

CURRICULUM VITAE OF MANOJ K. MOHANTY

PERSONAL INFORMATION

Date of Birth: March 9, 1965

Citizenship: Naturalized Citizen of the USA since March 2008;
Citizen of India prior to 2008

Home Address: 1137 Cedar Ridge Drive
Carbondale, Illinois, 62901
Email: mohantymk@gmail.com



I. PROFESSIONAL AFFILIATION AND CONTACT INFORMATION

Professor

Mining and Mineral Resources Engineering Department &
Biomedical Engineering Program
Southern Illinois University Carbondale
Carbondale, Illinois 62901.
Email: mmohanty@siu.edu
Phone: (618) 453 7910

II. EDUCATION

1994-1997: Ph.D. in Engineering Science, Southern Illinois University (SIU) Carbondale, Illinois.
Dissertation Title: *Development of Advanced Techniques to Evaluate Fine Coal Cleanability and Froth Flotation Technologies.*

1991-1993: M.S. in Mining Engineering, SIU Carbondale, Illinois.
Thesis Title: *Coal Maceral Separation using Column Flotation.*

1981-1985: B.S. in Mining Engineering, National Institute of Technology (NIT), formerly known as Regional Engineering College, Rourkela, India.
Project Title: *Planning and Design of a Large Opencast Iron Ore Mine.*

III. PROFESSIONAL EXPERIENCE

III-A. ACADEMIC EXPERIENCE:

July 2008-Present: Professor

SIU Carbondale, Department of Mining and Mineral Resources Engineering. Responsibilities include: teaching undergraduate and graduate level courses, submit external research grant

proposals, publish technical articles, manage funded research projects, and supervise MS thesis and Ph.D. dissertation work.

July 2005-June 2008: Associate Professor

SIU Carbondale, Department of Mining and Mineral Resources Engineering. Responsibilities include: teaching undergraduate and graduate level courses, submit external research grant proposals, publish technical articles, manage funded research projects, and supervise MS thesis and Ph.D. dissertation work.

January 2000-June 2005: Assistant Professor

SIU Carbondale, Department of Mining and Mineral Resources Engineering. Responsibilities included: teaching undergraduate and graduate level courses, submit external research grant proposals, publish technical articles, manage funded research projects, and supervise MS thesis and Ph.D. dissertation work.

January 1995 – July 1998: Assistant Scientist, Researcher III and Researcher II

SIU Carbondale, Mining and Mineral Resources Engineering. Responsibilities included: assisting in the preparation of proposals and technical reports for funded research projects, conducting independent research for the departmental research projects.

August 1991-December 1994: Graduate Research Assistant: SIU Carbondale
Responsibilities included: assisting in experimental research and analyzing test samples and resulting test data.

III-B. INDUSTRY EXPERIENCE:

July 1998-October 1999: Richwood Industries, Huntington, West Virginia.

Senior Engineer, Process Technology Development: Responsibilities included: integrating an advanced flotation technology known as Jameson Cell in various coal preparation plants in the Eastern and Midwestern United States.

November 1985-July 1991: Mahanadi Coal Fields Limited (of Coal India Limited, India)

October 1990-July 1991: Safety Officer; directly responsible for the safe operation of an underground coal mine employing nearly 800 people. Take charge of the mine in the absence of the mine superintendent.

November 1986-September, 1990: Under Manager; directly responsible for about 200 employees in a particular shift; directly accountable for the coal production and reporting to the mine superintendent.

November 1985-October 1986: Executive Trainee; examining various mining operations first-hand in preparation of the future coal production responsibility of a shift.

May - June 1984: Kolar Gold Fields, Bharat Gold Mines Limited, India
Summer Internship

May – June 1983: Iron Ore Mines, Steel Authority of India Limited, India
Summer Internship

May – June 1982: Underground Coal Mine, Coal India Limited, India.
Summer Internship

IV. HONORS AND AWARDS

- Member, SME (Society of Mining, Metallurgy and Exploration Inc)'s Strategic Committee on Education and Professional Development 2013-2015
- Member, SME-Coal and Energy Division's Executive Committee: Three Terms; 2006-2009; 2011-2014; 2015-2018.
- Associate Editor; International Journal of Mining, Materials, and Metallurgical Engineering (IJMMME) since 2014.
- Member, Editorial Boards of the *Journal of Industrial Engineering* since 2012; *International Journal of Mining and Mineral Engineering* since 2007; *International Journal of Coal Preparation and Utilization* (formerly, *Coal Preparation*) since 2002.
- Outstanding Faculty Award; SIU's College of Engineering, 2012
- Member, Advisory Board of International Coal Preparation Conference (Coal Prep) since 2010.
- Executive Board Member of Illinois Mining Institute, 2010-2013.
- Member of USA-India Coal Working Group since 2009.
- Listed in the Who's Who of Engineering Education; Listed in the Marquis Who's Who in the World; Marquis Who's Who in America; Listed in the Cambridge Who's Who among Executives, Professionals and Entrepreneurs since 2006.
- Outstanding Faculty Researcher Award: College of Engineering, SIUC, 2002
- Outstanding Faculty Research Paper Award: College of Engineering, SIUC, 2002
- Kentucky Colonel (*The highest honor awarded by the Commonwealth of Kentucky for professional service and accomplishments*), 2001
- Award for Honorable Mention Technical Poster at the 18th International Pittsburgh Coal Conference, Newcastle, Australia, 2001.
- Best Graduate Student Award: Department of Mining Engineering, Southern Illinois University at Carbondale, 1997.
- Member-American Academy of Distinguished Students, 1996.
- Member-International Honor Society of Phi Kappa Phi, 1995.

V. RESEARCH AND CREATIVE ACTIVITY

A. Research Interests and Specialty Areas:

- Sustainable Coal Mining and Utilization,
- Coal and Mineral Processing,
- Fine Particle Screening & Classification,
- Column Flotation,
- Enhanced Gravity Concentration,

- Fine Coal Dewatering and Drying,
- Carbon Recovery from Slurry Ponds,
- Coal Preparation Plant Optimization,
- Process Automation & Control,
- Dry Coal Beneficiation,
- Metal Recovery from Coal Ash,
- Recovery of Strategic Minerals from Coal Ash,
- Remediation of Acid Mine Drainage,
- Coalmine Related Noise Investigation,
- Statistical Experimental Design and Analysis Techniques.

B. Current Research Projects:

1. M.K. Mohanty, S. Kumar, P. Kolay, H. Akbari, B. Zhang, and S. Shin, 2012-2015. "Sustainable Utilization of Coal Combustion Byproducts through the Production of High Grade Minerals and Cement-less Green Concrete-Phase II Study," U.S. Environmental Protection Agency (EPA).
2. S. Ma & M.K. Mohanty, 2012-2016; "Low Cost Green Technology to Improve Water Quality in Mining Impacted Ecosystems, Phase I: Model Development and Optimization," US Department of Interior-Office of the Surface Mining Reclamation and Enforcement (OSM).

C. Research Grants Received (a total of 41; approximately \$7.8 million)

1. M.K. Mohanty and H. Wang, 2015; Long-term Testing and Demonstration of a Smart Spiral Bank in Illinois. Department of Commerce and Economic Opportunity; Total Cost: \$237,000; Agency Request: \$175,000.
2. M.K. Mohanty, 2015; Development of a Semi-Continuous Airtable for Cleaning Fine Coal. Department of Commerce and Economic Opportunity; Total Cost: \$135,000; Agency Request: \$92,000.
3. J. Qin, H. Wang and M.K. Mohanty, 2015; Development of a Novel Wavelet Transfer-based Noise Dosimeter for using in coalmines. Department of Commerce and Economic Opportunity; Total Cost: \$135,500; Agency Request: \$100,000.
4. M.K. Mohanty, R. Bratton and G.H. Luttrell, 2014; "Evaluation of Advanced Fine Coal Processing Flowsheet at Arch Coal's Viper Mine in Illinois," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$224,292; Agency Request: \$141,131.
5. J. Qin and M.K. Mohanty, 2014; "Development of Novel Noise Measurement System for the Coal Mine and Preparation Plants," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$56,572; Agency Request: \$49,936.
6. M.K. Mohanty, R. Bratton and G.H. Luttrell; 2013; "Suitability of Emerging Drying Technologies for Illinois Fine Coal Dewatering," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$179,367; Agency Request: \$100,000.

