

C. M. Earnest
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EDUCATION

1970

University of Alabama Tuscaloosa,
Alabama
Ph.D., May 1970
Major: Analytical Chemistry

1964

University of Alabama Tuscaloosa,
Alabama
B.S., May 1964
Major: Chemistry

PRESENT POSITION

1985-Present

Dana Professor of Chemistry
Berry College
Mount Berry, GA

PROFESSIONAL EXPERIENCE 1978-1985

Senior Staff Scientist
Perkin-Elmer Corporation
Norwalk, CT

1976-1978

Associate Professor of Chemistry
Northeast Louisiana University

1974-1976

Assistant Professor of Chemistry and
Coordinator of Grants and Proposals,
University of Pittsburgh at Johnstown

1969-1974

Assistant Professor of Chemistry
Director of the NIH Minority Biomedical
Support Research Program,
Stillman College

RELATED PROFESSIONAL EXPERIENCES

Editorships/Column Contributorships

1988-Present New techniques and applications editor NATAS Notes.

1981-1997 Editorial Board of Thermochemica Acta (an international scientific journal), Elsevier Publishers.

1989-1990 Editor NATAS Notes, a quarterly publication of The North American Thermal Analysis Society.

1991-1992; 1988-1989 Assistant Editor NATAS Notes, a quarterly publication of The North American Thermal Analysis Society.

C.M. Earnest

PUBLICATIONS

Books and Chapters

“*Quantitative Analysis: Gravimetric, Volumetric and Instrumental Analysis*”. Earnest, C.M. and Larry Wilson. 2000. Mohican Publishing Company, Perrysville, Ohio. 420 pp.

“*Thermal Analysis of Clays, Minerals and Coal*,” Perkin-Elmer 1988, Norwalk, CT.

“*Compositional Analysis by Thermogravimetry*,” ASTM, Philadelphia, November 1988.

“*Proceedings of the 17th NATAS Conference*,” Earnest, C.M., Howard Press 1988, Volumes I and II. (1000 pages).

Articles

Earnest, C.M., Miller, E.T., “An Assessment of Barium and Strontium Carbonates as Temperature and Enthalpy Standards,” *J. Thermal Anal Calorim*, June 2017, DOI 10.1007/s10973-017-6539-2.

Earnest, C.M., Ed Charley, P. K. Gallagher, and M. Richardson, “An Investigation of New Standard Materials for Calibration of Differential Thermal Analyzers,” *J. Thermal Anal*, 40, 1993, pp 14151422.

Earnest, C.M., “Thermal Analysis of Selected Raw Material from the Southern United States,” *Proc. Of the 21st NATAS Conference*, 1992, pp 472 – 276.

Earnest, C.M. and R. J. Seyler, “Temperature Calibration of Thermomechanical Analyzers; Part II,” *J. Testing and Evaluation*, 20, #6, November 1992, pp 434-439.

Earnest, C.M. and R. J. Seyler, “Temperature Calibration of Thermomechanical Analyzers; Part I,” *J. Testing and Evaluation*, 20, #6, November 1992, pp 430-433.

Earnest, C.M. and R. J. Seyler, “An Inter-laboratory Test of the Standard Calibration Procedure ASTM E-691,” in *Material Characterization by Thermomechanical Analysis*, ASTM STP 1136, A. T. Riga and C. M. Neag, editors, American Society for Testing of Materials, 1991, pp. 22-31.

Earnest, C.M. and R. J. Seyler, “Recognition and Assignment of Phase Transitions in Selected Inorganics by Thermomechanical Analysis,” presented at ASTM Symposium *Material Characterization by Thermomechanical Analysis*, Philadelphia, 1990.

Earnest, C. M., “Thermal Analysis of Selected Illite and Smectite Clay Minerals. Part II. Smectite Clay Specimens” in *Thermal Analysis in the Geosciences*, W. Smykatz-Kloss and S. Warne editors, Springer Verlag, 1991, pp 288-312.

