

VIRENDRA K. MATHUR

Department of Chemical Engineering
University of New Hampshire
Durham, New Hampshire
603-862-1917

Experience

1. Professor, Department of Chemical Engineering, University of New Hampshire, Durham, New Hampshire, September 1974 to present.

Teaching Chemical Engineering courses at the undergraduate and graduate levels for over thirty years: Fluid Dynamics, Heat Transfer, Mass Transfer, Chemical Engineering Design, Environmental Pollution Control, Physicochemical Processes for Water and Air Quality Control, Natural or Synthetic Fossil Fuels and Fluidization Engineering. Also conducted Air Pollution Control Courses for EPA. Have also set up Chemical Engineering, Environmental Pollution Control and Fossil Fuels laboratories and conducted classes.

For the last thirty years have been very active in teaching, research, and development work in energy and environmental pollution related aspects of chemical engineering and associated product development. The projects have been funded by private industry and government organizations.

Currently conducting research work on:

- (1) Non-thermal plasma technique (barrier discharge) for pollutants removal
 - (2) Heat flux through insulations under vacuum at cryogenic temperatures
 - (3) Study of gas diffusion layer (GDL) in PEM fuel cells
 - (4) Study of gas diffusion layer in direct methanol fuel cells (DMFC)
2. Assistant Professor, Department of Chemical Engineering, Oklahoma State University, Stillwater, Oklahoma, January 1970 to December 1971.

Taught courses at the undergraduate and graduate levels: Transport Phenomena, Chemical Engineering Laboratory.

Conducted research on: Physical properties of hydrocarbon liquids and mixtures.

3. Assistant Professor, Associate Professor, Professor, Banaras University, India, 1956 – 1959, 1962 - 1966, 1972 - 1974.

Taught chemical engineering subjects (undergraduate and graduate levels).

Conducted research on:

- (1) Prediction of physical properties of hydrocarbon liquids and mixture.
- (2) Mass transfer studies in packed, semi-fluidized and fluidized beds.
- (3) Vapor-phase catalytic oxidation of aromatic hydrocarbons.
- (4) Heat transfer studies in polymer solutions.
- (5) Development of an ultrafiltration membrane for selective mass transfer.

4. Scientist, Fuel Research Institute, India, 1953 - 1956.

Research conducted on:

- (1) Vapor-phase oxidation of coal tar oils and by-products.
 - (2) Liquefaction of coal for the production of ashless coal.
5. Summer, 1988, Solar Energy Research Institute, U.S. Department of Energy, Golden, CO; Research Conducted on: Solar Hydrolysis of Resid Oil and Coal.
6. Summer, 1984, Solar Energy Research Institute, U.S. Department of Energy, Golden, CO; Sponsored by DOE-ASEE. Research conducted on: Solar Photochemical Production of Fuels and Chemicals.
7. Summer, 1982, Pittsburgh Energy Technology Center, U.S. Department of Energy, Pittsburgh, PA; Sponsored by Oak Ridge Associated Universities. Research conducted on: Catalytic Coal Gasification.
8. Summer, 1980, Pittsburgh Energy Technology Center, U.S. Department of Energy, Pittsburgh, PA; Sponsored by Oak Ridge Associated Universities. Research conducted on: Disposable Catalysts in Coal Liquefaction.
9. Summer, 1978, Pittsburgh Energy Technology Center, U.S. Department of Energy, Pittsburgh, PA; Sponsored by Oak Ridge Associated Universities. Research conducted on: Kinetics of Coal Hydrogenation by Hydrogen and CO-H₂.
10. Summer Research Projects, Department of Chemical Engineering, Oklahoma State University, 1972, 1973, 1974. (Research sponsored by the Fluid Properties Research Institute, Inc.)

Research conducted on: Physical properties of hydrocarbon liquids and liquid mixtures.

11. Summer, 1952 Alembic Chemical Works, Baroda, India. Worked in ethyl alcohol plant.

Educational Qualifications

B.Sc. (Chemical Engineering)	Banaras University, India, 1953.
M.S. (Chemical Engineering)	University of Missouri at Rolla, (MO) 1961.
Ph.D. (Chemical Engineering)	University of Missouri at Rolla, (MO) 1970.

Professional Engineer, Registered in New Hampshire, No. 4060.

Publications (Refereed, Peer Reviewed)

1. Nair, C.S.B., Mathur, V.K., Basu, A.N., Lahiri, A., "Catalytic Vapor-Phase Oxidation of Phenanthrene Over a Fluidized Catalyst", Journal of Scientific and Industrial Research, India, Vol, 19A, No. 9, 455, 1960.
2. McCoy, D.D., Mathur, V.K., Maddox, R.N., "Effect of Physical Properties on Chemical Engineering Design and Calculation", Paper presented at the Silver Jubilee Session of the Indian Institute of Chemical Engineers, New Delhi (1973). Published in Indian Chemical Engineer, Vol. XV, No. 3, 3, 1973.
3. Sitharamyya, S., Mathur, V.K., "Biomedical Engineering: An Engineering Activity in Medicine", Indian Journal of Technical Education (Published by the National Council for Science Education), April 1975.
4. Mathur, V.K., Wellek, R.M., Effect of Axial Dispersion of Interphase Mass Transfer in Packed Absorption Columns", Canadian J. of Chem. Eng., 54, 1/2, 90 (1976).
5. Sitharamyya, S., Mathur, V.K., "Artificial Kidney-A Review", Chemical Engineer (Published by Institution of Chemical Engineers, London). No. 306, 112 (1976).
6. Mathur, V.K., Maddox, R.N., "Liquid Density Correlations", Indian Chemical Engineer, Vol. XVIII, 2, 29, (1976).
7. Mull, I.D., Singh, P.C., Mathur, V.K., "Axial Dispersion in Packed Beds", Ind. J. Tech. Vol. 14, 12, 607 (1976).
8. Kumar, S., Upadhyay, S.N., Mathur, V.K., "Low Reynolds Number Mass Transfer in Packed Beds in Cylindrical Particles", I & EC Process Design and Development, 18, 1, 1 (1977).
9. Tripathi, A., Mathur, V.K., "Estimation of Surface Tension of Hydrocarbon Mixtures", Indian J. Technology, Vol. 15, 277 (1977).

10. Mathur, V.K., Singh, J.D., Fitzgerald, M., "Estimation of Thermal Conductivity of Liquid Hydrocarbons", J. Chem. Eng. of Japan, Vol. 11, 1, February 1978.
11. Kumar, S., Upadhyay, S.N., Mathur, V.K., "On the Solubility of Benzoic Acid in Aqueous Carboxymethylcellulose Solutions", J. of Chem and Eng. Data, Vol. 23, 2, 139, 1978.
12. O'Leary, M., Stetson, D.C., Mathur, V.K., "Catalytic Coal Liquefaction by Carbon Monoxide and Steam", Coal Processing Technology, Vol. V. 84, 1979 (AIChE publications).
13. Mathur, V.K., Caughey, R.A., "Fuel Gas from Wood Waste", Energy Communications, 5, 2, 129, 1979.
14. Mathur, V.K., Caughey, R.A., "Fuel Gas from Wood Waste", AIChE Symposium Series (195), Vol. 76, 85, 1980.
15. Mathur, V.K., Manasse, F.K., Lakshmanan, S.M., "Production of Fuel from High Temperature Solar Thermal Systems - Economic Analysis", AIChE Symposium Series (198), Vol. 76, 156, 1980.
16. Rai, H.S., Mathur, V.K., "Particle-Fluid Mass Transfer in a Semi Fluidized Bed", Chemical Engineering World, 15 (12), 51, 1980.
17. Mathur, V.K., "Study of Disposable Catalysts in Coal Liquefaction", Presented at 64th Chemical Conference, Chemical Institute of Canada, Halifax, Nova Scotia, May, 1981. [Coal: Phoenix of the '80s – Proceedings 64th CIC Coal Symposium, Ottawa, 1982].
18. Mathur, V.K., Engalichev, N., "Wood Power, Its Promises and Problems", Energy Communications, Vol. 7, 2, 105, (1981).
19. Mathur, V.K., "Coal Power, Its Promises and Problems", Energy Communications, Vol. 7, 3, 201 (1981).
20. Mathur, V.K., Lakshmanan, S.M., Manasse, F.K., Venkataramanan, V., Breault, R.W., "A Continuous Two Stage Solar Coal Gasification System", AIChE Symposium Series (210), Vol. 77, 47, 1981.
21. Mathur, V.K., Breault, R.W., Lakshmanan, S.M., "Synthesis Gas Production Using 'Solar Gas' Process", Energy Progress (AIChE Publication), June, 1982.