7. M.K. Mohanty, A. Esmaeeli and H. Akbari; 2013; "A New Air-table and Flip-flow screen of Cleaning Fine Coal", Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$105,903; Agency Request: \$69,000.
8. M. Szary and M.K. Mohanty, 2013, "Noise Control Measures for a Coal Handling Plant in Illinois-Phase I," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$121,420; Agency Request: \$98,441.
9. M.K. Mohanty, 2013, "Undergraduate Research Assistantship," Southern Illinois University Carbondale, Agency Request: \$7,200.
10. M.K. Mohanty, S. Kumar, P. Kolay, H. Akbari, T. Heller, T. Wiltowski, S. Rimmer, S. Shin, S. Bhusal, P. Jha, X. Yang, N. Culbreth and M. Rehman; 2012. "Sustainable Utilization of Coal Combustion Byproducts through the Production of High Grade Minerals and Cement-less Green Concrete-Phase II," U.S. Environmental Protection Agency (EPA); Total Project Cost; \$157,630; Agency Request: \$89,943.
11. M.K. Mohanty and H. Wang 2012, "In-Plant Demonstration of an Automation and Control System for Coal Spirals," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$195,799; Agency Request: \$165,000.
12. M. Szary and M.K. Mohanty, 2012, "Noise Control Measures for a Coal Handling Plant in Southern Illinois," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$55,459; Agency Request: \$49,967.
13. M.K. Mohanty, S. Kumar, H. Akbari, B. Zhang, and S. Shin, 2011. "Sustainable Utilization of Coal Combustion Byproducts through the Production of High Grade Minerals and Cement-less Green Concrete," U.S. Environmental Protection Agency (EPA); Agency Request for the Phase 1 Study: \$14,841
14. M.K. Mohanty, B. Zhang and A. Esmaeeli, 2011, "Development of a Dry Separation Plant Flowsheet for Cleaning Illinois Coal," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$179,928; Agency Request: \$124,953.
15. T. Wiltowski, S. Rimmer and M.K. Mohanty, 2011, "The Effect of Mineral Content and Maceral Composition on Illinois Coal Gasification," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$197,585; Agency Request: \$141,004.
16. M.K. Mohanty, 2011, "Recovery of Hematite from Iron ore Tailings," MTD America, Atlanta, GA; Agency Request: \$20,000.
17. M.K. Mohanty, 2011, "Characterization of Australian Coal," GujaratNRE, India, Agency Request: \$1,500.
18. M.K. Mohanty, 2010, NETL-US DOE Travel grant of \$5000 to give a technical presentation at a coal conference in India.
19. M.K. Mohanty, 2010, "Remediation of Contaminated Soil using a Falcon Concentrator," Sepro Mineral Systems, Vancouver, Canada; *Agency Request*: \$33,000.
20. M.K. Mohanty, H. Wang, and A.M. Mahajan 2009, "Development and Demonstration of an Automation and Control System for Coal Spirals," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$195,799; Agency Request: \$149,897.

21. M.K. Mohanty, 2008, "Evaluation of FGX Dry Separator for cleaning Illinois coal," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$223,414; Agency Request: \$155,877.
22. M.K. Mohanty, 2007, "On-site Evaluation of Derrick's Stack Sizer and Falcon Concentrator," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$238,261; Agency Request: \$175,110.
23. M.K. Mohanty, 2007, "Recovery of High-grade Magnetite from Illinois Coal Fly ash," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$132,002; Agency Request: \$111,727.
24. M.K. Mohanty, D. Dupre and T. Arnold, 2007, "Correlation of Agrochemical residues in drinking water and birth defects in Illinois," Department of Natural Resources/Waste Management Research Center, Total Cost: \$102,643; Agency Request: \$75,837.
25. M.K. Mohanty and A.M. Mahajan, 2006, "Automation and Performance Improvement of Spiral Concentrator," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$204,425; Agency Request: \$159,602.
26. M.K. Mohanty, 2006, "Fabrication and Testing of ISGS Intelligent Filter Process," Illinois Clean Coal Institute/Illinois State Geological Survey, Agency Request: \$34,939.
27. M.K. Mohanty, 2006, "Carbon Recovery from Gasified Petroleum coke," Coffeyville Resources, Kansas, Agency Request: \$7,225.
28. M.K. Mohanty, A.M. Mahajan and H. Sevim, 2005, "Use of Artificial Intelligence for Developing a Novel Coal Preparation Plant Simulator," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$189,734; Agency Request: \$159,986.
29. S. Shrama and M.K. Mohanty, 2004, "Efficiency and Productivity Analysis of Illinois Coal Mines," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$108,359; Agency Request: \$61,122.
30. M.K. Mohanty, "Development of A Novel Fine Coal Cleaning System," 2003, National Energy Technology Laboratory, US Department of Energy; Total Cost: \$51,749; Agency Request: \$49,381.
31. M.K. Mohanty and T. Wiltowski, 2003, "On-Site Demonstration of An Integrated Fine Coal Cleaning And Dewatering Circuit," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$218,478; Agency Request: \$138,862.
32. Bane Kroeger and M.K. Mohanty, 2003, "On-Site Demonstration of the Pansep Screen," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$158,434; Agency Request: \$102,238.
33. Mahajan and M.K. Mohanty, 2003, "Performance Optimization of a Coal Preparation Plant Using Genetic Algorithm," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$172,026; Agency Request: \$116,661.
34. T. Wiltowski, M.K. Mohanty and S. Lalwani, 2003, "Qualification of candle filters for PFBC applications," US Department of Energy; Total Cost: \$2,621, 000; Agency Request: \$2,031,757.

35. M.K. Mohanty, 2002 "Evaluation of a High-Efficiency Fine Coal Dewatering Technology," Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$190,478; Agency Request: \$125,530.
36. M.K. Mohanty, 2001 "Advanced Fine Coal Cleaning Circuit Integration to the Knight Hawk Coal Preparation Plant-Phase I," Clean Coal Review Board; Total Cost: \$299,858; Agency Request: \$107,000.
37. M.K. Mohanty, 2000 "Evaluation of new Coal Sizing Technologies for Improving Preparation Plant Profitability," Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$215,616; Agency Request: \$126,216
38. M.K. Mohanty, 2000, Jameson Flotation Evaluation of a West Virginia Coal Sample, Richwood Industries, Huntington, West Virginia; Project Cost: \$1500.
39. R.Q. Honaker, B. Govindarajan and M.K. Mohanty, 1997, "A Novel High Efficiency Enhanced Gravity Separator Using Dense Medium," Illinois Clean Coal Institute, Carterville, Illinois. Total Cost: \$168,089; Agency Request: \$111, 967.
40. R.Q. Honaker, H. Sevim and M.K. Mohanty, 1996, "Advanced Fine Coal Processing For Improved Mine Profitability," Illinois Clean Coal Institute, Carterville, Illinois; Total Cost: \$174,650; Agency Request: \$92,500.
41. R.Q. Honaker and M.K. Mohanty, 1995, "A Modified Release Analysis Procedure Using Advanced Froth Flotation Mechanisms," Illinois Clean Coal Institute, Carterville, Illinois; Total Cost: \$58,084; Agency Request: \$39,280.

D. Other Research Grant Proposals Submitted but Not Funded (a total of 38):

1. M.K. Mohanty and S. Kumar, 2013; "Evaluation of DriJet™ for cleaning Illinois Coal," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$256,105; Agency Request: \$142,878.
2. J. Qin, H. Wang and M.K. Mohanty, 2013, "Development of a Novel Intrinsically Safe Noise Signal Acquisition Device for Using in the Underground Coal Mines, Alpha Foundation Exploratory Grant, Agency Request: 147,581.
3. J. Qin, M.K. Mohanty, H. Wang, S.B. Ring Dahl, P. Kohli and K. Campbell, 2013, "Investigation of Noise Induced Hearing Loss in the Mining Industry from a Complex Noise Perspective with a Goal to Develop State-of-the Art Intelligent Hearing Protection for Miners," Alpha Foundation for Improvement in Mine Safety & Health, Agency Request: \$563,718
4. Y. Liang, M.K. Mohanty, and others from three other universities/agencies, 2013, "Meeting BTO's goal for producing algal biofuel intermediate: integrating outdoor cultivation of highly promising algal strains and highly cost effective algal processing technologies," US Department of Energy, Total Cost: \$3,304,386; Agency Request: \$2,599,767.
5. M.K. Mohanty, T. Jenallo, P. Filip, A. Esmaeeli, T. Wiltowski, J. Don; Y. Liang; S. Rimmer, X. Fu (CUMT Beijing), J. Hower (CAER, U.K.), G. Galecki (MUST), K. Hughes (McArthur Energy), 2012). Concept Paper-Renewed Development of Clean Coal Diesel Technology and Long-term Testing-DE-FOA-0000670," U.S. Department of Energy (Project Funds: ~\$3 million and duration: 3 years).
6. M.K. Mohanty and S. Rahimi, 2010, "A Neural Expert System Approach for Examining the Individual and Group Correlations between Negative Birth Outcomes

