

DR. MICHAEL D. MANN
Associate Professor and Chair
Department of Chemical Engineering
University of North Dakota

PRINCIPAL AREAS OF EXPERTISE

Advanced processes and technologies within the energy industry including multidisciplinary and integrated energy and environmental projects emphasizing a cradle-to-grave approach, i.e., development of energy strategies; selection of optimum utilization processes emphasizing clean coal technologies; integration of effluent treatment, and emission controls; and development of sustainable energy sources including wind and hydrogen.

EDUCATION

Ph.D., Energy Engineering, University of North Dakota, 1997. Dissertation: "Capture of Alkali During Pressurized Fluidized-Bed Combustion Using In-Bed Sorbents."

M.B.A., University of North Dakota, 1988. Independent Study: "Quality Control for the Energy Research Center: Applied Research and Pilot Plant Operations."

M.S., Chemical Engineering, University of North Dakota, 1981. Thesis: "Treatability of Aqueous Gasifier Effluent Using Solvent Extraction."

B.A., Chemistry and Mathematics, Mayville State College (North Dakota), 1979.

ACADEMIC EXPERIENCE

Chair, Chemical Engineering, UND, 2005-Present
Associate Professor, Chemical Engineering, UND, 1999 – Present
Director, Engineering Doctoral Program, UND, 2000 – 2005
Lecturer, Chemical Engineering, UND, Spring 1999

OTHER RELATED EXPERIENCE

Senior Research Advisor, Energy & Environmental Research Center (EERC), UND, 1999 - Present.
Senior Research Manager, Advanced Processes and Technologies, EERC, UND, 1994 – 1999.
Research Manager, Combustion Systems, EERC, UND, 1985 – 1994.
Research Engineer, Wastewater Treatment and Reuse, EERC, UND, 1982 –1985.
Operating Contractor, EG&G, Grand Forks Energy Technology Center (GFETC), 1981 – 1982.

GRADUATE COMMITTEES

Engineering Ph.D.

Eduardo Hernandez Pacheo, "Electro-Thermal Model for a Solid Oxide Fuel Cell", December 2004
Yongxin Zhao, "Oxidation of Mercury for Control in a Wet Scrubber" December 2005
Shankar Karki, "Impact of Electric Utility Deregulation in Developing Countries", Advisor
Gopal Bandyopdhyay, "Design Criteria for IC Engines Fueled by Biomass Producer Gas", Advisor
Christian Biaku, "Development of Firm Electricity from Wind", Co-Advisor
Phillip Hutton*, "Direct Carbon Fuel Cells" Advisor

Bhanuaben Patel, "Development of Two-Wheeled Fuel Cell Vehicles", Advisor
Kevin Harrison, "Firming Wind Energy through Integration of Turbine, Electrolysis and Fuel Cells",
Co-Advisor
Rhonda Hill, "Modeling of Large Integrated Wind Farms", Co-Advisor
Nilesh Dale, "Improving Efficiency of Integrated Wind-Electrolysis Systems, Advisor
Ryan Knutson* "Thermodynamic Modeling of the Transport Gasifier", Advisor

Masters of Science (Advisor for the following students)

Devdutt Shukla, "Corrosion of Gasification Refractory" May, 2005
Devinder Singh, "Impact of Gasifier Tar on Fuel Cell Performance" May 2005
Biplab Mukherjee, "Blinding of Hot-Gas Cleanup Filters", August, 2004
Muhammad Amanullah, "Prediction of the Distribution of Volatile Sodium Species During
Combustion and Cooling in Coal-Fired Boilers", May 2003
Jason Jacobson, "Char Gasification Kinetics", May 2001
Jeremie Moberg, "Determination of Baseline Response Data on the Energy and Environmental
Research Center Wet Scrubber System", May 2001
Srinivas Koli, "Impact of Gasifier Tar on Fuel Cell Performance, August, 2005
Joshua Strege, "Corrosion of High Temperature Alloys", August 2005
Carol Horbeck, "Oxidation of Mercury via Catalytic Barrier Filters"
Xi Hong, "Corrosion of Gasification Refractory" August 2005
Kyle Martin, "Gasification of Biomass in a Down-Draft Gasifier, August 2005
Prasana Sardesia, "Capture of H₂S from a Biomass Gasifier"
Christopher Kinchin, "Integration of SOFC and Biomass Gasification Systems
Hussien Muhamad, "Capture of CO₂ for Gasifier Streams using Natural Sorbents"

External Examiner

Emma Qi, "Dewatering Australian Lignite Using Mechanical Thermal Expression", PhD candidate at
Monash Research Graduate School, Clayton, Victoria, Australia. 2004.