22. Mathur, V.K., Manasse, F.K., Lakshmanan, S.M., "Solar Enhanced Coal Gasification Using High Temperature Solar Energy", *Indian Chemical Engineer* (Published by the Indian Institute of Chemical Engineers), Vol. XXIV, No. 2, 2, 1982.
23. Mathur, V.K., Breault, R.W., Lakshmanan, S.M., "Coal Gasification Using Solar Energy", *Solar Energy J.*, Vol. 30, 5, 433 (1983).
24. Mathur, V.K., Guttal, V.B., "Catalytic Coal Conversion to Non-Polluting Fuel Oil Using Carbon-Monoxide and Steam," *Fuel Science and Technology*, Vol. 3, 37, April, 1984.
25. Mathur, V.K., Fakoukakis, E.P., Ruether, J.A., "Coal Liquefaction Using Ore Catalysts," *Fuel*, Vol. 63, p. 37, 1984.
26. Mathur, V.K., Reddy Karri, S.B., "Ore Catalysts in Two-Stage Coal Liquefaction", *Fuel*, Vol. 65, p. 790, 1986.
27. Mathur, V.K., Wong, E.H., "Production of Fuels and Chemicals Using Solar Photothermochemistry", *Energy*, Vol 12, No. 3/4, p. 311, 1987.
28. Mathur, V.K., Govindarajan, Usha, "Photo Desulfurization of Coal", 194th ACS National Meeting, New Orleans, Aug. 1987. [Paper Published in Pre-Prints].
29. Reddy Karri, S.B., Mathur, V.K., "Measurement of Interfacial Tension of Immiscible Liquids of Equal Density", *AIChE J*, Vol. 34, No. 1, p. 137, 1988.
30. Reddy Karri, S.B., Mathur, V.K., "Two Phase Flow Regime Map Prediction Under Micro-Gravity", *AIChE J*, Vol. 34, No. 1, p. 155, 1988.
31. Mathur, V.K., Murphy, S., "Desulfurization of Coal by Photo-oxidation", 195th ACS National Meeting, Toronto, June, 1988. [Paper Published in Pre-Prints].
32. Mathur, V.K., Breault, R.B., "High Velocity Fluidized Bed Coal Combustion Modeling" Part I and II, *Ind. & Eng. Chem. Research*, Vol. 28, p. 684, 1989.
33. Talukdar, J., Wong, E.H., Mathur, V.K., "Caprolactam Production by Direct Solar Flux", *Solar Energy*, Vol. 47, No. 3, p. 165, 1991.
34. Mohamed, A.R., Mathur, V.K., "Hydrogenation of Residual Oil Using a Dispersed Water Soluble Ammonium Molybdate Catalyst", *Fuel*, Vol. 70, No. 8, p. 983, 1991.

35. Mathur, V.K., Park, S., McLarnon, C., Tomellini, S., Planalp, R.P., "A Thermal Swing Absorption Process for Production of Oxygen - Enriched Combustion Air, ACS National Meeting, New York, NY, Aug. 25, 1991. [Paper published in Pre-Prints].
36. Mohamed, A.R., Mathur, V.K., "Solar Hydrolysis of Bituminous Coal", 29th National Heat Transfer Conference, Atlanta, GA, Aug. 1993. [AIChE Symposium Series, Vol. 89, 1993.]
37. Mathur, V.K. Salahuddin, M.A., Mohamed, A.R., "Hydrolysis of Resid Oil", Catalytic Hydroprocessing of Petroleum and Distillates", Eds. M.C. Oballa and S.S. Shih, Marcel and Dekker, 1994. (Book Chapter)
38. Talukdar, J., Mathur, V.K., "Residence Time Studies of Fine Particles Circulating Through a Fluidized Bed of Course Solids", AIChE Symposium Series, Vol. 92, 1996.
39. Park, S., Mathur, V.K., Planalp, R.P., "Synthesis, Solubilities and Oxygen Absorption Properties of New Cobalt (II) Schiff-base Complexes", Polyhedron, Vol. 17, No. 2-3, p. 325, 1998.
40. McLarnon, C.R., Mathur, V.K., "Nitrogen Oxide Decomposition", Ind. Eng. Chem. Res. Vol. 39, 8, 2779, 2000.
41. Mathur, V.K., Dalton, J., Zguris, Z., Kudirka, F. "Cryogenic Insulations for Liquefied Gas Storage Tanks", Heat & Mass Transfer Society (India) and ASME Joint Conference, Calcutta, India, Jan. 3-6, 2002. [Paper Published in the Proceedings].
42. Chen, Z., Mathur, V.K., "Nonthermal Plasma for Gaseous Pollution Control", Ind. and Eng. Chem. Res., Vol 41, No 9, 2002.
43. Chen, Z., Mathur, V.K., "Non-Thermal Plasma Electro-catalytic Reduction of Nitrogen Oxide", Ind. and Eng. Chem. Res., Vol 42, No 26, 6682, 2003.
44. Mathur, V.K. "Non-Thermal Plasma for Multi-Pollutant Control of Coal-Fired Utility Boiler", Book Chapter, Towards Zero Discharge, John Wiley Publisher, 2005.
45. Chen, Z., Mannava, D.P., Mathur, V.K. "Mercury Oxidation in Dielectric Barrier Discharge Plasma System, Ind. and Eng. Chem. Res., Vol 45, No 17, 6050, July, 2006.
46. Xu, Y., Xie, X., Guo, J., Wang, S., Wang, Y., Mathur, V.K. "Effect of Annealing Treatment and pH on Preparation of Citrate-Stabilized Pt-Ru/C Catalyst", J. of Power Source, Aug. 2006.

47. Liu, Y., Xie, X., Shang, Y., Li, R., Qi, L., Guo, J., Mathur, V.K., "Power Characteristics and Fluid Transfer in 40 W Direct Methanol Fuel Cell Stack", J. of Power Source, Nov. 2006.
48. Mathur, V.K. "Fundamentals of Gas Diffusion Layers in PEM Fuel Cells", Book Chapter, Anamaya Publication, New Delhi, Jan. 2007.
49. Li, R., Xie, X., Qi, L., Guo, J., Wang, J., Mathur, V.K., "Effect of Flow Characteristics and Temperature on Performance and Efficiency of a Direct Methanol Fuel Cell Stack", Int. J. of Energy Research, submitted.
50. Shaoguang Feng, Yuming Shang, Xiaofeng Xie, Jingming Xu, V.K. Mathur, "Novel method for preparation of Ion crosslinked sulfonated poly(arylene ether sulfone)/polybenzimidazole composite membranes via in-site polymerization", J. of Membrane Science, in press.

Publications (Non-refereed)

1. "Chemical Engineering", Indian Technical Encyclopedia, Gov't of India publication, 1962.
2. B.K.D. Agarwal, Mathur, V.K., "Natural Convection Heat Transfer from a Sphere in Non-Newtonian Fluids", Presented at the Seventeenth National Heat Transfer Conference, Salt Lake City, Utah, Aug. 1977. [Paper Published in Proceedings]
3. Mathur, V.K., Caughey, R.A., "Fuel Gas from Wood Waste", Paper presented at the 5th Annual UMR-DNR Conference, Rolla, MO, Oct. 1978. [Paper Published in Proceedings]
4. Mathur, V.K., "Wood Power, Its Promises and Problems", A book chapter, ENERGY SOURCES, Their Promises and Problems, Center for Industrial and Institutional Development, University of New Hampshire, Durham, NH, Feb. 1980.
5. Mathur, V.K., "Coal Power, Its Promises and Problems", A book chapter, ENERGY SOURCES, Their Promises and Problems, Center for Industrial and Institutional Development, University of New Hampshire, Durham, NH, Feb. 1980.
6. Mathur, V.K., "Coal Power: What Role in Our Energy Future?", The New Hampshire, March 6, 1981.

7. Breault, R.W., Mathur, V.K., "Two Phase Flow in a Loop Fluidized Bed," Multi-Phase Flows and Heat Transfer III. Part III. Part B: Application Ed. T.N. Vezuroglu and Bergles, A.E., Elsevier Science Publ. Amsterdam, 453, 1984.
8. Mathur, V.K. et al., "Reaction Kinetics for Flue Gas Treatment of NO_x", Non-Thermal Plasma Technique for Pollution Control (32, Part A & B), NATO ASI Series Volumes, Springer Publication, 1993.
9. Bartlett, K.R., Pangestu, S., Mathur, V.K., "Heat Transfer in a Lean Phase Circulating Fluidized Bed", AIChE Annual Meeting, Nov. 1994. [Preprints: Fluidization and Fluid-Particle Systems, Special Supplement to the Meeting.]
10. Talukdar, J., Mathur, V.K., "Residence Time Studies of Fine Particles Circulating Through a Fluidized Bed of Coarse Solids", AIChE Annual Meeting, Miami Beach, Nov. 1995. [Preprints: Fluidization and Fluid-Particle Systems, Special Supplement to the Meeting.]
11. Mathur, V.K., David, J., Bhatia, S., Air Separation by Oxygen Binding Chemicals, AIChE Annual Meeting, Miami Beach, FL, Nov. 1995. [Recent Developments and Future Opportunities in Separation Technology, Vol. II, Special Supplement to the Meeting.]
12. Mathur, V.K., Howell, D.E., Ceramic Filters for Hot Gas Filtration, AIChE Annual Meeting, Miami Beach, FL, Nov. 1995. [Recent Developments and Future Opportunities in Separation Technology, Vol. II, Special Supplement to the Meeting.]
13. Mathur, V.K., Tomellini, S., Tsao, S., "Thermal Swing Adsorption Process for Oxygen Separation from Air", Oxy-Fuel Issues for Glassmaking in the 90's Conference, Feb. 1997. [Published in Conference Proceedings]. (Invited)
14. Mathur, V.K., Tsao, S., Tomellini, S., "Air Separation by Thermal Swing Adsorption Process", AIChE Annual Meeting, Los Angeles, CA, Nov. 1997 [Topical Conference on Separation Science and Technologies, Special Supplement to the Meeting, Preprint].
15. McLarnon, C.R., Mathur, V.K., "NO_x and SO_x Removal by Barrier Discharge Process", Diesel Engine Emission Reduction Workshop, U.S. Department of Energy, Castine, ME, July, 1999. [Paper published in Proceedings].
16. Chadda, A., Tomellini, S., Mathur, V.K., "Chemicals in Temperature Swing Adsorption Process for Air Separation", Annual AIChE Meeting, Dallas, TX, Nov. 1999. [Published in Topical Conference Proceedings - Separation Science and Technology]