- and Contaminants in Drinking Water; National Institute of Health; Total Cost: \$518,688; Agency Request: \$435,930.
7. M.K. Mohanty, Xingmao Ma and S. Kumar, 2010, "Magnetics from Illinois Coal Fly Ash and Bottom Ash for Dense Medium Coal Cleaning," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$231,544; Agency Request: \$182,553.
 8. M.K. Mohanty, T. Wiltowski and A. Campen, 2010, "Development of Pregasification Beneficiation Strategies for Illinois Coal-Phase I Study," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$136,056; Agency Request: \$110,084.
 9. J. Don, T. Wiltowski and M.K. Mohanty, 2010, "Integrated Gasification/F-T Synthesis using Low Temperature Plasma," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$206,064; Agency Request: \$149,133.
 10. S. Kumar, H. Akbari and M.K. Mohanty, 2010, "Cementless Green Construction with Fly Ash-Based Geopolymer Composites," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$127,536; Agency Request: \$79,956.
 11. M.K. Mohanty, and B. Zhang, 2010, "Development and Demonstration of a Smart Magnetic Spiral for Iron Ore Beneficiation," Minnesota Department of Natural Resources; Total Cost: \$132,141; Agency Request: \$112,306.
 12. M.K. Mohanty and S. Kumar, 2009, "Production of Magnetite from Illinois High Sulfur Coal Fly Ash and Bottom Ash for Dense Medium Coal Cleaning Application, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$241,446; Agency Request: \$187,674.
 13. M.K. Mohanty, S. Talapatra, J. Don and S. Ma, 2009, "Production of Nanomaterials from Illinois High Sulfur Coal," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$185,088; Agency Request: \$130,331.
 14. M.K. Mohanty and J. Don, 2008, "Production of carbon nano-fiber from Illinois high sulfur coal," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$216,591; Agency Request: \$129,386.
 15. J. Don, A.M. Mahajan and M.K. Mohanty, 2008, "Bamboo derived sorbent cartridge (BDSC) for mercury removal from flue gas," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$169,803; Agency Request: \$127,895.
 16. M.K. Mohanty, 2007, "Development of a dry separation based plant flowsheet for non-coking coal in India," Preproposal-US Department of States; Total Cost: \$1,829,471; Agency Request: \$900,112.
 17. M.K. Mohanty, 2007, "Development of novel flowsheet for cleaning coking coal in India," Preproposal-US Department of States; Total Cost: \$1,223,895; Agency Request: \$620,319.
 18. M.K. Mohanty and S. Kumar, 2006, "Recovery of Magnetite from Illinois Coal Fly ash," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$160,960; Agency Request: \$137,688.

19. M.K. Mohanty, T. Wiltowski, A. Mahajan, R. Klepper and L. Stewart, "Development and Demonstration of a Low Cost Process to Produce Ethanol from Coal," US Department of Energy; Total Cost: \$3,806,375; Agency Request: \$2,830,082.
20. M.K. Mohanty, 2006, "International Planning visit for collaborative research on dry separation of coal and other low grade minerals," National Science Foundation/Office of International Science & Engineering, Agency Request: \$4,500
21. M.K. Mohanty, 2006, "Novel gasification and combustion process with CO₂ Capture, Illinois Clean Coal Institute and A2 Engineering, Agency Request: \$22,956.
22. M.K. Mohanty and Kumar S., 2005, "Magnetite extraction and utilization of non-magnetic flyash," Combustion Byproduct Recycle Consortium; Full-proposal: Total Cost: \$415,154; Agency Request: \$249,500+\$60,000 from Illinois Clean Coal Institute.
23. M.K. Mohanty and Kumar S., 2005, "Extraction of magnetite and possible utilization of non-magnetic CCB in construction," Combustion Byproduct Recycle Consortium; Preproposal: Total Cost: \$339,935; Agency Request: \$249,471.
24. M.K. Mohanty, 2005, "Development and Demonstration of the EG Float Cell," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$147,111; Agency Request: \$126,884.
25. M.K. Mohanty and Kumar S., 2005, "Recovery of High grade Magnetite from Illinois Flyash," Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$196,459; Agency Request: \$156,110.
26. M.K. Mohanty, "Production of Ethanol from Illinois Coal," 2005, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Total Cost: \$40,581; Agency Request: \$24,992.
27. M.K. Mohanty, and Crelling, J., 2004, "Production of High-value Maceral Products from Coal", Consortium for Premium Carbon Product from Coal, National Energy Technology Laboratory, US Department of Energy; Total Cost: \$155, 247; Agency Request: \$92, 035.
28. M.K. Mohanty and T. Wiltowski, 2004, "Development and Demonstration of a Novel Fine Coal Cleaning and Dewatering System," US Department of Energy; Total Cost: \$918,715; Agency Request: \$579,001.
29. M.K. Mohanty, J. Crelling and S. Kumar, 2003, "Concentration of Inertinites from Appalachian Coal", Consortium for Premium Carbon Product from Coal, National Energy Technology Laboratory, US Department of Energy; Total Cost: \$122,668; Agency Request: \$85,305.
30. M.K. Mohanty, "Evaluation of a High-Efficiency Fine Coal Dewatering Technology," June 2002, Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$190,478; Agency Request: \$126,080.
31. M.K. Mohanty, "Development and Demonstration of the Escalator Fine Screening technology," June 2002, National Energy Technology Laboratory, US Department of Energy; Total Cost: \$774,455; Agency Request: \$361,287.
32. M.K. Mohanty, "Enhancement of Dewatering Performance for Illinois Fine Coal," June 2001, Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$308, 492; Agency Request: \$148, 578.

33. M.K. Mohanty and P.L. Sisson, "Development and Demonstration of a Coal-Oil-Water Fired Industrial and Utility Boiler System; Phase I-Pre-Proposal", November 2001, U.S. Department of Energy; Total Cost: \$1,500,000.
34. M.K. Mohanty, Evaluation of Falcon Enhanced Gravity Concentrator for Desulfurizing Western Kentucky Coal, April 2000, Tennessee Valley Authority; Total Cost, \$100,000; Agency Request: \$50,000.
35. M. K. Mohanty and B.C. Paul, "Use of Waste Products as Fuel Feed Stock for Micro Generation Systems, September, 2000, "Technology Challenge Grant Program-Illinois Department of Commerce and Community Affairs; Total Cost: \$1,000,097; Agency Request: \$405,227.
36. M.K. Mohanty and B.C. Paul, "Preparation Plant Fine Waste use in Mine-Mouth Electricity Generation Systems," August 2000, Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$275,152; Agency Request: \$154,273.
37. Y.P. Chugh and M.K. Mohanty, Development and Demonstration of Integrated Carbon Recovery Systems from Fine Coal Processing Waste-Phase II, July 2000, U.S. Department of Energy, Total Project Cost: \$2,539,711; Agency Request: \$ 999,822.
38. Y.P. Chugh and M.K. Mohanty, "Coal Cleaning Evaluation of a Centrifugal Jig for Optimum Btu Recovery and Pyrite Rejection," August 2000, Illinois Department of Commerce and Community Affairs/Illinois Clean Coal Institute; Total Cost: \$219,548; Agency Request: \$134,963.

E. Presentations at Professional Meetings: (a total of 39)

1. Mohanty, M.K., 2014, "Demonstration of a Low Cost Automation and Control System for Coal Spirals," ICCI Program Committee Meeting, Collinsville, IL; February.
2. Mohanty, M.K., 2013, "Climate Change: A Review for the Coal and Mineral Industry," a keynote speech at GEOMINETECH, Bhubaneswar, India; May 11-12.
3. Mohanty, M.K., Zhang, B.J., Wang, H., Mahajan, A.M., Akbari H., Bashir, Z., Ramamoorthy, S. and Hirschi, J.C., 2013, Development of an Automation System for Coal Spirals, Coal Prep 2013, Lexington, KY, April 30-May 2, 2013.
4. Mohanty, M.K., and X. Yang, 2013, "Climate Change: A Review for the Coal Industry in the USA," Illinois Mining Institute's Annual Meeting, Marion, IL, August 21-22.
5. Mohanty, M.K., 2012, "Development and Demonstration of a Dry Preparation Plant Flowsheet for Cleaning Illinois Coal," ICCI Program Committee Meeting, Collinsville, IL; November.
6. Mohanty, M.K., 2012, "Fine Coal Drying and Plant Profitability" A Fine Coal Symposium: Challenges in Fine Coal Processing, Dewatering and Disposal, Coal Preparation Society of America and Society of Mining, Metallurgy and Petroleum Inc.; Pittsburgh, PA; October 23-25.
7. Mohanty, M.K., 2011, "Development of an automation and control system for a coal spiral," ICCI Program Committee Meeting, Collinsville, IL, October, 2011.
8. Mohanty, M.K., 2011, "Dry separation of Illinois coal,"-Illinois Mining Institute's Annual Meeting, Marion, IL, August 30-31.