Xuantian Li, "Biomass Gasification in a Circulating Fluidized Bed", PhD candidate at the University
of British Columbia, Vancouver, Canada. Defended September 11, 2002.

George Favis, "Hydrothermal Dewatering - Evaluation of a Non-Evaporative Drying Technique for
the Lignite Power Industry", PhD candidate at Monash Research Graduate School, Clayton, Victoria,
Australia. Defended February 15, 2001.

UNDERGRADUATE RESEARCH PROJECTS

Charles Nyberg – DOE – Project: Hydrogen Storage Systems (2003-2004)
Clancy Kadrmas – NSF Career – Project: Development of an Integrated SOFC-Gasification System
(2004)
Joey Guido – EPSCOR AURA – Project: Development of an Integrated SOFC-Gasification System
(2004)
Joshua Fetch - NSF Research Experience for Undergraduate (REU) - Project: Design of
Combustion Research Furnace (2002 – 2003)
Jason Hrdlicka - NSF REU - Project: Design of Combustion Research Furnace (2002 – 2003)
Joel Abrahamson – NSF REU – Project: Design of a Corrosion Test Chamber (2003)
David Kleven - Project: Corrosion of Gasifier Refractory (2001)
Kray Olson - NSF REU – Project: Mercury Control in a Wet Scrubber (2001)
Eric Shockey - NSF REU – Boundary Layer Turbine (2001)
Angela Marka - EPSCOR Advance Undergraduate Research Awards (AURA) - Project:

Determination of Kinetic Parameters using Thermal Gravimetric Analysis (2001)
Kyle Martin - EPSCOR AURA – Project: Mercury Sampling from Full-Scale Boilers (2000)

PRINCIPAL PUBLICATIONS

Peer Reviewed Journal Articles

- Harrison, K., Pacheco, E.H., Mann, M.D., and Salehfar, H.; “Semi-Empirical Model for Determining PEM Electrolyzer Stack Characteristics”, *Journal of Fuel Cell Science and Technology*, **2005**, (in press).
- Pacheco, E.H.; Mann, M.D.; Hutton, P.N.; Singh, D.; Martin, K.E.; “A Cell-Level Model for a Solid Oxide Fuel Cell Operated with Syngas from a Gasification Process”, *Int. Journal of Hydrogen Energy*; 30 (**2005**) 1221-1233.
- Pacheco, E.H.; Biaku, C.; Peters, A.; Salehfar, H.; Mann, M.D.; “An Advanced PEM Fuel Cell Performance Prediction Model”, *Journal of Power Sources*, **2005**, (revision in review).
- Bandyopadhyay, G.; Bagheri, F.M.; Mann, M.D.; “Reduction of Fossil Fuel Emission in US: A Holistic Approach Towards Policy Formulation”, *Energy Policy*; **2005**, (in press)
- Corporan, E., Reich, R., Monroig, O., DeWitt, M., Larson, V., Aulich, T., Mann, M., and Seames, W., “Impacts of Biodiesel on Pollutant Emissions of a JP-8 Fueled Turbine Engine”, *Journal of Air & Waste Management*, 7, **2005**, 940-949.
- Zhao, Y., Mann, M.D, Pavlish, J.P., Mibeck, B.A.F.; Dunham, G.E.; Olson, E.W.; “Application of Gold Catalyst for Mercury Oxidation by Chlorine”, *Environmental Science and Technology*; **2005** (in press).
- Mukjerjee, B.; Hurley, J.P.; Mann, M.D.; “Assessment of Filter Dust Characteristics that Cause Filter Failure During Hot-Gas Filtration”, *Energy and Fuels*, **2005** (in review).
- Zhao, Y., Mann, M.D, Olson, E.S.; Pavlish, J.P; Dunham, G.E., Mibeck, B.A.F.; “Effects of SO₂ and NO_x on Mercury Oxidation and Reduction”, *Journal of Air & Waste Management*, **2005** (in press).
- Singh, D.; Pacheco, E.H.; Hutton, P.N.; Patel, N.; Mann, M.D.; “Carbon Deposition in an SOFC Fueled by Tar-Laden Biomass Gas: A Thermodynamic Analysis”, *Journal of Power Sources*, 142 (**2004**), 194-199.
- Pacheco, E.H., Mann, M.D.; “The Rational Approximation Method in the Prediction of Thermodynamic Properties for SOFCs” *Journal of Power Sources* **2004** 128 (1): 25-33.
- Pacheco, E.H., Mann, M.D.; “Rational Approximations” *Journal of Power Sources* **2004** 128 (1): 34-44
- Karki, S.; Mann, M.D., Slahlefar, H.; “Energy and Environment in the ASEAN: Challenges and Opportunities” *Energy Policy* **2004** 33 (4): 499-509.
- Mann, M.D.; Knutson, R.Z.; Erjavec, J.; Jacobson, J.P.; “Modeling Reaction Kinetics for a Transport Gasifier”, *Fuel* 83 **2004** 1643-1650.
- Pavlish, J.P.; Sondreal, E.A.; Mann, M.D.; Olson, E.S.; Galbreath, K.C.; Laudal, D.L.; Benson, S.A. “A Status Review of Mercury Control Options for Coal-Fired Power Plants” *Fuel Process. Technol.* **2003**, 82: 89-165.
- Timpe, R.C.; Mann, M.D.; Pavlish, J.H. “Organic Sulfur and HAP Removal from Coal Using Hydrothermal Treatment”. *Fuel Process. Technol.*, **2001**, 73 (2), 127-141.
- Sondreal, E.A.; Benson, S.A.; Hurley, J.P.; Mann, M.D.; Pavlish, J.H.; Swanson, M.L.; Weber, G.F.; Zygarrlicke, C.J. “Review of Advances in Combustion Technology and Biomass Firing”. *Fuel Processing Technology* **2001**, 71 (1-3), 7-38.
- Kozliak, E.I; Sternberg, S.R.; Jacobson, M.L.; Kuether, K.W.; Mann, M.D. “Mercury Removal from Air by a Fiber-Based Bioreactor”. *Bioremediation J.* **1999**, 3 (4), 291-298.