17. Chen, Z., Carlton, J., Golden, C., McLarnon, C.R., Mathur, V.K., "Barrier Discharge Process for Pollution Control", Spring National AIChE Meeting, Atlanta, GA, March 2000 [Published in Topical Conference Proceedings - Recent Developments in Air Pollution Control].
18. Chen, Z., Carlton, J., Golden, C., McLarnon, C.R., Mathur, V.K., "Barrier Discharge Process Development for Air Pollution Control", Third Joint China/USA Chemical Engineering Conference, Beijing, China, Sept. 2000. [Paper published in Proceedings: third Joint China/USA, Chemical Eng. Conf., Vol II, page 07-131, Beijing, China, Sept. 2000].
19. Mathur, V.K., "Coal is a more environmentally friendly fuel than you think", OP-ED, The Union Leader, Manchester, NH, March 13, 2002; "The prospect of clean energy from coal", Guest Commentary, Foster's Sunday Citizen, NH, March 31, 2003.
20. Mathur, V.K., "Bush plan encourages better technology to curb pollution", Foster's Daily Democrat, NH, Nov. 16, 2002.
21. Mathur, V.K. "The Future of Hydrogen and Fuel Cell Technology", NHFORUM, Published by the American Inst. of Architects, NH, Feb., 2004.
22. Mathur, V.K., "U.S. Government responsible for MtBE contamination", Foster's Daily Democrat, May 8, 2004.
23. Mathur, V.K., "MtBE manufacturers deserve limited liability from lawsuits", The Union Leader, April 5, 2004.
24. Mathur, V.K., "President's Clear Skies Initiative is Best Way to Cut Pollution", The Union Leader, March 10, 2005.
25. Mathur, V.K. "To prevent fuel shortages, we must drill for more" (opinion), NH Union Leader, Sept. 2005.
26. Mathur, V.K. "Domestic oil, gas resources must be explored" (viewpoint), Foster Daily Democrat, Sept. 2005.
27. Mathur, V.K. "Ethanol: Misconceptions, Misunderstandings" (viewpoint), Foster Daily Democrat, Aug. 2007.
28. Mathur, V.K. "New Plan to cut pollution would make energy more costly", NH Union Leader, Jan. 17, 2008.

29. Mathur, V.K. "A double-barreled U.S. attack on Canadian oil sands", the Keene Sentinel, June 23, 2008.
30. Mathur, V.K. "We need to make full use of all domestic energy sources", the Keene Sentinel, October 10, 2008.
31. Mathur, V.K. "Cap- and trade brings high taxes, low results", NH Union Leader, April 17, 2009

Presentations

1. Mathur, V.K., Strunk, M.R., "Study of the Evaporation of Aqueous Solutions Using a Simplified Reactor Design Approach", Paper presented at the annual general meeting of the Indian Institute of Chemical Engineers, January, 1964.
2. Mathur, V.K., Maddox, R.M., "Calculating Density of Saturated Hydrocarbon Mixtures", Paper presented at 68th National Meeting of AIChE in Houston, Texas, March 1971. (A computer package program based on the above work has been released).
3. Mathur, V.K., Wellek, R.M., "Effect of Axial Dispersion of Interphase Mass Transfer in Packed Absorption Columns", Paper presented at the 70th National Meeting of AIChE, Atlantic City, August 1971.
4. Mull, I.D., Singh, P.C., Mathur, V.K., "Effect of Height on Axial Dispersion in Packed Columns", Paper presented at the Annual Meeting of Indian Institute of Chemical Engineers, Madras, Dec. 1973.
5. Singh, J.D., Mathur, V.K., "Estimation of Thermal Conductivity of Liquefied Hydrocarbons", Paper presented at the National AIChE Meeting, Los Angeles, November 1975.
6. Kumar, S., Upadhyay, S.M., Mathur, V.K., "Mass Transport for Spheres in Dumped Packed Beds", Paper presented at the Third National Heat and Mass Transfer Conf., Bombay (India), Dec. 1975.
7. Stetson, D.C., Mathur, V.K., "Catalytic Coal Liquefaction by Carbon Monoxide and Steam", Presented at the Symposium "Catalysis of Coal Conversion Processes", ACS-CIC Joint Meeting, Montreal, May 1977.
8. Caughey, R.A., Mathur, V.K., "Fuel Gas from Wood Waste", Presented at the AIChE 85th National Meeting, Philadelphia, PA, June 1978.

9. O'Leary, M., Stetson, D.C., Mathur, V.K., "Catalytic Coal Liquefaction by CO-H₂O", Presented at the AIChE 85th National Meeting, Philadelphia, PA, June 1978.
10. Lakshmanan, S.M., Manasse, F.K., Mathur, V.K., "Economics and Technology of Solar Gasification", Presented at the Solar Fuel Workshop, Albuquerque, NM, Nov. 1979.
11. Lakshmanan, S.M., Manasse, F.K., Mathur, V.K., "Production of Fuels from High Temperature Solar Thermal Systems - Economic Analysis", Presented at the 72nd AIChE Annual Meeting, San Francisco, CA, Nov. 1979.
12. Mathur, V.K., "Wood and Sludge as a Source of Energy in the Pulp and Paper Industry", ME - NH TAPPI Meeting, Durham, NH, Jan., 1980.
13. Guttal, V.B., Mathur, V.K., "Catalytic Coal Conversion to Non-Polluting Fuel Oil Using Carbon Monoxide and Steam", Presented at the AIChE-IMI Meeting, Acapulco, Mexico, Oct. 15-17, 1980.
14. Mathur, V.K., Lakshmanan, S.M., Manasse, F.K., Venkataramanan, V., Breault, R.W., "A Continuous Two Stage Solar Gasification System", Presented at the AIChE 73rd Annual Meeting, Chicago, Ill., Nov. 16-20, 1980.
15. Lakshmanan, S.M., Manasse, F.K., Mathur, V.K., "Solar Enhance Coal Gasification Using High Temperature Solar Energy", Presented at the National Solar Energy Convention, Annamalainager, India, Dec. 1980.
16. Mathur, V.K., "Disposable Catalysts in Coal Liquefaction", Poster presentation at the Gordon Research Conference, Plymouth, NH, 1981.
17. Mathur, V.K., Manasse, F.K., Lakshmanan, S.M., "Fuels and Chemicals made from Solar Energy", Presented at the Second World Congress of Chemical Engineering, Montreal, Canada, Oct. 1981.
18. Mathur, V.K., Breault, R.W., Lakshmanan, S.M., "Synthesis Gas Production Using 'Sun Gas' Process", Presented at the AIChE National Meeting, Orlando, Florida, Feb., 1982.
19. Mathur, V.K., Venkataramanan, V., "Mineral Ores as Disposable Catalysts in Coal Liquefaction", ACS 183rd National Meeting, Las Vegas, Vol. 27, 1, 1982.
20. Mathur, V.K., Breault, R.W., Lakshmanan, S.M., "Economic and Technical Feasibility of UNH Solar Hybrid Coal Gasification Process", Presented at the 1982 Annual Technical Meeting, Solar Thermal Test Facilities Users Association, Houston, Texas, April, 1982.

21. Mathur, V.K., Fakoukakis, E.P., Ruether, J.A., "Coal Liquefaction Using Ore Catalysts", Presented at the Annual AIChE Meeting, Los Angeles, CA, Nov., 1982.
22. Breault, R.W., Mathur, V.K., "Two Phase Flow in a Loop Fluidized Bed", Presented Third-Multi-Phase Flow and Heat Transfer Symposium Workshop, Miami Beach, Florida, April, 1983.
23. Mathur, V.K., Ganguly, S., Chaudhary, S., "Hybrid Solar Coal Gasification", Presented at the American Solar Energy Society 83rd Annual Meeting, Minneapolis, Minnesota, June, 1983.
24. Mathur, V.K., Reddy Karri, S.B., "Disposable Catalysts in Two-Stage Coal Liquefaction," Poster presentation at the Gordon Research Conference, New Hampton, NH, 1983.
25. Reddy Karri, S.B., Mathur, V.K., "Disposable Catalysts in Two-Stage Coal Liquefaction", Presented at the ACS 186th National Meeting, Washington, D.C., August. 1983.
26. Mathur, V.K., Chaudhary, S., "Solar Coal Gasification," Presented at the International Seminar on Solar Thermal Heat Production and Solar Fuels and Chemicals, DFVLR, Stuttgart, W. Germany, Oct., 1983.
27. Mathur, V.K., "Production of Fuels and Chemicals Using Solar Energy", Solar Thermal Research Workshop, Kansas City, MO, Oct. 1984. (Invited Paper)
28. Mathur, V.K., Breault, R.B., "Coal Combustion in a Loop Fluidized Bed", Presented at the 34rd Mediterranean Congress on Chemical Engineering, Barcelona, Spain, Nov. 1984.
29. Mathur, V.K., "Ore Catalysts in Two-Stage Coal Liquefaction", Poster presentation at the Gordon Research Conference, New Hampton, NH 1985.
30. Breault, R.B., Mathur, V.K., "Pressure Drop Modeling of a Circulating High Velocity Fluidized Bed System", AIChE Annual Meeting, Chicago, IL, Nov. 1985.
31. Mathur, V.K., Breault, R.B., "Fundamental Studies of Pressure Drop in High Velocity Fluidization", AIChE Annual Meeting, Chicago, IL, Nov. 1985.
32. Talukdar, J., Wong, E.H., Mathur, V.K., "Solar Energy for Caprolactam Production", World Congress III of Chemical Engineering, Tokyo, Japan, Sept. 1986.