9. Mohanty, M.K., 2010, "Coking Coal Cleaning in India: Some Constructive Suggestions,"-invited presentation, sponsored by the US DOE at Indian Coal Preparation Industry, November 25-26. New Delhi, India.
10. Mohanty, M.K., 2010, "Coal Preparation Research at Southern Illinois University Carbondale,"-Illinois Mining Institute's Annual Meeting, Rendlake, IL, August 29-30.
11. Mohanty, M.K., 2009, Dry Beneficiation of Coal- A Keynote Lecture, Mineral Processing Technology-An International Seminar, Bhubaneswar, India, October 27-29.
12. Zhang B., Mohanty, M.K., Yang F. and Geilhausen R., 2009, "Extraction of High Grade Magnetic Material from Fly Ash and its Evaluation for Dense Medium Coal Cleaning Application," 26th Annual International Pittsburgh Coal Conference, Pittsburgh, PA, September 20-23.
13. Mohanty, M.K., F. Yang, B. Zhang, and R. Geilhausen. 2009. High Grade Magnetite Extraction from Combustion By-Products of High Sulfur Coal. Proceedings of the 9th Geomintech Symposium on New Equipment, new technology management and safety in Mining and Mineral based Industries, Bhubaneswar, India, May 11-12.
14. Mohanty, M.K., F. Yang, B. Zhang, and R. Geilhausen. 2009. Recovery of high-valued product from combustion waste of high sulfur coal. 4th International Conference on Recent Advances in Materials and Minerals & Environment. Penang, Malaysia, June 1-3.
15. Zhang, B., Yang F., Sahoo, P.K. and Mohanty M.K., 2008, Optimization of a Compound Spiral for Cleaning High Sulfur Coal, 33rd International Technical Conference on Coal Utilization and Fuel System at Clearwater, Florida, June 1-5.
16. Zhang, B., Yang F., Sahoo, P.K., Mohanty M.K. and Zhang, X., 2008, Optimization of a Compound Spiral for Cleaning High Sulfur Fine and Ultrafine Coal, Poster presentation at XXIV International Mineral Processing Congress, Beijing, September 24-28.
17. Mohanty, M.K., 2008, *Invited Lecture* at China University of Mining Technology, Beijing China, September 22.
18. Sahoo P.K., Mohanty, M.K. and Mahajan, A.M., 2007, Automation of coal spirals for fine coal cleaning, 32nd International Technical Conference on Coal Utilization and Fuel System, Clearwater, Florida, June 10-15.
19. M.K. Mohanty, Y.P. Chugh and S. Harpalani, 2007, "Mining/Mineral Engineering Education on the Job: A New Concept," American Society of Engineering Education (ASEE), 2007 Illinois/Indiana Section Conference, Indianapolis, Indiana, March 30-31.
20. Mohanty, M.K. 2007, "Steel belt filter: A new generation fine coal dewatering system," an invited presentation to the Scientists/students/faculties at the Indian School of Mines, Dhanbad, India, February 2.
21. Chugh, Y.P., Harpalani S., and Mohanty, M.K., 2006, "A new concept for mining/minerals engineering education and research in cooperation with industry," a *key note* presentation at the International Conference on New Technology for Surface and Underground Mining, Kolkata, India, December, 15-17.

22. Mohanty, M.K. 2006, "Coal Preparation Plant Optimization and Development of a New Plant Simulator," an invited presentation to the Scientists at the Regional Research Laboratory, Bhubaneswar, India, June 1.
23. Mohanty, M.K. 2006, "Fine Coal Processing Research at SIU Carbondale," an invited presentation to the Scientists at the National Metallurgical Laboratory, Jamshedpur, India, June 28.
24. Mohanty, M.K., Kumar S. and Vaddu P., 2006, A statistical evaluation of the time dependent behavior of bottom ash bentonite mix, SME Annual Meeting, St. Louis, Missouri, USA, March 26-28.
25. Mohanty, M.K., Huang Z., Gupta V. and Biswal S.K., 2005, "Performance optimization of the Imhoflot G-cell for fine coal cleaning, Presentation and Poster session at the Centenary of Flotation Symposium, Brisbane, Australia, June 6-9.
26. Gupta V., Mohanty, M.K., Mahajan, A. and Biswal S.K., 2005, "Coal preparation plant optimization: A new approach using genetic algorithms," 30th International Technical Conference on Coal Utilization and Fuel System at Clearwater, Florida, April 17-21.
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28. Mohanty, M.K., Wang Z., Gupta, V., Biswal, S.K., Kroeger, E.B. and Hirschi J., 2004, "In Plant Testing of the Pansep Screen, 21st Annual International Pittsburgh Coal Conference, Osaka, Japan, September 13-17, 2004.
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30. Wang, Z., Mohanty, M.K. and Hirschi, J., 2004, Steel belt filter: A high efficiency fine particle dewatering technology, *presented* at SME Annual Meeting, Denver, Colorado, February 23-25.
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33. Mohanty, M.K., Palit, A. and Khanna, N., 2003, "Performance prediction of a Pansep linear screen," *presented* at the SME Annual Meeting, Cincinnati, Ohio, February 24-26.
34. Mohanty, M.K., Palit, A., Dube, B., 2002, "Enhanced Fine Coal Dewatering Performance from the Screen-bowl Centrifuge," *presented* at the Solid-Liquid Separation-02 in Falmouth, United Kingdom, June 18-20.
35. Mohanty, M.K., Palit, A., Dube, B. and Ho, K., 2002, "Evaluation of New Fine Coal Sizing Technologies," *presented* at the SME Annual Meeting, Phoenix, Arizona, February 25-27.

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VI. PUBLICATIONS AND CREATIVE WORK

A. Books (a total of 2):

1. Mohanty, M.K.; 2011. Advanced Froth Flotation Mechanisms and Systems; LAP LAMBERT Academic Publishing GmbH & Co. KG; Dudweiler Landstratße 99, 66123 Saarbrücken, Germany; ISBN 978-3-8454-2468-2.
2. Khanna, N and Mohanty, M.K., 2012. Performance Optimization of a Screen Bowl Centrifuge: Dewatering of Fine Coal; LAP LAMBERT Academic Publishing GmbH & Co. KG; Dudweiler Landstratße 99, 66123 Saarbrücken, Germany; ISBN 978-8453-3783-5.

B. -1. Articles in Peer Reviewed Scientific Journals (a total of 38):

1. M.K. Mohanty, B. Zhang, H. Wang, A. Mahajan, H. Akbari, Z. Bhasir, S. Ramamoorthy, J.C. Hirschi, 2014, Development and demonstration of an automation and control system for coal spirals, *International Journal of Coal Preparation and Utilization*, 34: 157-171.
2. B. Zhang, P. Brodzik and M.K. Mohanty, 2014, Improving Fine Coal Cleaning Performance By High-Efficiency Particle Size Classification, *International Journal of Coal Preparation and Utilization*, 34:145-156.
3. Akbari, T. Heller, S. Shin, X. Yang, P. Kolay, S. Kumar and M.K. Mohanty, 2013, "Geopolymer-based Concrete to Reduce Carbon Foot-print of Concrete Construction Industry," *Mining Engineering*, Vol. 65, No.12; pp: 57-62.
4. Zhang, B.J.; Akbari, H; Yang F., Hirschi, J., Mohanty M.K., 2011, Performance Optimization of the FGX Dry Separator Cleaning High Sulfur Coal, *Special Issue on Dry Coal Beneficiation-International Journal of Coal Preparation and Utilization*. Vol. 31, No. 3-4, pp. 161-186.
5. Zhang, B.J.; Akbari, H; Yang F., Hirschi, J., Latta P., Brodzik, P., Mohanty M.K., 2011, Evaluation of a New Fine Coal Cleaning Circuit using a Stack Sizer and Falcon Concentrator, *International Journal of Coal Preparation and Utilization*, Vol. 31, No. 2, pp. 78-95.