- Dann, T.W.; Schulz, K.H.; Mann, M.D.; Collings, M.E. Supported Rhodium Catalysts for Nitrous Oxide Decomposition in the Presence of NO, CO₂, SO₂, and CO. *Appl. Catal. B: Environ.* **1995**, *6*, 1–10.
- Collings, M.E.; Mann, M.D. Empirical Modeling of N₂O Emissions from Circulating Fluidized-Bed Combustion. *Energy Fuels* **1994**, *8* (5), 1083–1094.
- Collings, M.E.; Mann, M.D.; Young, B.C. Effect of Coal Rank and Circulating Fluidized-Bed Operating Parameters on Nitrous Oxide Emissions. *Energy Fuels* **1993**, *7* (4), 554–558.
- Mann, M.D.; Hajicek, D.R.; Henderson, A.K.; Moe, T.A. EERC Pilot-Scale CFBC Reveals Influence of Coal Properties. *Power Eng.* **1993**, *97* (3), 33–37.
- Mann, M.D.; Collings, M.E.; Botros, P.E. Nitrous Oxide Emissions in Fluidized-Bed Combustion: Fundamental Chemistry and Combustion Testing. *Prog. Energy Combust. Sci.* **1992**, *18*, 447–461.
- Galegher, S.J.; Mann, M.D. Measurement and Characteristics of Emissions from a Gas Liquor Fed Cooling Tower. *Atmos. Environ.* **1985**, *19* (3), 389–396.
- Mann, M.D.; Willson, W.G.; Hendrikson, J.G.; Winton, S.L. Gasifier Wastewater Treatment, Phase I: Cooling Tower Assessment. *Environ. Prog.* **1985**, *4* (1).

Patents

- Provisional Patent 60/642,678 with Seames and D.S. Muggli, “Mercury Oxidation of Flue Gas using Catalytic Barrier Filters”, January 2005.
- U.S. Patent Number 5,546,875, Controlled Spontaneous Reactor System, 1996
- U.S. Patent Number 6,053,954, Methods to Enhance the Properties of Hydrothermally Treated Fuels, 2000