33. Mathur, V.K., Govindarajan, U, "Photothermochemical Conversion", Solar Thermal Energy Symposium, U.S. Dept. of Energy, Solar Energy Research Institute, Golden, CO., Feb 19, 1987. (Invited Paper)
34. Reddy Karri, S.B., Mathur, V.K., "Two Phase Flow Regime Map Predictions Under Micro-Gravity", AIChE National Meeting, New York, Nov. 1987.
35. Reddy Karri, S.B., Mathur, V.K., "Measurement of Interfacial Tension of Equal Density Immiscible Fluids", AIChE National Meeting, New York, Nov. 1987.
36. Reddy Karri, S.B., Mathur, V.K., "Study of Simulated Micro-Gravity Vapor-Liquid Flow Regimes", AIChE National Meeting, Houston, TX, April, 1989.
37. Mathur, V.K., "Electro-Catalytic Reduction of Nitrogen Oxides", Fifth Annual Coal Preparation, Utilization, and Environmental Control Contractors Conference, U.S. Dept. of Energy, Pittsburgh, PA, July 31, 1989.
38. Mohamed, A.R., Mathur, V.K., "Hydrogenation of Residual Oil Using a Dispersed Water Soluble Molybdate Catalyst", AIChE Annual Meeting, San Francisco, CA, Nov. 1989.
39. O'Hearn, J.D., Mathur, V.K., "Two Phase Flow in Small Diameter Tubes Under Microgravity", AIChE National Meeting, Orlando, FL, March, 1990.
40. McLarnon, C.R., Someshwar, A.V., Mathur, V.K., "Electro-Catalytic Reduction of Nitrogen Oxides", AIChE National Meeting, San Diego, CA, Aug. 19-23, 1990.
41. Mathur, V.K., "Recent Advances in Circulating Fluidizing Beds", Presented at the Indian Chem. Eng. Cong., India, December 28, 1990.
42. McLarnon, C.R., Mathur, V.K., "Corona-Catalytic Reduction of Nitrogen Oxides", Presented at the Indian Chem. Eng. Cong., India, December 28, 1990.
43. Bartlett, K.R., Pangestu, S., Mathur, V.K., "Heat Transfer in a Lean Phase Circulating Fluidized Bed", Presented at Indian Chem. Eng. Cong., India, December 28, 1990.
44. McLarnon, C.R., Mathur, V.K., "Corono-Catalytic Reduction of Nitrogen Oxides", Presented at the AIChE National Meeting (Environmental Division), Houston, TX, April 7-11, 1991.
45. Mathur, V.K., McLarnon, C., "An Advanced Corona Discharge NO_x Control System", AIChE National Meeting, New Orleans, LA, March 30, 1992.

46. Mathur, V.K., McLarnon, C.R., "A Corona Based NO_x Control System", AIChE National Meeting, Minneapolis, MN, Aug. 9, 1992.
48. Mathur, V.K., Chidgopkar, V., "Solar Photocatalytic Decomposition of Aqueous Chloroform, Monochlorobenzene, and Dichlorobenzene, AIChE Annual Meeting, Miami, FL, Nov. 6, 1992.
49. Mathur, V.K. et al., "Reaction Kinetics for Flue Gas Treatment of NO_x", NATO Advanced Research Workshop, Cambridge University, England, Sept. 1992.
50. Mohamed, A.R., Salahuddin, M.A., Mathur, V.K., "Rapid Hydrolysis of Resid Oil", AIChE National Meeting, Houston, TX, March, 1993.
51. Talukdar, J., Mathur, V.K., "Bubble Dynamics of Air-Fine Particle-Course Particle Ternary System, AIChE Annual Meeting, St. Louis, MO, Nov. 1993.
52. Berge, M., David, J., Park, S., Planalp, R., Mathur, V.K., Jain, R.C., "Thermal Swing Absorption Process for Oxygen Production", AIChE National Meeting, Atlanta, GA, April 1994.
53. Howell, D., Mathur, V.K., "Ceramic Filters for Hot Gas Filtration", AIChE National Meeting, Boston, MA, Aug. 1995.
54. McLarnon, C.R., Mathur, V.K., "Corona Discharge NO_x Control Process", AIChE National Meeting, Boston, MA, Aug. 1995.
55. Mathur, V.K., David, J., "Technical and Economic Evaluation for the Recovery of Pure Freon-12 and Freon-22 from Their Mixtures", AIChE Annual Meeting, Miami Beach, FL, Nov. 1995.
56. Golden, C., Mathur, V.K., "Barrier Discharge Technique for Destruction of CFCs", AIChE Annual Meeting, Los Angeles, CA, Nov. 1997.
57. Chadda, A., Tomellini S., Mathur, V.K., "Chemical Stability in Thermal Swing Adsorption Process for Air Separation", Annual AIChE Meeting, Los Angeles, CA, Nov. 2000.
58. Zguris, Z., Kudirka, F., Mathur, V.K., "Evacuated Cryogenic Insulations - II", National Heat Transfer Conference, Anaheim, CA, June 2001.
59. Chen, Z., Mathur, V.K., "Reaction Engineering of NO_x Removal in a Barrier Discharge Reactor", Annual AIChE Meeting, Reno, NV, Nov. 2001.

60. Mathur, V.K., "NO_x Removal by Barrier Discharge Process", Banaras University, Varanasi, India, Jan. 2002. (Invited Paper).

61. Mathur, V.K. and Chen, Z. "Mercury Oxidization in Non-Thermal Barrier Discharge System", *University Coal Research Contractor Review Meeting Proceedings "Abstracts and Research Accomplishments"*, U.S. DOE-NETL, pp. 15-16, Pittsburgh, PA, June 4-5, 2002.
62. Mathur, V.K. and Crawford, J. "Fuel Cell Technology and Its Global Impact", Invited Lecturer, Indian Chemical Engineering Congress, Bhubneswar, India, Dec. 2003. (Invited Paper). (Published in Proceedings).
63. Dalton, J., Kudirka, F., Mathur, V.K. "Aerogel as a Super Insulation", Spring AIChE Meeting, New Orleans, LA, April, 2004.
64. Mathur, V.K., Xie, Xiaofeng, Hamblin, Toby, "Materials: Key to Hydrogen Economy", Spring AIChE Meeting, New Orleans, LA, April, 2004.
65. Mathur, V.K., Kappula, K.S., Johnston, M., "Study of Gas Diffusion Layer in PEM Fuel Cell", Annual AIChE Meeting, Austin, TX, Nov., 2004.
66. Mathur, V.K., Chen, Z., Mannava, P.C., "Mercury Removal in Fuel Gases by Dielectric Barrier Discharge Technique", Annual AIChE Meeting, Austin, TX, Nov., 2004.
67. Mathur, V.K., Draper, R., "Promises and Problems of Fuel Cell Industry", Annual AIChE Meeting, Austin, TX, Nov., 2004.
68. Mathur, V.K., "Dielectric Barrier Discharge Technology for Pollution Control of Power Plants, Tsinghua University, Beijing, China, Jan. 8, 2005.
69. Mathur, V.K., "Barrier Discharge Technology in Air Pollution Control", University of Missouri-Rolla, March, 2005 (Invited Lecture).
70. Mathur, V.K., Crawford, J., Xie, Xiaofeng, "Role of Carbon in Fuel Cell Systems", Spring AIChE Meeting, Atlanta, GA, April, 2005.
71. Mathur, V.K., Chen, Z., Mannava, P.C.D., "Remediation of Multiple Gaseous Pollutants by Barrier Discharge Technique", 7th World Congress of Chemical Engineering, Glasgow, Scotland, July 2005.
72. Mathur, V.K., "Control of Multiple Gaseous Pollutants from Coal-Fired Utility Boilers by Barrier Discharge Techniques", The First China-USA Workshop (Chemical Engineering Faculty Research Collaborations), Beijing, China, August 2005.

73. Mathur, V.K., "Promises and Problems of PEM Fuel Cell Industry", IChE Meeting, New Delhi, India, December 2005 (Invited Lecture).
74. Mathur, V.K., "Control of NO_x, SO_x and Hg by Barrier Discharge Technique", The Second China-USA Workshop (Chemical Engineering Faculty Research Collaborations), Durham, NH, August 2006.
75. Mathur, V.K., "Study of Gas Diffusion Layer in DMFC", The Second China-USA Workshop (Chemical Engineering Faculty Research Collaborations), Durham, NH, August 2006.
76. Mathur, V.K., Maltzie, S., Mann, T., "Methanol as an Alternate Fuel", Science, Technology and Energy Committee, State of New Hampshire, Sept. 2006.
77. Mathur, V.K. "Engineering Education in the 21st Century", BHU International Meet, Varanasi, India, Jan. 2007.
78. Mathur, V.K., Morgan, J., Grant, W., "Study of Gas Diffusion Layer in Direct Methanol Fuel Cells", Spring AIChE Meeting, Houston, TX, April, 2007.
79. Mathur, V.K. "Remediation of Multiple Gaseous Pollutants from Coal Fired Utility Boiler by Barrier Discharge Technique". The Third China-USA Workshop" (Energy and Environment), Tianjin, China, Feb. 2008.
80. Mathur, V.K., "U.S. Energy Scenario in the 21st Century", 2008 UNH Energy Conference, June, 2008 (Invited Lecture).
81. Mathur, V.K., "Remediation of Multiple Gaseous Pollutant from Coal-Fired Utility Boilers", Invited Speaker, Indian Institute of Chemical Engineers Annual Meeting (CHEMCON), Chandigarh, India, Dec. 29, 2008 (Invited Lecture).
82. Shaoguang Feng, Yuming Shang, Xiaofeng Xie, Jingming Xu, V.K. Mathur, "Novel method for preparation of Ion crosslinked sulfonated poly(arylene ether sulfone)/polybenzimidazole composite membranes via in-site polymerization", Int. Conf. on Applied Energy, Hong Kong, January 2009.
83. Mathur, V. K., Morgan, J., "Gas Diffusion Layers in Direct Methanol Fuel Cells", Spring AIChE Meeting, Tampa, FL, April 2009.

Patents

1. Mathur, V.K., Nair, C.S.B., Basu, A., Manufacture of Phthalic Anhydride by the Vapor-Phase Oxidation of Coal-Tar Neutral Oils using a Fluidized Catalyst, Indian Patent 54,960, 1957 (Chemistry of Coal Utilization (supp. volume) Ed. H.H. Lowry, John Wiley and Sons, 566, 1963).
2. Agrawal, V.C., Mathur, V.K., Manufacture of "Filter Aids for Lubricating Oils from Indian Diatomaceous Clays," Indian Patent, 1965.
3. McLarnon, C.R., Mathur, V.K., "Novel N_{ox} Reduction by Sulfur Tolerant Coronal-Catalytic Apparatus and Method", U.S. Patent 5,147,516, Sept. 15, 1992; 5,240,575, Aug. 31, 1993 (jointly with TECOGEN, Waltham, MA).