6. Vishal Gupta, Hussain Unjawala, Ajay Mahajan and Manoj Mohanty, 2009, Particle Swarm Optimization Approach for a Coal Preparation Plant, *Journal of Characterization and Development of Novel Materials*, Volume 1, Issue 1, pp. 1-10.
7. Mondal, K., and Mohanty, M.K., 2009, A theoretical Approach to Coal Flotation Washability Correlation, *International Journal of Coal Preparation and Utilization*, Vol. 29, No.3, pp. 140-151.
8. Huang Z., Mohanty, M.K., Sevim, H., Mahajan A., and Arnold, B., 2008, SIU-Sim: A novel coal preparation plant simulator, *Mining Engineering*, July, pp. 51-56.
9. Samal, A. R., Mohanty M.K., and Fifarek, R., 2008, Backward elimination procedure for a predictive model of gold concentration, *Journal of Geochemical Exploration*, 97, pp. 69-82.
10. Mohanty, M.K., Zhang, B., Khanna, N., Palit A., and Dube B., 2008, Screen-bowl centrifuge: A high efficiency particle size separator, *Minerals and Metallurgical Processing*, Vol. 25, No.2, pp 61-67.
11. Huang Z., Mohanty, M.K., Sevim, H., Mahajan A., and Arnold, B. 2008, Techno-economic analysis of coal preparation plant design using SIU-Sim simulator, *International Journal of Coal Preparation and Utilization*, Vol. 28, No.1, pp. 15-32.
12. Mohanty, M.K., Samal, A.R. and Palit A., 2008; Evaluation of Enhanced Gravity Based Fine Coal Circuit for High Sulfur Coal, *Minerals and Metallurgical Processing*, Vol. 25, No.1, pp 13-18.
13. Roy, S.; Das, A. and Mohanty, M.K. 2007; Feasibility of Producing Pellet grade Concentrate by Beneficiation of Iron Ore Slime in India, *Separation Science and Technology*, 42, pp. 1-17.
14. Gupta, V., Mohanty M.K., Mahajan A.M. and Biswal, S.K., 2007; Genetic Algorithms- A novel technique to optimize coal preparation plant, *International Journal of Mineral Processing*, 84, pp. 133-143.
15. Mohanty, M.K., 2007; Screen-bowl centrifuge dewatering process: A Parametric study, *Physical Separation in Science and Engineering*, doi: 10.1155/2007/70376.
16. Mohanty, M.K., Das, A. and Damron, B. 2007; Conversion of Coal Preparation Plant Fine Waste to a Fuel Feed-stock for Mine Mouth Power Plants, *Mining Engineering*, September, pp. 61-66.
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18. Kumar, S., Mishra, S., Mohanty, M.K., Schmitt, B. and Vaddu, P., 2006; Morphological and Strength Analysis of PCC Bottom Ash Amended with Bentonite, *Geotechnical Engineering and Geological Engineering*, 24, pp: 1009-1020.
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28. Mohanty, M.K., Honaker, R. Q. and Patwardhan, A., 2002, "Altair Jig: An In-plant Evaluation for Fine Coal Cleaning," *Minerals Engineering*, Vol. 15, pp. 157-166.
29. Mohanty, M.K., 2001, "In-Plant Optimization of a Full-Scale Jameson Flotation Cell," *Minerals Engineering*, Vol. 14, No. 11, pp. 1531-1536.
30. Mohanty, M.K. and Honaker, R.Q., 1999, "Performance Optimization of Jameson Flotation Technology for Fine Coal Cleaning", *Minerals Engineering*, Vol. 12, No. 4, pp. 367-381.
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33. Mohanty, M.K., Honaker, R.Q. and Govindarajan B., 1999, "Development of a Characteristic Flotation Cleaning Index for Fine Coal," *International Journal of Mineral Processing*, Vol. 55, pp. 231-243.
34. Mohanty, M.K., Honaker, R.Q., Mondal, K., Paul, B.C. and Ho, K., 1998, "Trace Element Reduction in Fine Coal using Advanced Cleaning Technologies," *Coal Preparation*, Vol. 19, pp. 195-211.
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B. -2. Invited Articles in Other Professional Journals (a total of 5)

1. Ali Z., Bratton R., Luttrell G., Mohanty M., Dynes, A., Watters., L., Stanley, C., 2013; “Innovative Design of Fine Coal Cleaning Circuits for Improved Sulfur Rejection,” *Coal Age*, July; pp: 50-55.
2. Mohanty, M.K., 2008, Coal Preparation Research Activities at Southern Illinois University, an invited paper-*CPSA Journal*, Vol. 7, No. 2, pp: 23-26.
3. Mohanty, M.K., 2005, “Southern Illinois University in the thick of fine coal recovery”- an invited article in the maiden issue of *Coal e-informer*, February 22, Vol 1, No. 1.
4. Mohanty, M.K., Palit, A., and Ho, K., 2002, “Fine Coal Sizing using the Newly Developed Pansep Screening Technology,” an invited article- *World Coal*, April, pp. 53-56.
5. Mohanty, M.K., Green, C.M., Stoll, R.D. and Brumfield II, D.M., 1999, “Flotation in the US”, *World Coal*, April, pp. 51-54.

B. -3. Chapters in Peer-Reviewed Professional Books (a total of 7):

1. B. Zhang, P. Brodzik and M.K. Mohanty, 2013, Improving Fine Coal Cleaning Performance By High-Efficiency Particle Size Classification, Proceedings Book of the 17th International Coal Preparation Congress, 1-6 Oct, Istanbul, Turkey; Pages:149-155; Editors: Gulhan Ozbayoglu and Ali Ihsan Arol. Publisher: The Aral Group; ISBN: 978-605-64231-0-9.
2. M.K. Mohanty, B. Zhang, H. Wang, A. Mahajan, H. Akbari, Z. Bhasir, S. Ramamoorthy, J.C. Hirschi, 2013, Development and demonstration of an automation and control system for coal spirals, Proceedings Book of the 17th International Coal Preparation Congress, 1-6 Oct, 2013, Istanbul, Turkey, Page:237-242; Editors: Gulhan Ozbayoglu and Ali Ihsan Arol. Publisher: The Aral Group; ISBN: 978-605-64231-0-9.
3. Mohanty, M.K., Akbari H., G. Luttrell, 2012, "Fine Coal Drying and Plant Profitability," Challenges in Fine Coal Processing, Dewatering and Disposal, Editors: M. S. Klima, P.J. Bethell, and B.J. Arnold; ISBN: 978-0-87335-363-2. Published by Society for Mining, Metallurgy and Exploration Inc.
4. Akbari, H.; Zhang, B; Yang, F., Sayeh, M., Rahimi, S. and Mohanty, M.K., 2012, "Application of Neural Networks for modeling the coal cleaning performance of the FGX Dry Separator," Separation Technologies for Minerals, Coal and Earth Resources; Editors: C.A. Young and G.H. Luttrell; ISBN: 978-0-87335-357-1; pp: 189-197.
5. Zhang, B; Yang, F.; Sahoo, P.K., Akbari, H.; Wang H., Mahajan, A.M. and Mohanty, M.K., 2012, "Development of an Automated Control System for a Spiral Concentrator-Phase I," Separation Technologies for Minerals, Coal and Earth Resources; Editors: C.A. Young and G.H. Luttrell; ISBN: 978-0-87335-357-1; pp: 129-137.
6. Samal, A.R., Mohanty, M.K., Sharma, S.C., 2005, “Technical efficiency analysis in Illinois coal mining sector, Application of Computers and Operations Research in the Mineral Industry, London, Taylor & Francis Group (A.A. Balkema), 720 pages, ISBN=04 1537 449 9.

7. Honaker, R.Q., Patwardhan, A., Mohanty, M.K. and Bhaskar, K.U., 1999, "Fine Coal Cleaning Using the Jameson Cell: The North American Experience", Advances in Flotation Technology, Editors: B. K. Parekh and J. D. Miller, SME

B. -4. Articles in National and International Conference Proceedings (a total of 48):

1. H. Akbari, T. Heller, S. Shin, X. Yang, P. Kolay, S. Kumar and M.K. Mohanty, 2013, Geopolymer-based Concrete to Reduce Carbon Foot-print of Concrete Construction Industry, Preprint, Society of Mining, Metallurgy and Exploration Inc. Annual Meeting, Denver, Colorado, February 25-28.
2. Mohanty, M.K., H. Akbari and G.H. Luttrell, 2012, "Fine Coal Drying and Plant Profitability" Proceedings of "A Fine Coal Symposium: Challenges in Fine Coal Processing, Dewatering and Disposal," Coal Preparation Society of America and Society of Mining, Metallurgy and Petroleum Inc.; Pittsburgh, PA.
3. Zhang, B.J.; Akbari, H; Yang F., Hirschi, J., Latta P., Brodzik, P., Mohanty M.K., 2010, On-site Evaluation of a New Fine Coal Cleaning Circuit using a Stack Sizer and Falcon Enhanced Gravity Separator, XVI International Coal Preparation Congress Proceedings; Editor: R.Q. Honaker, pp: 361-373.
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9. Mohanty, M.K., F. Yang, B. Zhang, and R. Geilhausen. 2009. Recovery of high-valued product from combustion waste of high sulfur coal. 4th International Conference on Recent Advances in Materials and Minerals & Environment. Penang, Malaysia, June 1-3.
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44. Mohanty, M.K., Honaker, R.Q., Patwardhan, A. and Ho K., 1997, "A Modified Procedure to Measure the True Flotation Response of Coal," *Preprint: 97-178*, SME Annual Meeting, Denver, Colorado.
45. Honaker, R.Q., Mohanty, M.K., Wang, D. and Ho, K., 1996, "Fine Coal Circuitry Study Using Advanced Physical Cleaning Processes," *proceedings*, 13th Annual International Pittsburgh Coal Conference, Pittsburgh.
46. Honaker, R.Q., Mohanty, M.K. and Ho, K., 1995, "Comparison of Column Flotation Cells," *proceedings*, 12th International Coal Preparation Exhibition and Conference, Lexington, Kentucky.
47. Honaker, R.Q., Mohanty, M.K., Wang, D. and Reed, S., 1995, "A Fine Coal Cleaning Circuit using Enhanced Gravity Separation and Column Flotation Processes," *proceedings*, 11th Annual Coal Preparation, Utilization and Environmental Control Contractors Conference, U. S. Department of Energy, Pittsburgh, Pennsylvania, July 12-14.
48. Honaker, R.Q., Mohanty, M.K., Paul, B.C. and Ho, K., 1994, "A Comparison Study of Commercially Available Column Flotation Technologies," *proceedings*, 11th Annual International Pittsburgh Coal Conference.

C. Creative Contributions:

Invention Disclosures & Patent Applications (4 disclosures and 1 patent application)

1. SIU's Smart Spiral Component (SSSC): An Automation System for a Coal Spiral; April 2012; Provisional patent application submitted in May 2013 and the Non-Provisional Application submitted in May 2014.
2. SiuCoalOpt: A Novel Coal Preparation Plant Simulator and Optimizer; April, 2012; the invention disclosure presented at the Technology Transfer Office at SIUC; SIUC approved the disclosure; but didn't pursue this for patent application for financial reason.
3. Novel flowsheet for fly ash magnetite extraction; December, 2009; An invention disclosure was examined and approved by the SIUC's Tech Transfer Office; but could not be submitted for patent application due to the accidental release of an MS thesis prior to making the application.