Client Reports

- Mukjerjee, B.; Hurley, J.P., Mann, M.D.; “NEDO Hot-Gas Filter Ash Program”; U.S. Department of Energy (Grant No. DE-FG26-98FT40321), Energy & Environmental Research Center, December, 2004.
- Mann, M.D.; Hurley, J.P.; “Dynamic Testing of Gasifier Refractory: Progress Report - 3”; U.S. Department of Energy (Grant No. DE-FG26-01-NT41279), Department of Chemical Engineering, December, 2004.
- Mann, M.D.; “Addressing System Integration Issues Required For The Development Of Distributed Wind-Hydrogen Energy Systems -1” U.S. Department of Energy (Grant No. DE-FG02-04ER46115), Department of Chemical Engineering, December 2004.
- Mann, M.D.; Hurley, J.P.; “Dynamic Testing of Gasifier Refractory: Progress Report - 2”; U.S. Department of Energy (Grant No. DE-FG26-01-NT41279), Department of Chemical Engineering, August, 2003.
- Seames, W.S.; Mann, M.D.; Muggli, D.S.; Lou, W.; “Mercury Oxidation Via Barrier Filters: Final Report”, U.S. Department of Energy, Department of Chemical Engineering, July, 2004.
- Erjavec, J., Mann, M.D., Knutson, R.Z., “Electrostatically Enhanced Barrier Filter Collection: Final Report”; U.S. Department of Energy (Grant No. DE-FG26-99FT40591), Department of Chemical Engineering, Nov 2002.
- Mann, M.D.; Hurley, J.P.; “Dynamic Testing of Gasifier Refractory: Progress Report -1”; U.S. Department of Energy (Grant No. DE-FG26-01-NT41279), Department of Chemical Engineering, August 2002.
- Erjavec, J., Mann, M.D., Knutson, R.Z., “Electrostatically Enhanced Barrier Filter Collection: Progress Report”; U.S. Department of Energy (Grant No. DE-FG26-99FT40591), Department of Chemical Engineering, Nov 2001.
- Mann, M.D., Bryan, M, “Feasibility of Producing Ethanol from Biomass in Northeastern North Dakota and Northwestern Minnesota”, Western Regional Biomass Energy Program Contract

Number 55020, Oct 2000. (Results of this work were featured in the Spring, 2001 WRBEP Biomass Quarterly - Included results from Chemical Engineering Senior Design Project)

- Mann, M.D., “Mercury and VOC Control using Fiber-Based Bioreactors”, Annual Report to the Environmental Protection Agency Contract No. R 824854-01; Energy & Environmental Research Center: Grand Forks, ND, December 2000.
- Mann, M.D., “Environmental Aspects of Hydrothermal Treatment” Annual Report to the Environmental Protection Agency, Contract No. R 824854-01; Energy & Environmental Research Center: Grand Forks, ND, December 2000. (Included results from Chemical Engineering Senior Design Project)
- Mann, M.D., “Economic Evaluation of Mercury Control Options” Center for Air Toxics Final Technical Report, Environmental Protection Agency Contract No. R 824854-01; Energy & Environmental Research Center: Grand Forks, ND, January 2001.
- Adamson, B, Beaulieu, Espiritu, I., Zarr, S.; Mann, M.D. Editor, “Ethanol Production from Potato Waste;” Topical Report to the Western Regional Biomass Energy Program; Chemical Engineering Department/Energy and Environmental Research Center: Grand Forks, ND, March 2000.
- Timpe, R.C., Mann, M.D., Schmidt, D.D., “Gasification for Distributed Generation”, Final Topical Report, U.S. Department of Energy (Grant No. DE-FC26-98FT40320), May, 2000.

Over 50 client reports while at the EERC

PROFESSIONAL PRESENTATIONS

National/International

- Hill, R.R.; Muthumuni, M.; Bartel, T.; Salehfar, H.; Mann, M.; “A Dynamic Simulation of a Fixed Speed Stall Control Wind Turbine at Start Up” *In Proceedings of the 37th North American Symposium*, Ames Iowa, October 23-25, 2005.
- Peters, R.R.; Stevens, B.; Mann, M.D.; Salehfar, H.; “Dynamic Scheduling of Wind Energy for Hydrogen Production by Electrolysis”, to be presented at the 2006 PES General Meeting, June 18-22, 2006, Montreal, Quebec, Canada.
- Mann, M.D.; Mukerjee, B.; Hurley, J.P.; “Comparison Of Hot-Gas Filtration Characteristics of a Coal and Biomass Ash”, *In Proceeding of the 6th International Symposium & Exhibition of Gas Cleaning at High Temperatures*, Osaka, Japan, October 15-18, 2005.
- Pacheco, E.H.; Mann, M.D.; “SOFC Performance under Various Gasifier Compositions using a Rietveld-Thermal Model”, to be presented at the Ninth International Symposium on Solid Oxide Fuel Cells of the 207th Meeting of the Electrochemical Society, Quebec City, Quebec, Canada, May 15-20, 2005.
- Karki, S.; Mann, M.D.; Salehfar, H.; “Power Sector Reform Through Privatization and its Environmental Outcome: A Developing Countries Perspective” *In Proceeding of the 30th International Technical Conference on Coal Utilization & Fuel Systems*, Clearwater, FL.; April 17-21, 2005.
- Karki, S.; Salehfar, H.; Mann, M.D.; “Assessment of Micogrids in Isolated Rural Areas”, Submitted for presentation at the IEEE National Meeting, April, 2005.
- Karki, S.; Mann, M.D.; Salehfar, H.; Ghising, K.M.; “Greenhouse Gas Emission from Large Hydropower Plants, A Life Cycle Analysis Perspective”; *In Proceedings of the International Conference on Power Systems: Challenges to Electric Utilities in the New Millennium*; Kathmandu, Nepal, November 3-5, 2004.