[Based on this work a NO_x , SO_2 and Hg removal plant processing 150,000 cu ft/min of flue gases from a 50 Mw_e power plant is on stream sine Jan. 2004 at Berger, Ohio. The company involved is Powerspan Inc. located at New Durham, NH only about 20 miles from here. First-Energy Generation Corp. plans to install an electro-catalytic oxidation system on a 215 MW unit 4 of its Bay Shore plant, in Oregon, Ohio at an approximate cost of \$100 million. The Vice President and the key person is Dr. Chris McLarnon who worked for his M.S. and Ph.D. on this project with me. It is not too often when research work done at a university gets commercialized.]

4. Mathur, V.K. and Frank Kudirka, "Insulated Vessel for Storing Cold Fluids and Insulation Method", U.S. Patent Publication No. US2003/0029877A1, Feb. 13, 2003.

Technical Reports

1. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Experimental Techniques for Measuring Viscosity of Liquids", Liquid Viscosity, Report No. 1, LVR-1, Fluid Properties Research, Inc., School of Chemical Engineering, Oklahoma State University, Stillwater, OK, November 1973.
2. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Experimental Measurement of Liquid Viscosity for Pure Components," Liquid Viscosity, Report No. 2, LVR-2, *ibid.*
3. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Experimental Measurements of Viscosity for Liquid Mixtures", Liquid Viscosity, Report No. 3, LVR-3, *ibid.*
4. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Correlations for Estimating Liquid Viscosity for Pure Components and/or Mixtures", Liquid Viscosity, Report No. 3, LVR-4, *ibid.*

5. Mathur, V.K., Erbar, J.H., Maddox, R.N., "Calculating Density of Saturated Hydrocarbon Mixtures, Liquid Density, Report No. 1, LDR-1, *ibid.*
6. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Experimental Density for Pure Liquids", Liquid Density, Report No. 3, LDR-1, *ibid.*
7. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Experimental Density for Defined Liquid Mixtures", Liquid Density, Report No. 4, LDR-4, *ibid.*
8. Mathur, V.K., McCoy, D.D., Maddox, R.N., "Correlations for Estimating the Liquid Density of Pure Compounds and/or Mixtures," Liquid Density, Report No. 5, LDR-5, *ibid.*
9. Boyle, J.R., Mathur, V.K., "Evaluation of the Eagle (large) Wood Stove", Submitted to Hydroform Product Corporation, Rochester, NH, Dec. 1977.
10. Wyman, C.E., Mathur, V.K., Moore, D.A., "Review of Process for Suspension Polymerization of N-545A5 Polymer," Submitted to Nashua Corporation, Nashua, NH, Feb. 1978.
11. Boyle, J.R., Mathur, V.K., "Evaluation of New Hampshire Wood Stoves," Submitted to New Hampshire Wood Stove, Plymouth, NH, Sept. 1978.
12. Mathur, V.K., "Kinetics of Coal Hydrogenation by Hydrogen and CO-H₂," Submitted to Oak Ridge Associated Universities, Oak Ridge, TN, Oct, 1978.
13. Mathur, V.K., Pelton, P. "Study of the Utilization of Process Paper Sludge", Submitted to Garden State Paper Company, Inc., Saddlebrook, NJ, March 1979.
14. Lakshmanan, S.M., Mathur, V.K., "Manufacture of Coal Logs Using Anthracite Coal," Submitted to Northeast - Damac Paramedicas, Salem, NH, June 1979.
15. Mathur, V.K., "An Optimization Study for a Moving Grate, Incline Bed, Close Couple Wood Gasifier and Boiler," Submitted to Forest Fuels, Inc., Antrim, NH, Sept. 1979.
16. Mathur, V.K., "A Report on Alternate Fuels Manufactured from High Temperature Solar Thermal Systems", Prepared for U.S. Department of Energy, Division of Solar Energy Technology, Washington, D.C., 1980.
17. Mathur, V.K., "Disposable Catalysts in Coal Liquefaction", Submitted to Oak Ridge Associated Universities, Oak Ridge, TN, October 1980.

18. Mathur, V.K., "Liquefaction of Bituminous Coals Using Disposal Ore Catalysts and Hydrogen", Prepared for U.S. Department of Energy, Pittsburgh Energy Technology Center, Pittsburgh (PA), Aug. 1981.
19. Mathur, V.K., "Alternate Fuels Manufactured from High Temperature Solar Thermal Systems", Prepared for U.S. Department of Energy - Division of Solar Thermal Energy Technology, Washington, D.C., 1981.
20. Mathur, V.K., "Liquefaction of Bituminous Coals Using Disposable Ore Catalysts and Hydrogen", Prepared for U.S. Department of Energy, Pittsburgh Energy Technology Center, Pittsburgh (PA), Nov. 1981.
21. Mathur, V.K., "Alternate Fuels Manufactured form High Temperature Solar Thermal Systems", Prepared for U.S. Department of Energy - Division of Solar Thermal Systems, Washington, DC, July, 1982.
22. Mathur, V.K., "Liquefaction of Bituminous Coals Using Disposable Ore Catalysts and Hydrogen", Prepared for U.S. Department of Energy, Pittsburgh Energy Technology Center, Pittsburgh, PA, Sept. 1982.
23. Mathur, V.K., "Catalytic Coal Gasification", Submitted to Oak Ridge Associated Universities, Oak Ridge, TN, Aug. 1982.
24. Mathur, V.K., "Alternate Fuels Manufactured from High Temperature Solar Thermal System," Prepared for U.S. Department of Energy - Division of Solar Thermal Systems, Washington, D.C., Contract No. DE-AC03-71067, Feb. 1984.
25. Mathur, V.K., "Pressurized High Velocity Fluidized-Bed Combustion Modeling" Prepared for U.S. Department of Energy-(Morgantown Energy Technology Center), Contract No. DE-AC21-82 MC 19372, May, 1984.
26. Mathur, V.K., "Solar Photochemical Production of Fuels and Chemicals" Prepared for Solar Energy Research Institute, Golden, Co., U.S. Department of Energy, Contract No. XX-56-05026-1, March 1985.
27. Ibid, XX-5-05026-2, August, 1985.
28. Ibid, XX-5-05026-3, February, 1986.
29. Ibid, XX-5-05026-4, August, 1986.
30. Ibid, XX-5-05026, June, 1988.

31. Talukdar, J., Mathur, V.K., "Solar detoxification of TCE aqueous solution, pink water, dye contaminated water", Report submitted to Solar Energy Research Institute, Golden, CO, Aug. 1988.
32. Mathur, V.K., "Electro-Catalytic Reduction of Nitrogen Oxides", Topical report submitted to Pittsburgh Energy Technology Center, Pittsburgh, PA, No. DOE/PETC-79852-2, Jan., 1989.
33. Mathur, V.K., "Solar Photochemical Production of Fuels and Chemicals, Prepared for Solar Energy Research Institute, Golden, CO; U.S. Department of Energy, xx-5-05026-5, Sept., 1990.
34. Mathur, V.K., "Electro-Catalytic Reduction of Nitrogen Oxides", Final technical report submitted to Pittsburgh Energy Technology Center, Pittsburgh, PA, No. DOE/PETC-79852-3, Oct., 1990.
35. Mathur, V.K., Talukdar, J., "Large Particle Fluidization", Technical Report submitted to Riley Research Center, Worcester, MA, Sept., 1991.
36. Mathur, V.K., "Thermal Swing Absorption Process for Oxygen Separation from Air", Technical report (DOE/CE/40927-1) submitted to U.S. Dept. of Energy, Washington, D.C., April, 1991.
37. Mathur, V.K., "Thermal Swing Absorption Process for Oxygen Separation from Air", Technical report (DOE/CE/40927-2) submitted to U.S. Dept. of Energy, Washington, D.C., March, 1994.
38. Mathur, V.K., "Economics of Freon Separation", submitted to ROE Corp., Newport, NH, Aug. 1994.
39. Mathur, V.K., "Thermal Swing Absorption Process for Oxygen Separation from Air", report submitted to U.S. Dept. of Energy, Washington, DC, DOE/CE/40927-3, Oct. 1995.
40. Mathur, V.K., "Vacuum Insulation of Liquefied Gas Storage Tanks", report submitted to Process Eng., Inc., Plaistow, NH 03865, May, 1996.
41. Mathur, V.K., "Thermal Swing Absorption Process for Oxygen Separation from Air", report submitted to U.S. Dept. of Energy, Washington, DC, DOE/CE/40927-4, Feb. 1997.
42. Mathur, V.K., "Vacuum Insulation of Liquefied Gas Storage Tanks", report submitted to Process Eng., Plaistow, NH 03865, June, 1997.

43. Mathur, V.K., "Vacuum Insulation of Liquefied Gas Storage Tanks", report submitted to Process Engineering, Plaistow, NH 03865, May, 1998.
44. Mathur, V.K., "Development and Evaluation of Hot Gas Filters", report submitted to Techniweave, Inc., Rochester, NH 03867, May, 1998.
45. Mathur, V.K., "Turpentine Oil Recovery and TRS Emission Reduction", final report submitted to Crown Vantage, 650 Main Street, Berlin, NH 03570, Aug. 1999.
46. Mathur, V.K., "Electrically Induced Chemical Reactions in a Barrier Discharge Reactor", final report submitted to Zero Emissions Technology, Inc., New Durham, NH 03855, Aug. 1999.
47. Mathur, V.K. "Cryogenic Insulation Materials", interim report submitted to Process Engineering, Plaistow, NH 03865, Nov. 1999.
48. Mathur, V.K., Characterization and Evaluation of Gas Diffusion Layer, A.I. Techniweave, Inc., Nov. 2002.
49. Kowal, M.M., Mathur, V.K., "Development and Characterization of Ceramic Braided Rope Seals", interim report submitted to Albany International Techniweave, Rochester, NH, March, 2003.
50. Mathur, V.K., "Mercury Oxidization in Non-Thermal Plasma Barrier Discharge System, Report submitted to NREL, U.S. DOE, DE-FG26-01-NT41289, Feb. 2003.
51. Dalton, J., Mathur, V.K., "Aerogel as a Super Insulation", Report submitted to Chart Industries, Plaistow, NH, Sept. 2003.
52. Mathur, V.K., Morgan, J., Banfield, R., "Gas Diffusion Layer in DMFC", Report submitted to Ballard Material Products, Lowell, MA, July 2006.