Earnest, C.M., “Thermal Analysis of Selected Illite and Smectite Clay Minerals. Part I. Illite Clay Specimens,” in *Thermal Analysis in the Geosciences*, W. Smykatz-Kloss and S. Warne editors, Springer Verlag, 1991, pp 270.286

Earnest, C. M., “Thermal Analysis, Thermal Measurement, and Thermal Testing,” *ICTA NEWS*, 22, #2 1989, pp 35-38.

Earnest, C. M., Thermal Analysis: A Tool for Many Disciplines Providing a Variety of Information," *NATAS NOTES*, Vol. 21, #4, 1990, pp 25-29.

C.M. Earnest

Earnest, C. M., and D. Kinzer, "The Use and Extended Lifetimes of Microfurnaces for Thermogravimetry, Part II. Repair of Broken Furnace Stems," *Thermochimica Acta*, 158, 1990, pp. 167-175.

Earnest, C. M., "The Use and Extended Lifetimes of Microfurnaces for Thermogravimetry, Part I. Construction Application, and Cleaning," *Thermochimica Acta*, 158, 1990, pp. 157-166.

Earnest, C. M., "Calorimetric Heat of Transition Assignments by Microcomputer-based Differential Thermal Analysis, Part II. The (Orthorhombic to Hexagonal) Transition of Barium Carbonate," *Thermochimica Acta*, 1989, 137, pp. 365-371.

Earnest, C. M., "Calorimetric Heat of Transition Assignments by Microcomputer-based Differential Thermal Analysis, Part I. The (Monoclinic to Cubic) Transition of Bismuth (III) Oxide," *Thermochimica Acta*, 1989, 137, pp. 365-371.

Earnest, C. M., "Multi-Atmosphere Thermal Analysis of Oil Shales," *Proc. of the 17th NATAS Conference*, Ed., Vol. II, Howard Press, New Jersey, 1988.

Earnest, C. M., "The Modern Thermogravimetric Approach to the Compositional Analysis of Materials" *Compositional Analysis by Thermogravimetry*, Ed., ASTM, Philadelphia, 1988, pp 1-18.

Earnest, C. M., "Thermogravimetry of Selected Minerals and Raw Materials," in *Compositional Analysis by Thermogravimetry*, Ed. ASTM, Philadelphia, 1988, pp. 272-287.

Earnest, C. M., "Characterization of the Low Temperature ASH Component of the Herrin 6 Seam (Southwestern, Illinois) by Thermal Methods of Analysis," *Thermochimica Acta*, 121, 1987, pp. 7186.

Earnest, C. M., "Thermal Analysis of Bauxite's Red Muds, and Aluminas," *Proc. of the 16th NATAS Conference*, Washington, D.C., October 1987.

Earnest, C. M., "The Use of Synthetic Mineral Mixtures to Elucidate the Thermal Behavior of Minerals in Coals," *Proc. of the 15th NATAS Conference*, Cincinnati, Ohio, September 21-24, 1986, p. 193.

Earnest, C. M., and Kenze, W., "A Robotic System for Differential Scanning Calorimetry," *Instrumentation-Research*, September 1985, Volume I and II, p. 70.

Earnest, C. M., "The Evolution of Differential Scanning Calorimetry," *Thermochimica Acta*, 92, 1985, pp. 285.

Earnest, C. M., "Characterization of the Low Temperature ASH Component of Coals using Multiple Atmosphere DTA, TG and DTG Techniques," *Thermochimica Acta*, 1985, pp. 361

Earnest, C. M., "Thermal Analysis of the Mineral Matter in Coals, Part II: Characterization of the LTA Component of the Herrin No. 6 Seam," *Proc. of the 14th NATAS Conference*, San Francisco, California, September 1985, pp. 284-290.