4. A New Apex Water Injection System for a Classifying Cyclone: A New Design; May, 2003; An invention disclosure was examined and approved by the Technology Transfer office of SIUC. A patent application was never submitted due to excessive delay.

D. Book Reviews (one):

1. "Management of Coking Coal Resources for Steel Making: A Perspective with Special Emphasis on India-2014," Author: D. Kumar; Publisher: Elsevier.

E. Other Publications-Technical Research Project Reports (a total of 29) :

1. M.K. Mohanty, G.H. Luttrell, R.C. Bratton and X. Yang, 2014. "Suitability of Emerging Drying Technologies for Illinois Fine Coal Dewatering," Final Project Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Project No. 13/4A-3, September.
2. M.K. Mohanty, A. Esmaeeli and H. Akbari; 2013. A New Air-table and Flip-flow screen of Cleaning Fine Coal, Final Project Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute; Project No. 13/4B-2, July.
3. Mohanty, M.K.; Wang, H. and Akbari, 2013, "In-Plant Demonstration of a Low Cost Automation System for Coal Spirals," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 12/4A-4, August.
4. Mohanty, M.K., Akbari, H. and A. Esmaeeli, 2012, "Development of Dry Preparation Plant Flowsheet for Cleaning Illinois Coal," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 11/4 A-1, August.
5. Mohanty, M.K. Zhang, B. and Wang, H., 2011, "Development and Demonstration of an Automation System for Coal Spirals," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 10/4B-4, July.
6. Mohanty, M.K. Zhang, B. and Akbari, H., 2010, "Evaluation of the FGX Dry Separator for Cleaning Illinois Coal," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 08-1/4.1A-4, February.
7. Mohanty, M.K. Zhang, B. and Geilhausen R., 2009, "On-site Evaluation of the Stack Sizer in Conjunction with the Falcon Concentrator," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 07-1/9.1B-2, April.
8. Mohanty, M.K. Zhang, B. and Yang, F., 2008, "Recovery of high grade magnetite from Illinois coal fly ash," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 07-1/4.1C-1, September.
9. Mohanty, M.K. and Zhang B., 2008, "Correlation of Agrochemical Residues in Drinking Water and Birth Defects in Illinois," Draft Final Technical Report, Waste Management Research Center, Illinois Department of Natural Resources, February.
10. Mohanty M.K. and Mahajan, A.M. 2007, "Automation and Performance Improvement of Spiral Concentrator," Final Technical Report, Department of Commerce and

- Economic Opportunities/Illinois Clean Coal Institute. Project No. 06-1/2.1A-6, December.
11. M.K. Mohanty, A.M. Mahajan, H. Sevim and Z. Huang 2006, "Use of Artificial Intelligence for Developing a Novel Coal Preparation Plant Simulator," Final Technical Report, Department of Commerce and Economic Opportunities/Illinois Clean Coal Institute, Project No. 04-1/2.1B-1, August.
 12. M.K. Mohanty, 2005, "Development of a Novel fine coal cleaning system," Final Technical Report, National Energy Technology Laboratory, U.S. Department of Energy, Project Number No. DE-FG26-03NT41932, June.
 13. M.K. Mohanty and T. Wiltowski, 2005, "On-site demonstration of an integrated fine coal cleaning and dewatering circuit," Final Technical Report: Illinois Department of Commerce and Economic Opportunity / Illinois Clean Coal Institute, ICCI Project Number: 03-1/4.1A-3), Carterville, Illinois, March.
 14. E.B. Kroeger and M.K. Mohanty 2004, "On-site demonstration of the Pansep screen," Final Technical Report: Illinois Department of Commerce and Economic Opportunity / Illinois Clean Coal Institute, ICCI Project Number: 03-1/8.1B-2), Carterville, Illinois, September.
 15. A.M. Mahajan and M.K. Mohanty 2004, "Performance Optimization of a Coal Preparation Plant Using Genetic Algorithm," Final Technical Report: Illinois Department of Commerce and Economic Opportunity / Illinois Clean Coal Institute, ICCI Project Number: 03-1/4.1B-4), Carterville, Illinois, September.
 16. M.K. Mohanty, 2003, "Evaluation of a High-Efficiency Fine Coal Dewatering Technology," Final Technical Report: Illinois Department of Commerce and Economic Opportunity / Illinois Clean Coal Institute, ICCI Project Number: 02-1/4.1A-3), Carterville, Illinois, October.
 17. M.K. Mohanty, 2003; "Advanced Fine Coal Cleaning Circuit Integration to the Knight Hawk Coal Preparation Plant-Phase I," Final Report; Clean Coal Review Board.
 18. M.K. Mohanty, 2001, "Evaluation of new coal sizing technologies to improve plant profitability," Final Technical Report submitted to the Illinois Clean Coal Institute (ICCI Project Number: 00-1/4.1A-1), Carterville, Illinois, December.
 19. Y.P. Chugh, A. Patwardhan, M.K. Mohanty and D.P. Patil "Engineering Economic Analysis", July 2000, Chapter 11, Draft Final Report, Development and Demonstration of Integrated Carbon Recovery Systems from Fine Coal Processing Waste, U.S. Department of Energy.
 20. M.K. Mohanty, Jameson Flotation Testing of West Virginia Coal Sample, June 2000, -Technical Report submitted to Richwood Industries, Huntington, West Virginia.
 21. R.Q., Honaker, A. Patwardhan and M.K. Mohanty, 1999, "In-Plant Testing of the Altair Centrifugal Jig at Kerr McGee's Galatia Coal Preparation Plant, *Final Technical Report*, submitted to Mineral Recovery Systems, Reno, Nevada.
 22. R.Q., Honaker and M.K. Mohanty, 1997, A Feasibility Study for Producing Compliance Coal using Simpson's Chemical Cleaning Processes," Technical Report, Matt Durda & Associates, Detroit, Michigan.
 23. R.Q., Honaker and M.K. Mohanty, 1997, "Evaluation of the Altair Centrifugal Jig for Fine Coal Cleaning," Final Report, Mineral Recovery Systems, Reno, Nevada, September.

24. R.Q., Honaker, H. Sevim and M.K. Mohanty, A. Patwardhan, and B. Govindarajan 1997, "Advanced Fine Coal Processing For Improved Mine Profitability," Final Report, Illinois Clean Coal Institute, Project Number 96-1/1.1A-1, Carterville, Illinois, September.
25. R.Q., Honaker and M.K. Mohanty and S. Reed, 1996, "In-Plant Testing of a Novel Coal Cleaning Circuit Using Advanced Technologies," Final Report, Illinois Clean Coal Institute, Project Number 95-1/1.1A-1P, Carterville, Illinois, September.
26. R.Q., Honaker and M.K. Mohanty, 1996, "A Modified Release Analysis Procedure Using Advanced Froth Flotation Mechanisms," Final Report, Illinois Clean Coal Institute, Project Number 95-1/1.2B-1P, Carterville, Illinois, September.
27. R.Q., Honaker and M.K. Mohanty, 1995, "Carbon Recovery from Refuse Ponds using Advanced Physical Coal Cleaning" Technical Report, Tennessee Valley Authority's Paradise Preparation Plant.
28. R.Q., Honaker and M.K. Mohanty, 1995, "Processing of Eastern Coals using the Jameson Cell" Final Report, U. S. Department of Energy and Praxis Engineers, Inc., Milpitas, California, September.
29. R.Q., Honaker, B.C. Paul, M.K. Mohanty and D. Wang, 1995, "Advanced Physical Coal Cleaning to Comply with Potential Air Toxic Regulations," Final Report, Illinois Clean Coal Institute, Project Number: 94-1/1.1B-2p, Carterville, Illinois, September.

VII. TEACHING EXPERIENCE

a. Courses Taught (a total of 6 u/g courses and 5 graduate level courses):

Mineral and Coal Processing (MNGE 420), Mineral Processing Plant Design (MNGE 421), Mineral Processing Design and Simulation (MNGE 521), Surface Mining (MNGE 315); Design and Analysis of Engineering Experiments (ENGR 540), Introduction to Mining Engineering (MNGE 270), Mine Ventilation (MNGE 425); Graduate Seminar (ENGR 580), Industrial Minerals (MNGE 450), Advanced Industrial Minerals (MNGE 550), Biomedical Engineering Seminar (BME 598).

b. Teaching/Training Grants:

Teaching Grants Received:

- Mohanty, M.K.; Summer Faculty Instructional Training Grant, 2000, SIUC; Total Fund: \$1000.
- Kumar, S., Mohanty M.K., Sengupta, R. and Wang, G., 2011; Geospatial Technology Short Course for CIL/CMPDI Professionals from India; US-India Coal Working Group; Total Fund: \$90,000.

