Jeffrey B. Cornelius
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Education

1987 Ph.D. Physical Chemistry, University of Illinois, Urbana, IL
1983 M.S. Physical Chemistry, University of Illinois, Urbana, IL
1981 B.S. Chemistry, Principia College, Elsah, IL

Professional Experience

2019 - Chair of Engineering Department
2016 - 2018 Chair Physical Science and Engineering Department
2016 Program Review committee for Greenville College Chemistry Department
2015 Charles Stuart Harding Mott Distinguished Professor, Principia College
2013 Program Review committee for Blackburn College Chemistry Department
2011 - 2018 Scholastic Committee Chair, Principia College
2011 - 2014 MNS Unit Head
2011 Chair, St. Louis Section American Chemical Society
2008 - 2016 Professor/Department Chair Chemistry, Principia College
2008 Program Review Committee for Greenville College Chemistry Department
2005 - 2008 Math and Natural Science Unit Head/ Professor of Chemistry
2001 - 2005 Professor/Department Chair Chemistry, Principia College
1998 Sabbatical for Naval Surface Weapons Center at Indian Head, MD
1996 – 2001 Associate Professor/Department Chair, Principia College
1989 – 1996 Assistant Professor of Chemistry, Principia College
1994 (summer) Computer Programmer, Coergon, Boulder, Colorado
1991 (summer) Research Associate, Petroleum Research Fund, U. of Illinois
1990 (summer) Consultant, Illinois EPR Center, University of Illinois
1987 – 1989 Belfer Fellow, Albert Einstein College, Yeshiva University
1981 – 1987 Research and Teaching Assistant, University of Illinois
1980 – 1981 Co-op Research Assistant, Dow Chemical Company
1979, 1980 Summer Analytical Research Assistant, Ashland Oil
1978 – 1981 Undergraduate Teaching Assistant Principia College
1978 Undergraduate Research Assistant, Principia College

Volunteer Experience

2017 - Treasurer St. Louis Section American Chemical Society

2017 -	Treasurer and Trustee Historic Elsah Foundation
2013 - 2016	Director St. Louis Section American Chemical Society
2011	Chair St. Louis Section American Chemical Society
2012 - 2013	Chair First Church of Christ, Scientist Alton/Godfrey Board
2006 - 2015	Treasurer and Trustee, Rainbow Valley Ranch Foundation
2002 – 2011	Treasurer and Trustee, Crystal Lake Camp

Courses Taught

Fundamentals of Chemistry Sequence Environmental Chemistry
Consumer Chemistry
Chemistry of Art Objects and Media Introduction to Chemistry
Non-Renewable Resources Organic Chemistry Sequence Physical Chemistry Sequence
Instrumental Analysis Environmental Testing
Advanced Environmental Chemistry Applied Spectroscopy
Organic Survey

Committee Work

Scholastic Committee
Faculty Leadership Team
General Education Implementation Team Committee
Unit Head Math and Natural Sciences Unit
Faculty Council
Campus Faculty Promotion Committee
Speaker's Committee
Recycling Steering Committee
Chemical Safety Committee
Campus Safety Committee
Writing Across the Curriculum
Cultural Properties Committee
First Year Experience Program Teacher (FYE)
Chemistry Department Chair
Science Building Renovation and Design

Awards and Professional Societies

Distinguished Service Award, St Louis Section (2018)
Charles Stuart Harding Mott Distinguished Professor (2015)
Physical Science Award, Principia College (1981)
International EPR Society
American Chemical Society - Division of Chemical Education
Sigma Xi

Publications

Jeffrey B. Cornelius and Robert M. Trapp, Terry J. Delord, Frank R. Fronczek, and Steven F. Watkins, Jill Jasin Orosz and Ronald L. Musselman, One-Dimensional Collective Electronic Effects in the Helically Stacked Cs2[Ni(CN)4]·H2O and Cs2[Pt(CN)4]·H2O: X-ray Structure, Polarized Specular Reflectance, and ZINDO Calculations. Inorg. Chem., 2003, 42 (9), pp 3026–3035.