Earnest, C. M., "Thermal Analysis of the Mineral Matter in Coals, Part I: Preliminary Considerations," *Proc. of the 14th NATAS Conference*, San Francisco, California. September 1985, pp. 277-283.

Earnest, C. M., "Thermal Analysis in the Coal Industry," *Proc. of the 4th International Coal Testing Conference*, Lexington, Kentucky, October 1984. Published: *Instrumentation-Research*, Vol., I, 1985, pp. 73-81.

Earnest, C. M., "Descriptive Oxidative Profiles for Pyrite in Low Temperature Ash Component of Coals by Differential Thermal Analysis," Presented to the Division of Fuel Chemistry, ACS National Meetings, St. Louis, Missouri, *Thermochimica Acta*, April 8-13, 1984, 75, pp. 219-232.

Earnest, C. M., "Modern Thermogravimetry," *Analytical Chemistry*, 1984, 56, pp. 1471A-1486A.

Earnest, C. M., and Culmo, R. F., "The Use of Modern Computerized Instrumentation for the Rapid Proximate and Ultimate Analysis of Coals," *Proc. of the 3rd International Coal Testing Conference*, Lexington, Kentucky, October 24,26, 1983, pp 66-70.

Earnest, C. M., "Thermal Analysis of Hectorite, Part II: Differential Thermal Analysis," *Thermochimica Acta*, 1983, 63, pp. 291-306.

Earnest, C. M., "Thermal Analysis of Hectorite, Part I: Thermogravimetry". *Thermochimica Acta*, 1983, 63, pp. 277-289.

Earnest, C. M., Brennan, W. P., DiVito, M. P. and Fyans, R. L., "Microcomputer-Controlled Differential Scanning Calorimetry," *American Lab* 1983, Vol. 15, 1, pp. 75.

Earnest, C. M., "Comparative TG-DTG Oxidative Profiles of Selected American and Australian Oil Shales," *Thermochimica Acta*, 1983, 60, pp 171.

Earnest, C. M., "Recent Advances in Computerized High Temperature Differential Thermal Analysis," in *Advances in Material Characterization, Materials Sciences*, Res. Series, 1983, Vol. 15.

Earnest, C. M., "The R. Q. Matrices - A Tool for Manipulation of Chromatographic Patterns," *Analyst*, 1982, 107, p. 1393.

Earnest, C. M., "A Thermogravimetric Method for the Rapid Proximate and Calorific Analysis of Coals and Coal Products," in *Thermal Analysis Vol. II: Proc of the 7th ICTA*, Miller, B.. Ed., 1982, pp. 1260-1269.

Earnest, C. M., "Thermogravimetry of Selected American and Australian Oil Shales in inert Dynamic Atmospheres", *Thermochimica Acta*, 1982, 58, pp. 271-288.

Earnest, C. M., Fyans, R. L. and Kunze, W., "Differential Scanning Colorimetric Studies Using a New Reusable High Pressure Capsule," *Proc of the 11th North America Thermal Analytic Society*, 1981, Vol. II. P. 641.

Earnest, C. M., "Thermal Analysis of Clay Minerals: A New Microcomputer Approach to an Old Study," *Proc of the 11th North American Thermal Analysis Society*, 1984, Vol. II, p. 641.

Earnest, C. M., "Thermal Analysis of Minerals in Coal and Coal Ash," The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlantic City, NJ, March 1981, Paper #493, *Journal Calorim, Anal.*, 1981, M8-M8. Also in *Proc. of the 2nd ESTA*, Dollimore, D, Ed., Heyden, London, 1981, p. 517.

Earnest, C. M., "Characterization of Coal Liquefaction Residues by Thermal Methods of Analysis," 1981 Pittsburgh Conference, Paper #495. (A modified version of this paper also presented at the 5th International Analytical Calorimetry Symposium at the 185th ACS National Meeting, Seattle, Washington, March 1983), in *Analytical Calorimetry*, Johnson, J. F. and Gill, P. S., Eds., Plenum Press, New York, 1984, Vol. 5, pp 343-359.