Other Teaching Grants Submitted (but not funded):

- Kumar, S., DeMatte, M., Kommaraju, M. and Mohanty, M.K., 2006, "Development of Digital Instructional Material on Principles and Procedures of Field Soil/Rock Testing and Evaluation of its Impact on Students' learning," proposal submitted in response to NSF solicitation 06-536; Agency Request: \$198,649.

c. Teaching Presentations:

- M.K. Mohanty, Y.P. Chugh and S. Harpalani, 2007, “Mining/Mineral Engineering Education on the Job: A New Concept,” Paper # 98-Proceedings of American Society of Engineering Education (ASEE), 2007 Illinois/Indiana Section Conference, March 30-31.

d. Number of Master’s and Ph. D. Students Supervised as Chair or Co-Chair:

Seventeen (17) Master’s and Four (4) Ph.D.

e. Number of Additional Students’ Committee Served:

Five (5) Master’s Thesis and Eleven (11) Ph.D. Dissertation

f. -1. List of Graduate Students Graduated with Dissertation, Thesis or Research Paper:

1. Xinbo Yang, 2015, *Suitability Evaluation of the Emerging Drying Technologies for Fine Coal Drying*, MS Thesis in Mining Engineering; Committee Chair.
2. Amanda Matenda, 2015, *Geopolymer Concrete Production using Fine Coal Ash*, MS Thesis in Mining Engineering-Committee Chair.
3. Qiang Wang, *Chronic Impact of Cerium Oxide Nanoparticles on Solanum Lycopersicum and Brassica Rapa*, PhD Dissertation in Civil and Environmental Engineering; Committee Member.
4. Ashok Palaniswami, 2014, *Synthesis and Testing of Threshold Logic Gates*, PhD Dissertation in Electrical and Computer Engineering; Committee Member.
5. Michael Williamson, 2014, *A Study of Safety Impacts of Different types of Driveways and their Proximity*, PhD Dissertation in Civil Engineering at SIU Edwardsville; Committee Member.
6. Hamid Akbari, 2013, *Development and CFD Simulation of a New Particle Dry Separator*, PhD Dissertation in Mining and Mineral Resources Engineering; Committee Chair.
7. Nishi Garg, 2013; *Investigating Thermochromatic and Reversible Changes in Polydiacetylene Liposomes with Potential Uses as Biosensors*, MS Thesis in Biomedical Engineering; Committee Co-Chair.
8. Yi Cui, 2013, *Biodiesel Production through Microwave Assisted Transesterification of Microbial Cells*, PhD Dissertation in Civil and Environment Engineering, Committee Member.
9. Meijiao, Deng, 2013, *Understanding the Impacts of Gypsum Super Saturation in Process Water on Sphalerite Flotation*, PhD Thesis in Chemical Engineering at the University of Alberta, External Examiner and Committee Member.
10. Fan Yang, 2012, *Development of Correlations between Key Drinking Water Contaminants and Birth Defects in Illinois*, MS Thesis in Biomedical Engineering, Committee Chair.

11. Richard West, 2012; *New Approaches for Mitigating Environmental Concerns Associated with Coal and Coal Combustion Products*; PhD Dissertation in Applied Physics-Committee Member.
12. Baojie Zhang, 2011; *Development of an Automation and Control System for a Coal Spiral*; Ph.D. Dissertation-Committee Chair
13. Manjeera Saripalli, 2011; *Mathematical Modeling of Simulation of Colorectal Cancer*; MS Thesis in Biomedical Engineering-Committee Member.
14. Fan Yang, 2010, *Extraction of Magnetic Materials from Fly ash*, MS Thesis, Committee Chair.
15. Edward Flanigan, 2009, *Scalable Test Generation for Path Delay Faults*, PhD-Committee Member.
16. Baojie Zhang, 2008, *Performance Optimization of Compound Spiral for Cleaning Fine and Ultrafine Coal*, MS Thesis-Committee Chair.
17. Amit Patwardhan, 2008, *Advances Toward the Adoption of Ultrafine Recovery at Coal Mines*, Ph.D. Dissertation-Committee Member.
18. Kunal Singh, 2008, *Establishing Permeability Trends of Illinois Coal*, MS Thesis-Committee Member.
19. Pramod K. Sahoo, 2007, *Statistical Evaluation of Partition Models Suitable for Density based Separators*, MS Thesis-Committee Chair.
20. Snigdha M. Nayak, 2007, *Optimization of G-Cell for fine coal cleaning*, MS Thesis-Committee Chair.
21. Abani Samal, 2007, *Geostatistical and Geochemical Modeling of Elemental Remobilization in Low Grade Hydrothermal Deposits*, Ph. D. in Environmental Resources and Policy Dissertation-Committee Co-Chair.
22. Ajayendra Kumar, 2007, MS Thesis-Committee Member
23. Zhanyou Huang, 2006, “*Development of a Novel Coal preparation Plant Simulator using a genetic algorithms*,” PhD Dissertation-Committee Chair.
24. Prasanth Vaddu, 2006, “*Effect of Curing on Geotechnical Characteristics of Illinois PCC Dry Bottom Ash-Bentonite Mixtures*,” MS Thesis Civil Engineering-Committee Co-Chair
25. Sang Shin, 2006, “*Development and field demonstration of air-entrained concrete composites using Illinois PCC bottom ash*,” MS Thesis Civil Engineering-Committee Co-Chair
26. Shuai Chen, 2006, Ph.D. Dissertation-Committee Member
27. Vishal Gupta, 2005, “*Performance optimization of a coal preparation plant using genetic algorithms*,” MS Thesis-Committee Chair.
28. Li Xiaoting, 2005, Ph. D. Dissertation-Committee member
29. Ma Jinrong, 2005, Ph.D. Dissertation-Committee member.
30. Zhigang Wang, 2004, “*Evaluation of the Steel Belt Filter (SBF) Technology for Dewatering Fine Coal*”, MS Thesis-Committee Chair.
31. Iliyassou Moutairou, MS Thesis, 2004, Civil and Environmental Engineering-Committee Member.
32. Lubor Stonawski, MS Thesis, 2004, Mechanical Engineering- Committee Member.
33. Nitin Khanna, 2004, “*Performance Optimization of a Screen-bowl Centrifuge*,” MS Thesis-Committee Chair.

34. Ayan Palit, 2004, *Performance Enhancement of Fine Size Separation using the Pansep Screen*, MS Thesis-Committee Chair.
35. Bikash Dube, 2003, *Optimization of Newly Developed Ultrafine Size Classification Technologies*, MS Thesis-Committee Chair.
36. Ping Han, 2001, *Application of Heavy Medium Falcon Concentrator for Fine Coal Cleaning*, MS Research Paper Adviser.
37. Anshuman Saha, 2001, *Enhancement of Dust Suppression Performance of a Continuous Miner Scrubber*, MS Thesis-Committee Co-Chair.

g. -2. List of Continuing Graduate Students

1. Louis Ackah, PhD Dissertation-Committee Chair
2. Xinbo Yang, PhD Dissertation-Committee Chair
3. Meisam Peiravi, PhD Dissertation-Committee Chair
4. Rajesh Guru, MS Thesis-Committee Chair
5. Faraz Farbakhsh, MS Thesis-Committee Chair

g. List of Undergraduate Research Assistants Supervised

1. Guilherem G. Cordeiro, 2015
2. Luke Gribble, 2013-2014
3. Nick Culberth, 2012-2013.
4. Derek Laiunius, 2007-2008.
5. Matt Demron, 2005-2006.

h. Other Teaching Related Activities

- Introduced a new course on Industrial Minerals Mining and Processing both in Undergraduate (MNGE 450) and Graduate (MNGE 550) levels.
- Developed Web Page (Password Protected) for teaching materials and course assignments.
- Attended an educational conference: Bringing Theory and Practice Together in Engineering Classrooms, Auburn University Hotel and Conference Center, September, 2001.
- Organized and led the students on field trips to the
 - American Coal Company's Coal Mine and Preparation Plant at Galatia, Illinois
 - Engelhart's Kaolin processing plant in Mecon, Georgia
 - KnightHawk's Creek Paum Coal preparation Plant at Ava, Illinois
 - KnightHawk's Creek Paum Mine at Ava, Illinois
 - KnightHawk's Prairie Eagle Coal preparation Plant at Cutler, Illinois
 - KnightHawk's Prairie Eagle Mine at Cutler, Illinois
 - Southern Illinois Stone Quarry and Plant at Buncombe, Illinois
- Served on the Ph. D. Candidacy Exam Committee for fourteen (14) students:
 1. Joseph Hirschi, Mining Engineering
 2. Jinrong Ma, Mining Engineering

