

## REFERENCES

1. Anderson, E.V. Chem. & Eng. News 18, April (1986).
2. Hirsch, R.L. Science 235, 1467 (1987).
3. Von der Decker, C.B. Fedders, H. and Hohlein, B. Proc. VI th Int. Symp. on Alcohol Fuels Technology, Ottawa, Canada, May 21-25 (1984).
4. Schneider M.K., Kochloefl O. Bock., (Sud Chemie) EP-0152809-A2, (1985).
5. Ichikawa M., Bull. Chem. Soc. Japan, 51, 2268, 2273 (1978).
6. Kinkade N.E., (Union Carbide Corporation) EP-0149255 (1985).
7. Quardere G.J., G.A. Cochran (DOW Chemical) EP-0119609-A1 (1984).
8. Institute Francois Du Petrole. UK Patents: GB 2118061A (1983), GB 2158730A (1985), U.S. Patent 4,291,126 (1981).
9. Xu Xiaoding, I.B., M. Doesburg and J.J.F. Scholten., Catalysis Today 2, 125 (1987).
10. Marvin L. Cohen and Walter D. Knight., Physics Today 42-50, December 1990.
11. Gossard, A.C., and A.M. Portis, Suppl. J. Appl. Phys., 31, 205 (1960).
12. Selwood, P.W. "Magneto Chemistry", Inter. Sci. Publishers. (1956), "Chemisorption and Magnetization", Academic Press, New York (1975).
13. Wohlforth, E. P., "Ferromagnetic Materials", North Holland (1980) and D.J. Craik, "Magnetic Oxides", Wiley, New York (1975).
14. Bean, C.P., and J.D. Livingston, J. Appl. Phys., 30, 1205 (1959).
15. Luborsky, F.E., J. Appl. Phys. 33, 1909 (1959).
16. Candela, G.A., R.A. Haines Appl. Phys. Lett. 34, 868 (1979).
17. Kneller Eckart "Fine Particle Theory - in Magnetism and Metallurgy" (Editor) Ami. Berkowitz, Academic Press 365-471.
18. Murty, A.N., A.A. Williams, R.T. Obermyer, and V.U.S. Rao, J. Appl. Phys., 61, 4361 (1987).
19. Murty, A.N., A.A. Williams, R.T. Obermyer, V.U.S. Uao, and R.J. Gomley. Surface Science and Catalysis (1987) (Ed. J.W. Ward) PP 73-80, Elsevier Science Publishers, B.V. Amsterdam (1988).

20. Murty, A.N., M. Seamster, A.N. Thorpe, R.T. Obermyer, V.U.S. Rao. *J. Appl. Phys.* **67**, 5847, (1990).
21. Murty, A.N. "New Method of Magnetic Characterization of Zeolite Cobalt Catalysts" Final Technical Report U.S. D.O.E. Grant DE-FG22-85PC 80536 Aug 31, (1988).
22. Murty, A.N. "NMR Investigation of Supported Metal Catalysts for Syngas Conversion" Final Technical Report. U.S. D.O.E. Grant DE-FG22-87PC-79917. Nov 1, 1990
23. Murty, A.N., Donatto, U.A., Washington, J.W. Hoard, T.L., Akundi, M.A., and Harris, C., *IEEE Transactions on Magnetics*, **30**, 4722, 1994
24. Murty, A.N., "NMR - NQR studies of Higher Alcohol Synthesis Cu-Co Catalysts", Final Technical Report U.S. D.O.E. Grant DE-FG22-89PC8976 (M003), March 1995.
25. Zafiris, G.S., and R.J. Gorte, *J. Cat.* **132**, 275, (1991).
26. Decanio, E.C., and D.A. Storm, *J. Cat.* **132**, 275, 1991.
27. Yan Y., Q. Xin, S. Jiang and X. Guo, *J. Cat.*, **131**, 234, (1991).
28. Balliard-Letrounel, R.M., Gomez Cobo, A.J., Mirodotos, C., Primet, M., and Dalmon, J.A., *caatalysis Letters*, **2**, 149, (1989).
29. Mouaddib, N., Perrichon, V., and Primet, M., *J. Chem. Soc. Farad. Trans.* **85**, 3413, (1989); *Proc. 9<sup>th</sup>. Int. Congr. Catal.* **2**, 521, (1988).
30. Akundi, M.A., D.V. K. Rao, and P.T. Rao., *Proc. Roy. Ir. Academy*, **A73**, 212, (1973).
31. Akundi, M.A., Putcha V., and Basu S.K., *Ind. J. Phys.*, **53B**, 388, (1980).
32. Byung, KNA, Walters, BA, and Vannice, M.A., *J. Catal*, **140**, 585 (1993).
33. Hamedh, M.I, and King D., *J. catal*, **88**, 264 (1972).
34. Venter, JJ and Vannice, M.A., *Appl. Spectrosc*, **42**, 1096 (1988).
35. Venter JJ and Vannice, M.A., *J. Am. Chem. Soc* **III**, 2377 (1989)