Awards and Recognitions

1. Technical Association of the Pulp and Paper - NH-ME Section 1981 Annual Award for the Paper-Coal, Its Promises and Problems.
2. UNH annual cash award for outstanding research and teaching, 1979, 1980, 1982. (Awards were made for these years only).

3. Included in the Directory of World Researchers 1980's, Published by the International Technical Information Institute, Tokyo, Japan.
4. Included in the American Men and Women of Science, 1992-93, Published by R.R. Bowker, New Providence, NJ.
5. Industrial Research and Consulting Center (IRCC), research and development award for significant contributions (Office of VP for Research and Public Service) - \$30,000, May, 1992.
6. Included in the National register's Who's Who in Executive and Professionals, New York, NY 10005 (2005).
7. Selected for membership in the Academy of Chemical Engineers at the University of Missouri-Rolla. Academy is composed of alumni "who are successful in their professions and who epitomize industrial and civic leadership skills of highest repute" (April, 2005).
8. Elected as a Fellow of the American Institute of Chemical Engineers. "...This honor testifies to the high esteem in which you are held by your peers. ... We would like to see you at the Fellows Breakfast. You will have the opportunity to be acknowledged amongst your peers as your name will be announced and you will be asked to stand for this great achievement". (Nov. 2005). This is the highest honor a member can hope for.
9. Received Transport and Energy Process Division Award, AIChE for contributions to the Chemical Engineering Profession and service to the Division, Nov. 2006.

Membership of Scientific and Professional Societies

1. American Institute of Chemical Engineers
 - Environmental Division
 - Forest Product Division
 - Fuels and Petrochemicals Division
 - Transport and Energy Processes Division
 - Sustainable Engineering Forum (Charter Member)

2. Air and Waste Management Association, Pittsburgh, PA
3. Phi Kappa Phi
4. Technical Association of Paper and Pulp Association, (TAPPI), NH - ME Section
(Member, Executive Committee)
5. American Chemical Society (ACS)
6. Paper Institute Management Association (PIMA)

M.S. Theses Supervised

1. A correlation for Thermal Conductivity for Pure Liquid Hydrocarbons
2. A correlation for Surface Tension for Hydrocarbon Mixtures
3. Catalytic Vapor-phase Oxidation of Toluene to Benzoic Acid
4. Effect of Height on Axial Dispersion in Packed Beds
5. Development of a Ultrafiltration Membrane for Selective Mass Transfer
6. Catalytic Liquefaction of Coal Using Carbon Monoxide and Steam
7. Kinetics of Coal Hydrogenation by Carbon Monoxide and Steam
8. Desulfurization of Coal by CO and Steam
9. Liquefaction of Coal Using Disposable Catalysts
10. Mineral Ores as Catalysts in Coal Liquefaction
11. Catalytic Vapor Phase Oxidation of Low Molecular Weight Hydrocarbons
12. Solar Gasification of Coal
13. Catalytic Coal Gasification Using Disposable Catalysts
14. Disposable Catalysts in Two Stage Liquefaction Process
15. Synthesis of Cyclohexanone Oxime Hydrochloride using Simulated Solar Radiation
16. Surface Tension Effect on Flow Transition in Horizontal Flow
17. Solvent Production by CLOSTRIDIUM BEIJERINCKII in a Biomass Recycling Fermentor
18. Effect of Pipe Diameter on Liquid-Vapor Flow Regimes in Micro-Gravity
19. Heat Transfer Coefficient in a Lean Phase Circulatory Fluidized Bed
20. Hydrogenation of Resid Oil Using Disposable Catalysts

21. Electro-Catalytic Reduction of Nitrogen Oxides
22. Heat Transfer in Circulating Fluidized Beds
23. Detoxification of Toxic Waste Water
24. Thermal Swing Process for Oxygen Separation from Air in Liquid Systems
25. Development of Hot Gas Filters
26. Barrier Discharge Technique for Destruction of CFC=s
27. Chemical Stability in Thermal Swing Process for Oxygen Separation
28. Evacuated Cryogenic Insulations
29. Development and Characterization of Braided Rope Seals
30. Aerogels as Evacuated Cyrogenic Insulation Materials
31. Mercury Oxidation Under Non-Thermal Barrier Discharge
32. Study of Gas Diffusion Layer (GDL) in PEM Fuel Cells
33. Study of Gas Diffusion Layers (GDLs) in Direct Methanol Fuel Cells
34. Development of Ethanol catalysts for PEMFC (In Progress)

Ph.D. Theses Supervised

1. Natural Convection Heat Transfer from Solid Surfaces to Newtonian and Non-Newtonian Liquids – B.K.D. Agarwal
2. Particle-Fluid Mass Transfer in a Semi-Fluidized Bed – H.S. Rai
3. Mass Transfer in Solid-Liquid (Non-Newtonian) Systems in Packed and Fluidized Beds – Surendra Kumar
4. Pressurized High Velocity Fluidized-Bed Combustion Modeling – R.W. Breault

5. Liquid-Vapor Flow Regime Transition for Use in Design of Heat Transfer Loops in Spacecraft – S.B. Reddy Karri
6. Hydrodynamics of Large Particles in Circulating Fluidized Beds – J.Talukdar
7. Barrier Discharge Reduction of Nitrogen Oxides – C.R. McLarnon
8. Short Residence Time Hydrogenation of Coal – A.R. Mohamed
9. Nitric Oxide Reduction by Non-Thermal Plasma and Catalysis – Z. Chen

Research Associates (Post-Docs)

S.M. Lakshmanan
V. Govindarajan
S. Park

H. Yang
S. Bhatia

Undergraduate Activities

- (a) Undergraduate Students Research Involvement – See Appendix A
- (b) Classes and Laboratories Taught – See Appendix B

Service to Department, CEPS, UNH, State of New Hampshire, U.S.A. and International

The information provided is just about what can be considered under “public service” for P&T purposes in the College of Engineering and Physical Sciences.

Department of Chemical Engineering CEPS Level

- (a) Represented the department on various CEPS and University committees.
- (b) Speaker at high schools.
- (c) Faculty Advisor—TAPPI ME-NH Local Section (Technical Association of Pulp and Paper Industries) – 1975-1983.
- (d) Faculty Advisor—TAPPI Student Chapter 1983-Present.
- (e) Brought endowment funds from TAPPI local section to provide scholarships to undergraduate students – \$20,000
- (f) Brings funding of >\$1,000/year from TAPPI local section to operate TAPPI student chapter.

CEPS (College of Engineering and Physical Sciences) Level

- (a) Member, Rules Committee, 2006-2008
- (b) Chair, Curriculum and Academic Planning Committee – 1998-2003, 2008-2009.
- (c) Member, Curriculum and Academic Planning Committee – 1975-1977, 1993-1998, 2003-2004.
- (d) Chair, P and T Committee, 2002-2003.
- (e) Member, P and T Committee, 1981-1983, 1991-1993, 2001-2003.
- (f) Chairman, Waite Professorship Award Committee, 1995-1996.
- (g) Member, Ad Hoc Personal Computer Committee, 1984-1985.
- (h) Member, Langelier Scholarship Award Committee, 1987-.

- (i) Member, ENE Program Committee, 2000-.
- (j) Member, Study Abroad Committee, 1993-2003.
- (k) Member, Rules Committee, 1978-1979.

University of New Hampshire Level

- I.
 - (a) Member, Faculty Awards Selection Committee, 1998-2004.
 - (b) UNH Academic Senate, 2003 - 2005, (Students Affairs Committee, Academic Affairs Committee), 1976-1977, 1977-1978 (Calendar & Curriculum Committee), 1982-1983 (Academic Standards Committee), 1983-1984 (one semester).
 - (c) Member, UNH Chemical Safety Committee, 2003- .
 - (d) Member, CEI Working Group, Office of Sustainability Program UNH, 2001- .
 - (e) Member, Ad Hoc Committee – President Handler’s Reception, 1979.
 - (f) Advisor, International Students Association, 1977-1978, 1978-1979.
 - (g) Parents Weekend Speaker, 1988.
 - (h) Member, Celebration First Century Night, October 1993.
 - (i) Member, Speakers Bureau (Multi-year).
- II. Speaker at the Legislators’ Day at UNH on the linkage between private industry and UNH, April, 1995.

State of New Hampshire Level

Most of my work at the State level has been to provide technical help to small industries that have no laboratory facilities or expert technical staff to solve their problems. The support for this work is provided through UNH (CIID) or State of NH/UNH (NHIRC) programs.

(a) **Assistance to Industry**

Ballard Material Products, Lowell, MA
Northeast, Damac Paramedics, Inc., NH*
Public Service Company, NH*
AETA Corporation, Dover, NH*
Forest Fuels, Marlborough, NH*
ROE Corporation, NH
Techniweave, Rochester, NH*
Process Engineering, Plaistow, NH*
Zero Emissions Technology, Inc., New Durham, NH*
Crown Vantage Co., Berlin, NH*
RDF Corporation, Hudson, NH*
Alexandria Power Associates, Bristol, NH*
White Mountain Wood Products, Plymouth, NH*
Garden State Paper Company, NJ
Family Partnership, MA
Riley Stoker, Worcester, MA
Tecogen, Inc., Waltham, MA
Robert Jawitz and Co., New Haven, CT

- (b) Member, Executive Committee, TAPPI ME-NH Local Section, 1975-.
- (c) Testimony before Public Utility Commission, NH on Fuel Adjustment Coal Refund (Docket No. DR 76-46), 1976.
- (d) Jury Duty, Strafford Superior Court, Dover, NH, 1986.
- (e) Member, Board of Directors, NH Association of Asian Indians, 1993;
Chairperson, 1994.