3. Shuai Chen, Mining Engineering
 4. Zhanyou Huang, Mining Engineering
 5. Xiaoting Li, Mining Engineering
 6. Veeraja N. Malyala, Civil and Environmental Engineering
 7. Abani Samal, Environmental Resources and Policy
 8. Shamseldin Elhanafi, Mechanical Engineering and Energy Processes
 9. Anan Osothsilp, Electrical and Computer Engineering
 10. Peda V.R. Medagam, Electrical and Computer Engineering
 11. Amit Patwardhan, Mining Engineering
 12. Baojie Zhang, Mining Engineering
 13. Hamid Akbari, Mining Engineering
 14. Qiang 'Dennis' Wang, Civil and Environmental Engineering
- Taught following Special Investigation Courses (MNGE 592 or ENGR 590) at Graduate Level:
 - Investigation of the impacts of agrochemical based contaminants in drinking water on the birth defects in Illinois: Baojie Zhang, 2007
 - Review of laboratory procedures for coal characterization: Ajit Nayak, 2007
 - Use of WebCt for University Teaching: Amit Laknaur, 2005
 - Production of Carbon Nanofiber from high sulfur coal: Pramod Sahoo, 2005.
 - On-site assessment of a Novel Dewatering Technology: Steel Belt Filter, Vishal Gupta, 2004.
 - Design of an Automatic Control Loop using on-line density meter for an advanced flotation technology: Aparna Raj Golla, 2004.
 - Enhancement of gravity concentration using coal spirals: Nitin Khanna, 2004.
 - Technical Efficiency Analysis of Illinois Coal Mines: Abani Samal, 2003.
 - Development of a Visual Basic based Plant-Optimization Model: Chandrika Chamakura Reddy, 2003.
 - Procedures for Contact Angle and Zeta Potential Measurements for Coal Fines: A. Palit, 2003.
 - Development of a Model to Optimize the Overall Performance of a Coal Preparation Plant: A. Palit, 2001.
 - Suppression of Coal Dust in Underground Mines using Surfactants, A. Saha, 2000.

VIII. UNIVERSITY SERVICE

a. Department Committee:

- Chair-Pre Tenure Review Committee, 2008.
- Chair-Mining Department Chair Review Committee, 2007-2008.
- Chair-Faculty Search Committee, 2006-2007.
- Participation in Freshman Student Mentoring, 2006.
- In-charge of Department Web Page; 2003-2014.
- In-charge of the Best Graduate Student Award Selection Committee, 2003-2001.
- Participant in ABET preparation activities, 2014, 2008 and 2002.

- Member of MMRE Chair Search Committee, 2000.

b. College Committee:

- Member-Engineering Curriculum Committee, 2015-
- Chair-Engineering Ph.D. Committee, 2011-2014
- Chair-College Promotion & Tenure Committee-2008, 2011, 2012.
- Chair-Engineering Faculty Affairs Committee-2008.
- Member of Biomedical Engineering Program Committee since its inception in 2008-2014.
- Member of the Dean Search Committee of College of Engineering, 2005, 2008 and 2010.
- Member of the Associate Dean Search Committee in the College of Engineering, 2006-2007.
- Member-College P&T Committee 2008, 2009, 2011, 2012.
- Member, College of Engineering Outstanding Research Paper Award Selection Committee, 2003-2005
- Member, College of Engineering Outstanding Faculty Research Award Selection Committee, 2003-2005.
- Member, Engineering Ph. D. Committee, 2000-2006; 2009-
- Member, Engineering Faculty Affairs Committee 2007-2008

c. University Committee and Councils:

- Member-University Graduate Council 2007-2013; Chair-Research Committee 2009-2010.
- Represented University Faculty Senate in the Program Change Review Committee, 2012
- Member-University International Advisory Board, 2009-2012.
- Member-University Honorary Degree and Distinguished Service Award Selection Committee 2007-2010.
- Member-University Undergraduate Teaching and Curriculum Committee 2008-2011.
- Represented University Faculty Senate in the Outstanding Scholar Selection Committee, 2006.
- Represented University Graduate Council in the Outstanding Scholar Selection Committee, 2009.
- Member of the University Outstanding Teacher Award Selection Committee 2005, 2006.
- Member of the Ad-Hoc Research Advisory Group for the Vice Chancellor Research since 2005.
- Member of a University wide Focus Group formed to improve research productivity, 2003.

d. Other University Service Related Activities:

- Participated in student recruitment efforts at local community colleges, 2015
- Participated in University Open House Activities for High School Students, 2013; 2012.
- Faculty Advisor for three Registered Student Organizations (RSO): Indian Student Association (2005-2010), Saluki Cricket Club (2005-2011), Asha for education (2003-2006).
- Participated in Engineering Week activities, 2011, 2006, 2002, 2001.
- Served as the Commencement Reader for engineering students, 2012, 2010.
- Served as the faculty grand marshal/marshal/usher in commencement ceremonies, 2010, 2009, 2008, 2003, 2002 and 2000.
- Participated in freshmen mentoring program for two years (2003-2004).
- Participated in Minority Engineering Program Visitation, 2002.

IX. PROFESSIONAL SERVICE

A. Membership in Professional Associations:

- American Society of Engineering Education (ASEE)
- Society of Mining, Metallurgy and Petroleum Inc. (SME)
- Coal Preparation Society of America (CPSA)
- American Chemical Society (ACS)
- American Institute of Chemical Engineers (AIChE)
- Illinois Mining Institute (IMI)

B. Offices Held and Honors Awarded in Professional Associations:

- Member, SME (Society of Mining, Metallurgy and Exploration Inc)'s Strategic Committee on Education and Professional Development 2013-2015.
- Member- Society of Mining, Metallurgy and Exploration Inc. (SME)'s Coal & Energy Division's Executive Committee; 2006-2009; 2011-2014; 2015-2018.
- Member, SME's Government and Public Affairs Committee (GPAC): 2013-2016.
- Chair, Carbon Management Session at SME Annual Meeting, 2013-2015.
- Chair, Coal Preparation Session at SME Annual Meeting, 2012.
- Chair: Coal Utilization Unit Committee of SME's; Coal and Energy Division, 2006.
- Chair: Stefanko Best Paper Award Committee of SME's Coal and Energy Division, 2005.
- Chair: Coal Preparation Unit Committee of SME's Coal and Energy Division; 2003-2004.
- Chair: Technical Paper Review Committee of SME's Coal and Energy Division, 2002.
- Member- Society of Mining, Metallurgy and Exploration Inc. (SME)'s Eavenson Award Committee 2010-2012.

- Invited Guest Editor of a special issue on “Dry Coal Beneficiation” of the *International Journal of Coal Preparation & Utilization*-Volume 31, No. 3-4, 2011; Invited Guest Editor of a special issue on “Fine Particle Size Classification” of the *Coal Preparation*-Volume 23, No. 4, 2003.
- Technical Program Committee Chair for Illinois Mining Institute; 2010-2013
- Member-International Coal Preparation Conference Advisory Board since 2010.
- ABET Evaluator for Mining Engineering programs.
- Keynote speeches at Geominetech 2013 and 2008, India; the International Conference on Surface and Underground Mining Technologies, 2006, India; International Seminar on Mineral Processing Technology (MPT) 2005 and 2009, India

C. Consultantships:

- World Book Encyclopedia, Chicago, IL; 2014
- Prairie State Generating Company, IL; 2014
- MTD America, Georgia; 2011
- GujaratNRE, India/Australia; 2011
- FGX SepTech LLC., Kentucky; 2011
- Freedom Companies Inc., Illinois; 2010.
- NETL, US Department of Energy; 2010.
- Coffeyville Resources, Kansas, 2007-2008.
- Molecular Separation Technology, Colorado, 2007
- Gas Technology Institute, Chicago, Illinois; 2006
- General Dynamics, Marion, Illinois; 2005
- PulseWave LLC, Colorado; 2004

D. Evaluation of Manuscripts for Journals and Book Publishers and of Grant Proposals for Agencies:

- Served as a Reviewer for CDC/NIOSH/RFA OH-14-004; Miner Safety and Health Training/Western United States (U60), June 2014.
- Served as a Reviewer for International Science and Technology Center of the U.S. Civilian Research & Development Foundation, 2006 and 2005.
- Served as a reviewer for Kentucky Science and Engineering Foundation, 2004, 2003.
- Served as a member of a Special Emphasis Panel (SEP) for NIOSH RFA OH-02-005: Mining Occupational Safety and Health, Center of Disease Control, April-2002.
- Evaluated technical papers nominated for the *Stefanko Best Paper Award* from the Coal and Energy Division of the international Society of Mining, Metallurgy and Exploration Inc, 2002-2005.
- Reviews technical papers published in the following journals since the year 2000.
 - *International Journal of Mineral Processing*
 - *International Journal of Coal Preparation & Utilization*

- *Minerals and Metallurgical Processing*
- *Mining Engineering*
- *Geotechnical and Geological Engineering*
- *Separation Science and Engineering*
- *Fuel Processing Technology*
- *Fuel*
- *Chemical Engineering and Processing*

X. COMMUNITY SERVICE

- Local Cub Scout, 2010-2012.
- Demonstrated coal research activities at the Illinois coal development park to Governor Illinois, 2003.
- Demonstrated coal research activities at the Illinois coal development park to the US Congressman, 2002
- Demonstration to the Illinois High School Teachers Association, 2001
- Served as a Judge in the science fair competitions for the Illinois Junior Academy of Sciences since the year 2000.