, January 1981)

1974-1976 : UNIVERSITY OF PENNSYLVANIA (M.S.E. in Chemical Engineering, May 1976)

1969-1974 : INDIAN INSTITUTE OF TECHNOLOGY (KANPUR) (B.Tech. in Chemical Engineering with Distinction, May 1974)

Career: 1996-present: THE UNIVERSITY OF QUEENSLAND (2000- Professor, 1996-1999 Reader, 2007-2009: Head, Division of Chemical Engineering)

1984-1996: INDIAN INSTITUTE OF TECHNOLOGY (Mumbai) (1990-1996 Professor, 1986-1990 Assistant Professor, Department of Chemical Engineering. 1984-1986 Senior Research Engineer, Computer Aided Design Centre)

1982-1984: UNIVERSITY OF FLORIDA (Visiting Assistant Professor, Department of Chemical Engineering)

1981-1982: MOBIL RESEARCH AND DEVELOPMENT CORPORATION (Senior Staff Engineer)

1976-1978: BOOZ-ALLEN APPLIED RESEARCH, ENERGY AND ENVIRONMENT DIVISION (Senior Engineer)

Professional Distinctions

- [1] Invited Chevron Chair Professor, Indian Institute of Technology Madras (2014).
- [2] Member, Excellence in Research Australia (ERA) Panel (2012).
- [3] The University of Queensland, Vice-Chancellor's Research Quality Award (2011).
- [4] Elected Fellow of the Australian Academy of Technological Sciences and Engineering (2010).
- [5] Australian Professorial Fellowship (2010-2014).
- [6] ExxonMobil Award for Excellence in Chemical Engineering (2009).
- [7] Elected Fellow of the Institution of Chemical Engineers, U.K. (2008).
- [8] Micromeritics Inc. (USA) Instrument Grant Award (2007).
- [9] Danish Research Council Sponsored Visiting Professor, Department of Chemical Engineering, Technical University of Denmark, Denmark, December 1993-December 1994.
- [10] Shanti Swarup Bhatnagar Prize for Engineering Sciences, Government of India (1993).
- [11] Elected Fellow of the Indian Academy of Sciences (1993).
- [12] Herdillia Award for Excellence in Basic Research in Chemical Engineering, Indian Institute of Chemical Engineers (1992).

Selected Invited/Keynote Lectures:

- [1] Invited Keynote Lecture on "Atomistic Simulation of Disordered Nanoporous Carbons", International Symposium on Advanced Materials", IUMRS Conference, Kyoto, August 27-September 1 (2017).
- [2] Invited Keynote Lecture on "Quantum Molecular Sieving of Light Isotopes in Nanoporous Materials", International Workshop on Advanced Mesoporous Materials, Adelaide, June 27 (2016).
- [3] Invited Keynote Lecture on "Transport of Gases in Complex Nanoporous Materials", Pacific Basin Conference on Adsorption Science and Technology, Xiamen, October 24-27 (2015).
- [4] Invited Lecture on "Molecular Level Modelling of Transport in Nanoporous Materials and Membranes", School Georgio Zgrablich, 2nd IberoAmerican Congress on Adsorption, Cartagena, Colombia, April 26-30 (2015).
- [5] Invited Keynote lecture on "Practical Molecular Level Models of Transport in Nanoporous Materials", MM2014, Brisbane, July 31-Aug. 2 (2014).
- [6] Keynote Lecture on "Atomistic Modelling of the Structure of Silicon Carbide-Derived Nanoporous Carbon", International Conference on Emerging Advanced Nanomaterials (ICEAN), Brisbane, October 22-25 (2012).

- [7] Keynote lecture on “Quantum Molecular Sieving of Hydrogen Isotopes”, , International Symposium on Surface Heterogeneities in Adsorption and Catalysis, Krakow, Poland, August 27-3, (2012).
- [8] Invited Lecture on “Understanding the Diffusion of Water in Disordered Carbons”, International Conference on Carbon-Based Nanomaterials, Nagano, May 26-29 (2012).
- [9] Invited Keynote lecture on “The Non-equilibrium Nature of the Nanopore Fluid”, 6th Pacific Basin Conference on Fundamentals of Adsorption Science and Technology, Taipei, May 21-23 (2012).

Recent Research Grants:

- [1] “Engineering Models of Permeation in Mixed Matrix Membranes”, Australian Research Council Discovery Grant, 2015-2017 (\$393,800). Jointly with S. Smart, F. Kaptejn and S. Nair.
- [2] “Interfacial Barriers to Transport in Nanomaterials”, Australian Research Council Discovery Grant, 2015-2019 (\$537,100). Jointly with D. Nicholson, Jorg Karger and J. Haase.
- [3] “Structural Modelling of Silicon Carbide-Derived Microporous Carbon and its Application in CO₂ Capture from Moist Gases”, Australian Research Council Discovery Grant, 2012-2014 (\$330,000). Jointly with D.S. Sholl.
- [4] “Friction-Based Modelling Of the Dynamics of Nanoconfined Fluid Mixtures”, Australian Research Council Discovery Grant, 2010-2014 (\$1,000,000). Jointly with D. Nicholson and Jörg Kärger.
- [5] “Quantum-Induced Kinetic Molecular Sieving of Hydrogen Isotopes in Nanoporous Materials”, Australian Research Council Discovery Grant, 2008-2010 (\$390,000). Jointly with H. Zhang.