- Pacheco, E.H.; Mann, M.D.; “Macro-Level Model for Determining the Performance of SOFC”, *In Proceedings of The Hydrogen Economy, Fuel Cells and the Environment*, Hartford, CT, September 30 – October 3, 2004.
- Pacheco, E.H.; Mann, M.D.; Hutton, P.N.; “Performance Characteristics and Thermophysical Properties for Solid Oxide Fuel Cells”, *In Proceedings of the World Renewable Energy Congress VIII: Linking the World With Renewable Energy*; Denver, Colorado, August 29-September 3, 2004.
- Corporan, E., Reich, R., Monroig, O., DeWitt, M., Larson, V., Aulich, T., Mann, M., and Seames, W., “Impacts of Biodiesel on Pollutant Emissions of a JP-8 Fueled Turbine Engine”, *In Proceedings of the American Waste Management Conf.*, 2004, #751.
- Karki, S.; Mann, M.D.; Salehfar, H.; Hill, R.; “Electricity Sector Reform in India: Environmental and Technical Challenges” *In Proceedings of the International Conference on Electric Supply Industry in Transisiton: Issues and Prospects for Asia*, AIT, Thailand, January 14-16, 2004.
- Pacheco, E.H.; Mann, M.D.; Hutton, P.N.; “Performance Characteristics and Thermophysical Properties for Solid Oxide Fuel Cells”, *In Proceedings of the World Renewable Energy Congress VIII: Linking the World With Renewable Energy*; Denver, Colorado, August 29-September 3, 2004.
- Mann, M.D., Knutson, R.Z., Erjavec, J., Swanson, M.L., “Steam Gasification Kinetics for North Dakota Lignite in the Transport Gasifier” *In Proceedings of the 12th International Conference on Coal Science*, Cairns, Australia, November 2-6, 2003
- Hajicek, D.R., Mann, M.D., Selle, S.J., “Taking Advantage of High Reactivity Coals – Upgrading Low-Rank Fuels with the Controlled Spontaneous Reactor”, *In Proceedings of the 18th Low-Rank Fuels Symposium*, Billings, MT, June 24-26, 2003
- Mann, M.D., “Modeling and Mitigating Ash Related Problems in Fluid-bed Combustion and Gasification” *In Proceedings of the 7th International Circulating Fluid Bed Conference*, Niagara Falls, Canada, May, 2002.
- Laumb, J.D., Benson, S.A., Mann, M.D., Erjavec, J.E., “Predicting Slag Viscosity from Coal Ash Composition”, *In Proceedings of the 11th International Conference on Coal Science*, October, 2001.

Over 50 conference papers were prepared while at the EERC

Regional/State/Local (posters/presentations without a paper)

- Harrison, K.; Mann, M.D.; Salehfar, H.; “Addressing System Integration Issues Required for the Development of a Distributed Hydrogen Energy System”, *Abstract and presentation at AWEA Conference*, Pittsburgh, PA, June 4-7, 2005.
- Biaku, C.; Pacheco, E.H.; Peters, A.; Harrison, K.; Mann, M.D.; Salehfar, H.; “Modeling of a PEM Fuel Cell Performance”, *Poster presented at Living the Life of the Mind – Fourth Annual Scholarly Activities Forum*, Grand Forks, ND, March 22-24, 2005.
- Mann, M.D.; Salehfar, H.; Harrison, K.; Biaku, C.; Peters, A.; Nilesh, D.; “Addressing System Integration Issues Required for the Development of a Distributed Hydrogen Energy System”, *Abstract at the 2005 DOE EPSCoR Conference*, Morgantown, WV, June 12-14, 2005.
- Kozliak, E.I., Mann, M.D.; “Chemistry/Chemical Engineering REU Site at the University of North Dakota” Paper #834027, American Chemical Society Spring National Meeting, March, 2005.
- Seames, W.S.; Mann, M.D. Muggli, D.S.; Horabik, C; Want, W; Hrdlicak, J.; “Oxidation of Mercury via Catalytic Barrier Filters – Phase II”, *University Coal Research Contractors Review Meeting*, Pittsburgh, PA, June 7-8, 2005
- Mann, M.D.; Shukla, D.; Seames, W.S.; “Dynamic Testing of Gasification Refractories”, *University Coal Research Contractors Review Meeting*, Pittsburgh, PA, June 7-8, 2005