Earnest, C. M., and R. L. Fyans, "Recent Advances in Microcomputer Controlled Thermogravimetry of Coal and Coal Products," *Thermal Analysis Application Study #32*, PerkinElmer Corporation, Norwalk, Connecticut, April, 1981.

Earnest, C. M., "Characterization of Smectite Clay Minerals by Differential Thermal Analysis and Thermogravimetry. Part I: Montmorillonite," *Thermal Analysis Application Study #31*, Perkin-Elmer Corporation, Norwalk, Connecticut, October, 1980.

Earnest, C. M., "The Application of Differential Thermal Analysis and Thermogravimetry to the Study of Kaolinite Clay Minerals," *Thermal Analysis Application Study #30*, Perkin-Elmer Corporation, Norwalk, Connecticut, October, 1980.

Earnest, C. M., et al., "Performance Evaluation of the Aerated Lagoon System at Windber, Pennsylvania," *Environmental Protection Technology Series EPT-600/2-78-023*, U.S. Environmental Protection Agency, March 1978.

Earnest, C. M., "Experiments Involving Thermal Methods of Analysis for Undergraduate Chemistry Laboratories Part II," *Journal of Chemical Education*, 1978, 55, A371.

Earnest, C. M., "Experiments Involving Thermal Methods of Analysis for Undergraduate Chemistry Laboratories Part I," *Journal of Chemical Education*, 1978, 55, A331.

Earnest, C. M., et. al., "Algorithm for Recognition and: Quantitation of Chromatograms of a Pesticide Mixture by a Microprocessor-based Integrator," *Analytical Chemistry*, 1978, 50, pp. 1362-1366.

Earnest, C.M and S.M McCown, "Gas Chromatographic Detections: A Syllabus of Errors," *American Laboratory*, 1978, 10 (#5), pp. 33-40

Earnest, C. M., et. al., "A Set of Algorithms for Microprocessor-based Integrator Quantitation of Chromatograms of Selected Organic Residues," *American Laboratory*, 1977, #9, pp. 16-30.

PROFESSIONAL PRESENTATION International and National

Earnest, Charles M. and Ethan Miller. *Thermal Behavior of Barium and Strontium Carbonates*. 2016 Pittsburgh Conference, Atlanta, GA, March 8, 2016.

Earnest, Charles M., Karla Gann, and Britney Stong. *Improved Quantification of Gibbsite in Bauxite Ores by Thermogravimetric Methods*. 2016. Pittsburgh Conference, Atlanta, GA, March 8, 2016.

Earnest, C. M., R. B. Cassell, J. McCurdy and K. Menard, "Understanding Porcelain Ceramics Firing Using Simultaneous Thermal Analysis." Presented at the 2013 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Philadelphia, PA, March 19, 2013.

Earnest, C. M., M. Hasagawa, and A. Vargas, "A Study of the Tantalum-Resorcinol Complex for the Spectrophotometric Analysis of Tantalum". Presented at the 2005 Pittsburgh Conference, Orlando, FL, March 3, 2005.

Earnest, C. M., "Thermal Analysis in the Alumina Industry," invited presentation at the Second Annual Technical Conference of the Southeastern Thermal Analysis Society, UCB Tech Center, Smyrna, GA, October, 2004.

Earnest, C. M., "Thermal Analysis of Clays, Minerals and Inorganics," invited presentation at the First Annual Technical Conference of the Southeastern Thermal Analysis Society, UCB Tech Center, Smyrna, GA, October, 2003.

Earnest, C. M., Rudzinski E., and Chittick-Culper, A., "Thermal Analysis of Floyd Shale". Presented at the 29th NATAS Conference, St. Louis, MO, September 24, 2001.