* through Center for Industrial and Institutional Development (CIID) and New Hampshire Industrial Center (NHIRC)

U. S. A. Level

Most of my service is to the professional societies, universities, funding agencies and technical journals.

(a) Officers Positions in Professional Societies:

Chair, Transport and Energy Processes Division, AIChE, New ork, 2007.

Member, AIChE National Program Committee (NPC), New York, NY, 1990-.
(By virtue of being Director and Area Chair)

1st Vice Chair, Transport and Energy Processes Div., AIChE, New York, 2006.

Director, Executive Board, “Transport and Energy Processes” Div., AIChE, New York, NY, 2003-. (Elected at U.S. level)

Area Chair, Alternative Energy and Fuel Cells (Group 7g), AIChE, 2003-. (Charter Member) (Selected at U.S. level)

Member, Spring Task Force, AIChE: Find ways and means to enhance participation at the AIChE meetings, particularly at the Spring meeting, improve dissemination of technical information, and increase cash flow available to AIChE, etc., 2003-.

Area Chairman, Solar Energy, (Group 7h), AIChE, New York, NY, 1990-2003.
(The Division has been reorganized and renamed.)

Conference Co-chair, Topical Conference. “Transport Processes in Emerging Energy Systems”, AIChE National Meeting, New Orleans, April, 2004. (Selected at U.S. level)

Conference Chair, Topical Conference. “Energy Efficiency for Sustainable Economy, AIChE National Meeting, Atlanta, GA, April, 2005 (Selected at U.S. level)

Chair, Transport and Energy Processes Division, AIChE, Year 2007

(b) Sessions Chaired: (Selected at U.S. level)

Chairman, Symposium on “Solar Chemicals and Reactors”, AIChE National Meeting, Denver, CO, August 21, 1988.

Chairman, Session on “Space Applications of Chemical Engineering”, AIChE National Meeting, Orlando, FL, March 19, 1990.

Chairman, Session on “Innovative Developments in Solar Energy Applications”, AIChE Annual Meeting, Miami, FL, November, 1992.

Chairman, Session on “Innovative Applications of Solar Energy”, 29th National Heat Transfer Conference, Atlanta, GA, Aug. 8, 1993.

Chairman, Session on “Thermo-Chemical Conversion of Biomass”, AIChE Annual Meeting, St. Louis, MO, Nov. 1993.

Chairman, Session on “Innovative Applications of Solar Energy”, 30th National Heat Transfer Conference, Portland, OR, Aug. 1995.

Co-chairman, Session on “Fundamentals of Fluidization and Fluid-Particle Systems”, AIChE Annual Meeting, Miami Beach, FL, Nov. 1995.

Chairman, Session on “Advances in Solar Energy Applications”, AIChE Annual Meeting, Los Angeles, CA, Nov. 1997.

Chairman, Session on “Heat Transfer and Fluids Aspects of Heat Exchangers”, National Heat Transfer Conference, Albuquerque, NM, Aug. 1999.

Chairman, Session on “Advances in Solar Energy”, National Heat Transfer Conference, Pittsburgh, PA, Aug. 2000.

Chairman, Session on “Cryogenics and Refrigeration”, National Heat Transfer Conference, Pittsburgh, PA, Aug. 2000.

Chairman, Session on “New Developments in Adsorption and Ion Exchange Processes”, Annual AIChE Meeting, Los Angeles, CA, Nov. 2000.

Chairman, Session on “Heat and Mass Transfer in Environmental and Renewable Energy Systems”, National Heat Transfer Conference, Anaheim, CA, June, 2001.

Chairman, Session on “Air Conditioning, Refrigeration, and Cryogenic Heat Transfer”, National Heat Transfer Conference, Anaheim, CA, June, 2001.

Chairman, Session I and II on “Alternate Energy Systems”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Co-Chairman, Session on “Combined Heat and Power in Process Industries”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Chairman, Session on “Hydrogen by Water Splitting Using Nuclear Energy”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Chairman, Session on “Hydrogen and Fuel Cell – Key to the Future Clean Energy”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Co-Chair, “Dedicated Session in Honor of Dr. K.J. Bell”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Chairman, Session on “Gasification of Biomass”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Chairman, Session on “Heat Pipes in Energy Systems and Waste Heat Utilization”, Spring AIChE Meeting, New Orleans, LA, April, 2004.

Chairman, Session I and II on “Renewable Energy Systems”, Annual AIChE Meeting, Austin, TX, Nov. 2004.

Co-Chair, Session on “Hydrogen Energy”, Annual AIChE Meeting, Austin, TX, Nov. 2004.

Chairman, Session I and II on “Renewable Energy Resources”, Spring AIChE Meeting, Atlanta, GA, April, 2005.

Chairman, Sessions on “Transport Phenomena and Renewable Energy Systems”, Annual AIChE Meeting, Cincinnati, OH, Nov., 2005.

Chairman, Sessions on “Advances in New Alternate Energy Sources”, Spring AIChE Meeting, Orlando, FL, April, 2006.

Chairman, Session on “Transport Processes in Energy Systems”, Annual AIChE Meeting, San Francisco, CA, November 2006.

Co-Chairman, Session on “Biodiesel Production via Alternate Routes”, Spring AIChE Meeting, Houston, TX, April, 2007.

Chairman, Session on “Recent Advances in Fuel Cell and Battery Technology”, Spring AIChE Meeting, Houston, TX, April, 2007.

Chairman, Session on “Transport Processes in Energy Systems I and II”, Annual AIChE Meeting, Salt Lake City, UT, Nov. 2007.

Chairman, Session on “Biodiesel Production, Purification and Byproducts Processing”, Spring AIChE Meeting, Tampa, FL, April 2009.

Chairman, Session on “Advances in Fuel Cell and Battery Technologies”, Spring AIChE Meeting, Tampa, FL, April 2009.

In addition, I am also a charter member of a just-created Sustainable Engineering Forum, AIChE. I have also organized as a co-chair and chair, a Topical Conference on Transport Processes in Emerging Energy System and Efficiency in Energy Processes, AIChE Spring Meeting, New Orleans, LA, April, 2004 and Orlando, FL, April 2005.

(c) Service to NSF, U. S. Department of Energy, etc. (only partial information listed):

NSF (Funding Panels)

- (i) Panel member—Engineering Research Equipment Grant (multi-year)
- (ii) Panel member—Professional Opportunities for Women in Research and Education (POWRE)
- (iii) Panel member—New Technology for Environmental Pollution Control
- (iv) Panel member—SBIR proposals
- (v) Others

U. S. DOE

- (i) Panel member—Support of Advance Coal Research by U. S. Colleges and Universities
- (ii) Panel Member, SBIR proposals

VIRENDRA K. MATHUR

Page 35

Petroleum Research Fund. (Funding agency sponsored by Petroleum Industry)

Evaluated individual proposals. Too numerous to list.

(d) Organized Workshops and Seminars

NSF Workshop: Unsteady State Transport in Separation Process – 1995

U. S. DOE Seminar Series on Energy Issues – 1979

(e) Papers reviewed for the following top rated journals:

(i) Industrial Engineering and Chemistry Research

(ii) American Institute of Chemical Engineers Journal

(iii) Canadian Journal of Chemical Engineering

(iv) Environmental Science and Technology

(v) Journal of Thermophysics and Heat Transfer

(vi) Chemical Engineering Journal

(vii) Journal of Environmental Engineering

and others....

Papers reviewed are too numerous to list.

International Public Service

- A. Workshop-1: Principal organizer of the First China-US workshop on “Sustainable Resources, Energy and Materials—A Challenge to Chemical Engineers” held in Beijing, China, Aug., 2005. (Funded by NSF).

NSF Narrative:

“This workshop is designed to focus on pollution avoidance/prevention and methodologies, to address research progress in mass transport and separations fundamentals and to highlight scientific and technological research with long-term impact on industrial applications. One very important objective of the workshop is to facilitate contacts between chemical

engineering academics in China and the USA in order that some collaborative efforts might ensue from the workshop.”

Workshop-2: Principal organizer of the Second US-China Workshop on “Fundamentals of Transport, Pollution and Energy Processes”, held in Durham, NH, USA, Aug. 2006 (Funded by NSF).

Workshop-3: Principal organizer of the Third US-China workshop on “Energy and Environment – Research Opportunities and Challenges to Chemical Engineers,” Jianjin, China, Feb. 2008 (Funded by NSF).

Workshop-4: Principal organizer of the First US-India workshop on “Fundamental of Transport, Energy and Environmental Processes,” New Delhi, India, Jan. 2010 (To be funded by NSF).