36. Augustine S.M, and Blitz, J.P., *J. Catal*, 142, 312(1993).
37. Alerasool, S., and Gonzalez, R.D., *J. Catal.* 124, 204 (1990).
38. Courty, P., Arlie J.P., Convers A., Mikitenkop P., and Sugier, A., *Hydrocarbon Processing* 105, (1984).
39. Courty, P., Durand D., Freund E., and Sugier A., *J. Mol. Catalysis* 17, 241 (1982).
40. Toth, L.E., and Ravitz, S.F., *J. Phys. Chem., Solids* 24, 1203-12076, 1963
41. Davydov, A.A. "Infrared Spectroscopy of Adsorbed Species on the Surface of Transition Metal Oxides." John Wiley & sons,(1990)
42. Ishi, S., Ohno, Y., and Viswanathan, B., *Surf. Sci.*, 61, 349 (1985)
43. Broden, G., Rhodin, T.N., Bruckner, C.F., Bendon, R., and Hurych, Z., *Surf. Sci.*, 59, 593 (1976).
44. Hinderman, J.P., Hutchings, G.T., and Kiennemann, A., *Catal. Rev. - Sci. Eng* 35, 1-127, (1993).
45. Longoni, G., Chini, P., Martinengo, S. Cavallieri, A., Calabressi J., and Dahl L., VI Conveg., "Nazionale di, *Chimica Inorganica*," paper A27, 1973.
46. Dalmon, J., Primet M., Martin, A., and Imelik, B., *Surface Sci.*, 50, 95 (1975).
47. Mohan Rao, K., Scarenno, D., Spoto, A., Zecchina, A., *Surface Sci.*, 204, 319 (1988).
48. Nakamoto, K. "Infrared Spectra of Inorganic and Coordination Compounds (in Russian)." Mir, Moscow 1966, John Wiley, New York (1975).

## MINORITY UNDERGRADUATE STUDENT TRAINING: PAPERS PRESENTED

*"NMR and Magnetization Studies of syngas Conversion Catalysts"* E.L. Bruster\*, L. Turner\*, T. Porter\*, A.N. Murty, S. Davis\*, C. Collier\* and M.A. Akundi. 72<sup>nd</sup> Annual Louisiana Academy of Sciences Meeting, Hammond, LA. February (1998).

*"CO Adsorption on Cobalt Particles Supported on Chromia – An FTIR Study"* C. Collier\*, A. Tsega\*, M.A. Akundi and A.N. Murty. Undergraduate Research Conference, University of Texas, Austin, TX April (1997).

*"CO Adsorption Effect on the Magnetic Character of Cu/Co/Cr Composite Catalysts"* G. Lampkin\*, J. White\*, M. White\*, A.N. Murty, S. Davis\*, C. Collier\*, and M.A. Akundi. 71<sup>st</sup> Annual Louisiana Academy of Sciences Meeting, Alexandria, LA. February (1997).

*"CO Adsorption Studies on Metal Precursors of Copper, Cobalt and Chromium"* A. Tsega\*, S. Davis\*, and M.A. Akundi. 71<sup>st</sup> Annual Louisiana Academy of Sciences Meeting, Alexandria, LA. February (1997).

*"Magneto-Chemistry of Cu-Co-Cr Catalysts"* G. Lampkin\*, J. White\*, A.N. Murty, S. Davis\*, C. Collier\*, and M.A. Akundi. American Association Physics Teachers Conference, College Park, MD. August (1996).

*"Magneto-Chemical Characteristic of CO Adsorbed Cu-Co-Cr Catalysts"* G. Lampkin\*, J. White\*, M. White\*, and A.N. Murty. 70<sup>th</sup> Annual Louisiana Academy of Sciences Meeting, Thibodaux, LA. February (1996).

*"Effect of Carbon Monoxide Adsorption on the Magneto-Chemical Character of Syngas Conversion Catalysts"* S. Davis\*, S. Downs\*, M.A. Akundi, G. Lampkin\*, J. White\*, M. White\*, and A.N. Murty. Proceedings of U.S. DOE Fourth-Annual HBCU/Private Sector/Fossil Energy Research and Development Technology Transfer Symposium, Greenboro, NC. April (1996).

*"NMR and Magnetic Character Studies on CO Adsorbed Syngas Catalysts"* S. Davis\*, M.A. Akundi, G. Lampkin\*, and A.N. Murty. National Conference on Diversity in the Scientific and Technological Workplace, Washington, D.C. September 21-23 (1995).

*"Effect of Preparative Techniques on the Magnetic Characteristics of Syngas Conversion Catalysts"* A.N. Murty, G. Lampkin\*, J. White\*, M. White\* and M.A. Akundi. The U.S. DOE Third Annual HBCU/Private Sector/Fossil Energy Research and Development Technology Transfer Symposium, Atlanta, GA. April 27-29 (1995).

*"Investigation of Magnetic Properties of Syngas Conversion Cu-Co-Cr Catalysts"* A.N. Murty, J. White\*, M. White\*, and G. Lampkin\*. 69<sup>th</sup> Louisiana Academy of Sciences Meeting, Ruston, LA. February (1995).

*"Magneto-Chemical Characteristics of Higher Alcohol Synthesis Cu-Co-Cr Catalysts"* U. Donatto\*, J.W. Washington\*, T. Hoard\*, A.N. Murty, C. Harris\*, and M.A. Akundi. The 6<sup>th</sup> Joint MMM-Intermag Conference, Albuquerque, NM. June 20-24 (1994) (to be published in IEEE Transactions on Magnetics)

*"Magnetic Character Studies of Cu/Co/Cr Catalysts: Effect of Method of Preparation"* C. Harris\*, L. Williams\*, M.A. Akundi, G. Lampkin\*, C. Reed\*, and A.N. Murty. The U.S. DOE Second Annual HBCU/Private Sector/Fossil Energy Research and Development Technology Transfer Symposium, Birmingham, AL. April 18-22 (1994).

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