Earnest, C. M., "The Characterization of Geological Materials, Using Thermal Methods of Analysis". An invited paper presented at the 1999 ORTAS Meeting, May, 1999, Ohio State University.

Earnest, C. M., "Thermal Analysis of Geological Materials," An invited paper at the 1998 NATAS Conference, Cleveland, Ohio, September 13-15, 1998.

Earnest, C. M., "Assignment of Glass Transition Temperatures by Thermomechanical Analysis," Invited Paper: ASTM Symposium of Glass Transition held March 1993, Atlanta, GA, in assignment of the glass transition, ASTM STP 1249, R. J. Seyler, Ed., ASTM, Philadelphia, 1994, pp. 75-87.

Earnest, C. M., "Thermal Analysis Methodology for the Characterization of Raw and Processed Bauxite Ores," An invited plenary lecture, *Proc. of the 10th International Congress on Thermal Analysis*, pp. 698-702, Hafied, England, 1992.

Earnest, C. M., "Thermal Analysis of Selected Georgia Clays," presented at the 1989 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta, GA, March 6-9, 1989.

Earnest, C. M., "Analysis of Berry College Clay (Floyd Shale), Rome, GA," 40th ACS Southeast Regional Meeting, Atlanta, GA, November 9-11, 1988, Paper #297.

Earnest, C. M., "The Use of Computerized Instrumentation in the Undergraduate Chemistry Program," 40th ACS Southeast Regional Meeting, Atlanta, GA November 9-11, 1988, Paper #345.

Earnest, C. M., "On the Use of DSC Oxidative Profiles in the Study of Carbonaceous Materials," *Proc. of the 17th NATAS Conference*, Howard Press, New Jersey, 1988.

C.M. Earnest

Earnest, C. M., "On the Use of DSC Oxidative Profiles in the Characterization of Carbonaceous Materials," *Proc. of the 17th NATAS Conference*, Lake Buena Vista, Florida, October, 1988, Volume II.

Earnest, C. M., "On the (Monoclinic to Cubic) Transition of Bismuth (III) Oxide," *Proc. of the 15th NATAS Conference*, Cincinnati, Ohio, September 21-24, 1986, pp 481 and 986.

Earnest, C. M., Brennan, W. P. and Colo, S. M., "Recent Trends in the Computerized Thermal Analysis of Polymeric Materials," *The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*, New Orleans, Louisiana, February, 1985, Paper #962.

Earnest, C. M., "Thermal Analysis in the Alumina Industry," presented at the 1984 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Atlanta City, NJ, March 1984, Paper #807. (Bauxites, Red Mud, Etc.)

Earnest, C. M., DiVito, M. P., Brennan, W. P and Fyans, R. L., "A Microcomputer Approach to the Characterization of Polymers," *Pittsburgh Conference*, 1984, Paper #319.

Earnest, C. M., et al., "Recent Advances in High Temperature Differential Thermal Analysis of Industrial Raw Material," *The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*, Atlanta City, NJ, March 11, 1983, Paper #975.

Earnest, C. M., et al., "Thermal Analysis in Industry and Research," *The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy*, Atlanta City, NJ, March 11, 1983, Paper #975.

Earnest, C. M., Fyans, R. L. and Culmo, R. F., "Instrumental Methods for Analyzing Fossil Fuels," Presented at the Sixth Australian Symposium on Analytical Chemical, Australian National University, Canberra, Australia, August, 1981.

Earnest, C. M., et al., "PATR Matrix Algebra: A Fingerprinting Scheme for Chromatography," *The Pittsburgh Conference*, 1981, Paper #337.

Earnest, C. M., et al., "Thermal Decomposition of Catechin – A Model Compound of Bark Polyphenols," presented at the Second Chemical Congress of the North American Continent, Las Vegas, Nevada, August, 1980, Paper #82.

Earnest, C. M., "The Use of Wastewater Samples in Teaching Analytical Chemistry," 33rd Southwest Regional Meeting of the American Chemical Society, Little Rock, Arkansas, 1977.