- Six student posters at the UND Graduate Forum, Grand Forks, ND, February 22-24, 2005
- Karki, S.; Mann, M.D.; Salehfar, H.; “Substitution and Price Effects of CO₂ Emissions Penalties on Emissions Reduction from the Power Sector” Presented at the North Dakota Academies of Science, Grand Forks, ND, April 28, 2005.
- Invited panelist for the NSF CAREER Proposal and Grant Seminar, Grand Forks, ND, April 8, 2005-05-02
- Mann, M.D., “Sustainable eNergy Research Infrastructure and Supporting Education Initiative”, Research Showcase V, Grand Forks, ND, April 15, 2005.
- Pacheo, E.H.; Singh, D.; Mann, M.D.; “Prediction of Thermophysical Properties for SOFC” presented at Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Shukla, D.; Mann, M.D., “Dynamic Testing of Gasifier Refractory”, presented at Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Liu, W.; Seames, W.S.; Muggli, D.S.; Mann, M.D., “Mercury Oxidation via Catalytic Barrier Filters”, presented at Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Zhao, Y.; Mann, M.D., “Investigation of Mercury Oxidation on Chlorine” presented at Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Fetsch, J., Gadgil, M, Seames, W.S., Mann, M.D.; “17kW Down-Flow Laboratory Combustion Research System” Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Mukherjee, B., Mann, M.D., Hurley, J.H.; Assessment of Ash Characteristics that Cause Filter Failure During Hot-Gas Filtration: An Obstacle to Modern Power Systems”; Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Kolli, S., Mann, M.D.: “Analysis of Tar and Particulate Matter in Recuperatively Heated Downdraft Biomass Gasifier”: Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Strege, J., Mann, M.D.; “Corrosion of High-Temperature Alloys Under Simulated Boiler Tube Conditions”; Living the Life of the Mind – Third Annual Scholarly Activities Forum, Grand Forks, ND, March 2-4, 2004.
- Mann, M.D.; Shukla, D.; Seames, W.S.; “Dynamic Testing of Gasification Refractories”, University Coal Research Contractors Review Meeting, Pittsburgh, PA, June 3-4, 2003
- Pacheo, E.H.; Singh, D.; Mann, M.D.; “Solid Oxide Fuel Cells” presented at Graduate Studies: All Things to All People – Second Annual Scholarly Activities Forum, Grand Forks, ND, Feb 11, 2003.
- Shukla, D.; Mann, M.D., “Dynamic Testing of Gasifier Refractory”, presented at Graduate Studies: All Things to All People – Second Annual Scholarly Activities Forum, Grand Forks, ND, Feb 11, 2003.
- Liu, W.; Seames, W.S.; Muggli, D.S.; Mann, M.D., “Mercury Oxidation via Catalytic Barrier Filters”, presented at Graduate Studies: All Things to All People – Second Annual Scholarly Activities Forum, Grand Forks, ND, Feb 11, 2003.
- Zhao, Y.; Mann, M.D., “Oxidation of Mercury in the Simulate Flue Gas” presented at Graduate Studies: All Things to All People – Second Annual Scholarly Activities Forum, Grand Forks, ND, Feb 11, 2003.
- Marka, A.; Mann, M.D., “Coal Gasification Using a Thermogravimetric Analyzer” presented at the North Dakota Science, Engineering, & Mathematics 9th Annual Poster Session, Fargo, ND, July 25, 2001.
- Mann, M.D., “Understanding Ash Agglomeration in Fluid-Bed Combustion”, presented at the World and The Academy, Grand Forks, ND, March 4-5, 2002.

- Strege, J., Mann, M.D. “Analysis of Switchgrass Data by Geographical and Seasonal Differences”, presented at the Regional AIChE meeting, April 5, 2001, Minneapolis, MN.