B. Organized Technical Sessions, World Chemical Engineering Congress, Melbourne, Australia, September, 2001.

C. Ph.D. Theses Evaluated (Partial List) (Selected by the concerned university):

(a) University of Roorkee, India – A. K. Roy, A. Mohanty, S. Hussain

(b) University of Sambalpur, India – R. K. Singh

(c) University of Ottawa, Canada – C. Ajaka

D. Member, Faculty Selection Committee, University of Malaysia, Kuala Lumpur, Malaysia (Multi-year) (Selected by the concerned university)

Funded Research and Development Projects (Total funding over \$2 million)

1. Study of the Utilization of Process Sludge, Garden State Paper Company, NJ (\$14,000)
2. An Optimization Study for a Moving Grate, Inclined Bed, Close Couple, Wood Gasifier and Boiler, Forest Fuels, NH (\$3,500)
3. Feasibility Study for the Production of Coal Logs, Northeast, Damac Paramedics Inc., NH (\$3,750)
4. Coal Power, Its Promises and Problems, Wood, Its Promises and Problems, Public Service Co., NH (sub-contract) (1980, \$5,200)

5. Research and Development for the Production of Coal Logs, Family Partnership, MA (1981-82, \$40,000)
6. Alternate Fuels Manufactured from High Temperature Solar Thermal Systems, U.S. Department of Energy (1973-83, \$310,000)
7. Liquefaction of Bituminous Coals Using Disposable Ore Catalysts - U.S. Department of Energy (1982, \$25,000)
8. Pressurized High Velocity Fluidized-Bed Combustion Modeling, U.S. Department of Energy (1982-84, \$42,000)
9. Solar Photochemical Production of Fuels and Chemicals, U.S. Dept. of Energy (Solar Energy Research Institute) (1985-88, \$139,000))
10. Liquid-Vapor Flow Regime Transition for Use in Design of Heat Transfer Loops in Spacecraft, U.S. Department of Defense, (Subcontract) (1986-88, \$66,000)
11. Electro-Catalytic Reduction of Nitrogen Oxides, U.S. Department of Energy (1987-89, \$150,000)
12. Hydrodynamics of Large Particles in a Fluidized Bed, U.S. Department of Energy (Subcontract from Riley Stoker Corp., Worcester, MA) (1988-91, \$48,000)
13. Corona Catalytic Reduction of Nitrogen Oxides, Tecogen, Inc., Waltham, MA (1990-92, \$78,000)
14. Thermal Swing Absorption Process for Oxygen Separation from Air, U.S. Department of Energy [Combustion in pure oxygen enhances thermal efficiency and eliminates thermal NO_x] (1990-95, \$488,100)
15. Industrial Research and Consulting Center (IRCC) Research Enhancement Grant, University of New Hampshire (1992-93, \$30,000)
16. A Novel Approach for Filtration of Diesel Exhaust, In Collaboration with Techniweave, Rochester, NH (Phase I, EPA, SBIR Grant) (1992-93, \$7,000)
17. Development and Evaluation of Hot Gas Filters, Techniweave, Rochester, NH (1993-94, \$25,000)

18. Economics of Freons Separation, ROE Corporation, Newport, NH [CFC Pollution Control] (Dec 94, \$3,535)
19. Unsteady State Transport in Separation Processes - A Workshop, National Science Foundation, Washington, D.C. (Jan 1995, \$3,635)
20. Vacuum Systems for Liquid Oxygen Storage, Process Engineering, Plaistow, NH (1995-97, \$48,788)
21. Flue Gas Conditioning for Particulate Matter Control, Zero Emissions Technology, Inc., New Durham, NH (1997, \$25,000)
22. Turpentine Oil Recovery and TRS Emission Reduction, Crown Vantage, Berlin, NH (1999, \$25,000)
23. Development and Characterization of Braided Rope Seals, Albany International Techniweave, Inc., Rochester, NH (2000, \$50,000)
24. Mercury Oxidization in Non-Thermal Barrier Discharge System – U.S. Department of Energy (2001, \$50,000)
25. Heat Flux Through Insulations Under Vacuum at Cryogenic Temperature, Process Engineering, Plaistow, NH (1998-2000, \$70,353)
26. Aerogel Insulation Materials for Cryogenic Liquefied Gas Storage Systems – (2001-03, \$73,500)
27. Characterization and Evaluation of A.I. Techniweave Gas Diffusion Layer in a PEMFC, A.I. Techniweave, Rochester, NH – (2001, \$47,000)
28. Sustainable Resources, Energy and Materials – A Challenge to Chemical Engineers, A workshop in Beijing, China, National Science Foundation, Arlington, VA – (2005, \$46,000)
29. Characterization of Ballard Gas Diffusion Layer in a PEMFC, Ballard Materials Products, Lowell, MA – Current (2006, \$41,076)
30. Fundamentals of Transport, Pollution and Energy Processes. A workshop in Durham, NH, USA, National Science Foundation, VA – (2006-2008, \$35,120)

31. Energy and Environment: Research Opportunities and Challenges for Chemical Engineers, Tianjin, China, National Science Foundation (NSF) – Current (2007-2010, \$78,154).
32. REU Supplement, National Science Foundation – Current (2007-2009, \$5,000)

Creation of Research Facilities:

1. After joining the university in 1974 during the energy crisis, I laid the foundation of energy research at UNH in the areas of coal liquefaction, circulating fluidized bed (CFB) for coal gasification and solar energy. The equipment is capable of conducting reactions at a hydrogen pressure 4000 psig and 500°C. A course on Natural and Synthetic Fossil Fuels (ChE 705/805) was also introduced. My research attracted thousands of dollars from the U.S. Department of Energy.
2. Fuel cells have attracted world-wide attention as a new source of pollution free energy giving rise to hydrogen economy. To keep UNH at the cutting edge of this new technology, I have set up a fuel cell research laboratory funded by the local industries. Our facility is modern and one of the few available in the New England area. The cells can operate on hydrogen or methanol as fuel.
3. The measurement of heat transfer properties of insulations at low pressure and cryogenic temperatures (1-2 μm , -196°C (77 K) is important for insulating liquefied gas storage vessels and space vehicles. I set-up a cryogenic laboratory for such measurements with funding from a local industry.

Appendix A**Undergraduate Students Research Involvement
(Project Assistant, Honor's Thesis, Independent Project, McNair Scholarship)**

Raymond A. Adams	Antranig Baronian
Mark A. Berge	Jonathan Bergin
Austin W. Boesch	Justin A. Bond
Christina L. Boozer	James R. Carleton
Georgios N. Charos	Robert A. Coggon
Jason Dalton	Joseph P. Danko
John L. David	Derrick M. Drohan
April A. Duhaime	W. Michael Fitzgerald
Christian A. Forgey	Jeffrey R. Fregeau
John Gaboury	Paul Genest
John J. Goudreau	Erin M. Grubmuller
Michael C. Johnston	Joseph F. Krasowski
Kevin M. Laberge	Stephen P. Makris
Matthew J. Miller	Matthew D. Montminy
S. Murphy	Elizabeth Nuss
Tabitha L. Pellerin	S. Perron
Darleen Pike	David S. Pines
Rebecca Pineault	K.S. Potts
M.S. Salahuddin	Jeff Stubbs
Michael Sussman	Jonathan J. Taylor
Steve Tsao	Rachel Worthen
Ryan Banfield	Megan Creighton
Michael Mills	Nicholas Deveau
Daniel Milano	James Goudreault
Robert Carroll	Veronique Archambault-Leger

Appendix B
Classes and Laboratories Taught

Year		
2008-2009	(Spring)	ChE 612
2008-2009	(Fall)	ChE 605
2008-2009	(Fall)	ENE 709
2007-2008	(Fall)	ChE 605
2007-2008	(Fall)	ENE 709/ChE 809
2007-2008	(Spring)	ChE 916
2007-2008	(Spring)	ChE 705
2006-2007	(Fall)	ChE 605
2006-2007	(Fall)	ENE 709/ChE 809
2006-2007	(Spring)	Sabbatical
2005-2006	(Fall)	ChE 613
2005-2006	(Spring)	ChE 916
2005-2006	(Spring)	ENE 709/809
2004-2005	(Fall)	ENE 709/809
2004-2005	(Fall)	ChE 605
2004-2005	(Spring)	ChE 705
2004-2005	(Spring)	ChE 612
2003-2004	(Fall)	ENE 709/ChE 809
2003-2004	(Fall)	ChE 613
2003-2004	(Spring)	ChE 602
2003-2004	(Spring)	ChE 916
2002-2003	(Fall)	ENE 709/ChE 809
2002-2003	(Fall)	ChE 605
2002-2003	(Spring)	ChE 612
2002-2003	(Spring)	ChE 916
2001-2002	(Fall)	ChE 709/ChE 809
2001-2002	(Fall)	ChE 605
2001-2002	(Spring)	ChE 705/805
2001-2002	(Spring)	ChE 916

VIRENDRA K. MATHUR

Page 43

Year		
2000-2001	(Fall)	ChE 709/809
2000-2001	(Fall)	ChE 605
2000-2001	(Spring)	ChE 705
2000-2001	(Spring)	ChE 916
1999-2000	(Fall)	ChE 709
1999-2000	(Fall)	ChE 605
1999-2000	(Spring)	Sabbatical
1998-1999	(Fall)	ChE 709/809
1998-1999	(Fall)	ChE 605
1998-1999	(Spring)	ChE 772
1997-1998	(Fall)	ChE 709/ChE 809
1997-1998	(Fall)	ChE 605
1997-1998	(Spring)	ChE 772
1997-1998	(Spring)	ChE 916
1996-1997	(Fall)	Medical Leave
1996-1997	(Spring)	ChE 709
1996-1997	(Spring)	ChE 772
1995-1996	(Fall)	ChE 709/809
1995-1996	(Fall)	ChE 605
1995-1996	(Spring)	ChE 772
1995-1996	(Spring)	ChE 916
1994-1995	(Fall)	ChE 709/809
1994-1995	(Spring)	ChE 916
1994-1995	(Spring)	ChE 772
1993-1994	(Fall)	ChE 605
1993-1994	(Fall)	ChE 705
1993-1994	(Spring)	ChE 772/872
1993-1994	(Spring)	ChE 709/809
1992-1993	(Fall)	Sabbatical
1992-1993	(Spring)	ChE 916
1992-1993	(Spring)	ChE 772

VIRENDRA K. MATHUR

Page 44

Year		
1991-1992	(Fall)	ChE 605
1991-1992	(Fall)	ChE 609
1991-1992	(Spring)	ChE 772
1990-1991	(Fall)	ChE 709
1990-1991	(Spring)	ChE 772