Earnest, C. M., and Chien, Chao-Fu, "A Study of the Use of Macroporous Silica Gel and Modified Macroporous Silica Gel for the Separation of Pesticides," presented at the 52nd Annual Meeting of the Louisiana Academy of Sciences, Thibadeaux, Louisiana, February, 1978.

Earnest, C. M., and Bruscato, F. N., "A Study of the Instrumentation Capabilities of Colleges and Universities in Louisiana and Border States Which Do Not Offer the Ph.D. in Chemistry," presented at the 52nd Annual Meeting of the Louisiana Academy of Sciences, Thibadeaux, Louisiana.

Earnest, C. M., Runion, T. A. and Sherrer, C. S., "A Survey of the Mercury Content of Fish from the Warrior River (Alabama)," presented at the 3rd Annual Xavier Biomedical Symposium, 1975.

Earnest, C. M., Runions, T. A. and Berry, A. J., "Low-level Mercury Determination Using an Iodide Selective Electrode," presented at the Second Annual Xavier Biomedical Symposium, 1974.

Earnest, C. M., and Findes, A. F., "Sorption Behavior of Selected Long Chain Paraffins," presented at the First Annual Xavier Biomedical Symposium, 1973.

Earnest, C. M., "A Study of the Gas-solid Interface Using a Quartz Crystal Microbalance," Ph.D. Dissertation, University of Alabama (Tuscaloosa), 1969.

RECOGNITIONS

Fellowship and Honors

2001 Distinguished Service Award, The North American Thermal Analysis Society, September, 2001

1998 Garrett Award Winner, Berry College
 Chaired this Session at Pittcon 2015 in
 New Orleans and Pittcon 2016 in
 Atlanta, GA

1993 Carden Award Winner, Berry College
 Named Fellow of American Institute of Chemists, 1983

Fellowship Award The North American Thermal Analysis Society, October 1988
 Outstanding Educators of America, 1974

SERVICES

Professional Memberships American

Chemical Society
 North American Thermal Analysis Society
 American Society for the Testing of Materials
 American Institute of Chemists
 International Confederation for Thermal Analysis
 Sigma XI (Research Honorary)
 Gamma Sigma Epsilon (Scholastic Honorary)
 American Ceramic Society

Professional Activities

Chaired Thermal Analysis Networking Session, at 2016 Pittsburgh Conference, Atlanta, GA.
 Chaired Thermal Analysis Networking Session, at 2015 Pittsburgh Conference, New Orleans, LA.

Chaired Thermal Analysis Networking Session, "Recent Advances in Thermal Analysis Techniques and Methodology" at 2013 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Philadelphia, PA, March 18, 2013.

Chaired "Recent trends in Thermal Analysis" Networking Session at 2010 Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, Orlando, FL

March 2, 2010.

Chairperson, International Confederation for Thermal Analysis, Geosciences
Committee Editorial Board of *Thermochimica Acta* (an international scientific journal),
Elsevier Publisher.

Presently serving as a reviewer for *J. Thermal Analysis*, A Wiley-Heyden Publication

Presently serving as a reviewer for the journal *Analytical Chemistry*, published by
American Chemical Society.

Presently serving as a proposal reviewer for National Science Foundation

Editorial Board *NATAS Notes*, a quarterly publication of The North American Thermal
Analysis Society.

Member American Chemistry Society's Analytical Division Fellowship Committee,
(Chairman 1989-91)

First Vice-Chairman of ASTM Committee E-37 on Thermal Measurements (1986-90)

President of North American Thermal Analysis Society (NATAS) July 1990 – Jan. 1992,

Served as Editor of *NATAS Notes* 1989

Organized Symposium on "Compositional Analysis by Therogravimetry" held March 1987,
Philadelphia, sponsored by American Society for Testing Materials.