Journal Editorships

Regional Editor: Molecular Simulation (Publishers: Taylor & Francis, U.K. (2010-2015).

Editorial Board Member: Molecular Simulation.

Editorial Board Member: Advanced Porous Materials (Publishers: American Scientific Publishers, U.S.A.)

Editorial Board Member: Processes, an online journal (Publishers: MDPI, Switzerland).

Publications

Selected Recent Journal Articles (total 247, ISI Web of Science h-index: 42)

- [1] Bhatia, S.K., “Characterizing Structural Complexity in Disordered Carbons: From the Slit Pore to Atomistic Models”, *Langmuir* **33**, 831-847 (2017). (Invited Feature Article).
- [2] Liu, L., D. Nicholson and S.K. Bhatia, “Inhibitory Effect of Adsorbed Water on the Transport of Methane in Carbon Nanotubes”, *Langmuir*, **33**, 6280-6291 (/2017).
- [3] Monsalve-Bravo, G.M., and S.K. Bhatia “Extending Effective Medium Theory to Finite Size Systems: Theory and Simulation for Permeation in Mixed-Matrix Membranes”, *J. Memb. Sci.*, **531**, 148-159 (2017).
- [4] Liu, L., D. Nicholson and S.K. Bhatia, “Interfacial Resistance and Length-Dependent Transport Coefficients in Carbon Nanotubes”, *J. Phys. Chem. C.*, **120**, 26363-26373 (2016).
- [5] Liu, L., Nicholson and S.K. Bhatia, “Adsorption of CH₄ and CH₄/CO₂ Mixtures in Carbon Nanotubes and Disordered Carbons: A Molecular Simulation Study”, *Chem. Eng. Sci.*, **121**, 268-278 (2015). Invited article in special issue in honour of Professor Danckwerts.
- [6] Farmahini, A.H. and S.K. Bhatia, “Hybrid Reverse Monte Carlo Simulation of Amorphous Carbon: Distinguishing between Competing Structures obtained using Different Modelling Protocols”, *Carbon*, **83**, 53-70 (2015).
- [7] Murugan, L., L. S. Lakshmi pathi and S.K. Bhatia, “Influence of In-plane Stone-Thrower-Wales Defects and Edge Functionalisation on the Adsorption of CO₂ and H₂O on Graphene”, *RSC Advances*, **4**, 39576-39587 (2014).
- [8] Shahtalebi, A., A.H. Farmahini, P. Shukla and S.K. Bhatia, “Slow Diffusion of Methane in Ultra-Micropores of Silicon Carbide Derived Carbon”, *Carbon*, **77**, 560-576 (2014).
- [9] Bonilla, M.R., Valiullin, J. Karger and S.K. Bhatia, “Understanding Adsorption and Transport of Light Gases in Hierarchical Materials using Molecular Simulation and Effective Medium Theory”, *J. Phys. Chem. C*, **118**, 14355-14370 (2014).
- [10] Gao, X., J.C. Diniz da Costa and S.K. Bhatia, “Adsorption and Transport of Gases in a Supported Microporous Silica Membrane”, *J. Memb. Sci.*, **460**, 46-61 (2014).
- [11] S.K. Bhatia and D. Nicholson, “Friction between Solids and Adsorbed Fluids is Spatially Distributed at the Nanoscale”, *Langmuir*, **29**, 14519-14526 (2013).

- [12] Farmahini, A.H., D.S. Sholl and S.K. Bhatia, "Fluorinated Carbide-derived Carbon: More Hydrophilic, Yet Apparently More Hydrophobic", *J. Am. Chem. Soc.*, **137**, 5969-5979 (2015).

Book Chapters

- [1] Bhatia, S.K., "Accessibility of Gases and Liquids in Carbons", in *Novel Carbon Adsorbents* (Ed. J. M. D. Tascon), pp 37-60, Elsevier , Amsterdam (2012).
- [2] Kowalczyk, P. and S.K. Bhatia, "Nanoporous Carbonaceous Materials - Efficient Vessels for On-Board Storage of Methane and Hythane Fuel", in *Carbon Materials: Theory and Practice* (Ed. A.P. Terzyk, P.A. Gauden and P. Kowalczyk), pp. 495-516, Research Signpost, Trivandrum (2008).
- [3] Nguyen, T.X. and S.K. Bhatia, "Characterization of Nanoporous Carbons using Density Functional Theory", in *Carbon Materials: Theory and Practice* (Ed. A.P. Terzyk, P.A. Gauden and P. Kowalczyk), pp. 453-478, Research Signpost, Trivandrum (2008).
- [4] Bhatia, S.K., "Transport of Gases Containing Condensables in Porous Solids", in *Advances in Transport Processes* (Ed. A.S. Mujumdar and R.A. Mashelkar), Elsevier, Amsterdam (1993).