Frank R. Fronczek, Terry J. Delord, Steven F. Watkins, Petia Gueorguieva, and George G. Stanley, Annegret
S. Zizza and Jeffrey B. Cornelius, Yves A. Mantz and Ronald L. Musselman, A Solid-State Spectral Effect in Eclipsed Tetracyanonickelates: X-ray Crystal Structure, Polarized Specular Reflectance Spectroscopy, and ZINDO Modeling of $Sr[Ni(CN)_4]\cdot 5H_2O$, $Rb_2[Ni(CN)_4]\cdot H_2O$, and $Na_2[Ni(CN)_4]\cdot 3H_2O$, Inorg. Chem., 2003, 42 (22), pp 7026–7036.

Jiang, Fa.S., Zuberi, T.M., Cornelius, J.B., Clarkson, R.B., Gennis, R.B., and Belford, R.L., Nitrogen and Proton ENDOR of Cytochrome d, Hemin, and metmyoglobin in frozen solutions. J. Am. Chem. Soc. 115, 10293 (1993).

Clarkson, R. B., Brown, D. R., Cornelius, J. B., Crookham, H. C., Shi, W.-J., and Belford, R. L. "S-Band Electron Spin Echo Spectroscopy," Pure and Applied Chemistry, 64:893-902 (1992).

Snetsinger, P.A., Chasteen, N. D., Cornelius, J. B., and Singel, D. J., Probing the iron center of the low-spin cyanide adduct of transferrin by ESEEM spectroscopy. J. Phys. Chem. 96, 7917 (1992).

Cornelius, J.B., McCracken, J., Clarkson, R.B., Belford, R.L., and Peisach, J., ESEEM angle selection studies of axial pyridine coordination to copper(II) benzoylacetonate. J. Phys. Chem. 94, 6977 (1990).

Tipton, P.A., McCracken, J., Cornelius, J.B., and Peisach, J. Electron spin-echoe modulation studies of Pyruvate Kinase active-site complex. Biochem. 28, 5720 (1989).

Snetsinger, P.A., Cornelius, J.B., Clarkson, R.B., Bowman, M.K. and Belford, R.L. Electron spin echo envelope modulation by natural-abundance carbon-13 and aluminum-27 in two disordered systems. J. Phys. Chem. 92, 3696 (1988).

Cammack, R., Chapman, A., McCracken, J., Cornelius, J.B., Peisach, J. and Weiner, J.H. Electron spin-echo spectroscopic studies of E. coli fumarate reductase. Biochem. Biophys. Acta, 956, 307 (1988).

Clarkson, R.B., Belford, R.L., Cornelius, J.B., Snetsinger, P.A. and Bowman, M.K. Studying coal molecular structure with ESE spectroscopy. Fuel 66, 925 (1987).

Belford, R.L., Clarkson, R.B., Cornelius, J.B., Rothenberger, K.S., Nilges, M.J. and Timken, M.D. EPR over three decades of frequency: radiofrequency to infrared, In: Electron Magnetic Resonance of the Solid State (Weil, J.A., ed) Chemical Institute of Canada, Ottawa (1986).

Musselman, R.L., Cornelius, J.B. and Trapp, R.M. Single-crystal polarized specular-reflectance spectra of BaNi(CN)4-4H2O. A one-dimensional solid-state effect. Inorg. Chem. 20, 1931-1932 (1981).

Chapters and Symposia

McCracken, J., Cornelius, J.B. and Peisach, J. Quantitative aspects of 14N electron spin echo envelope modulation in Cu(II)-proteins. In: Proceedings of the 2nd ACC workshop on Electron Spin Echo Spectroscopy, Amsterdam, The Netherlands, (1988).

Chasteen, N.D., Snetsinger, P.A., Swope, S.K., van Willigen, H., Cornelius, J.B. and McCracken, J. The structure of mixed-ligand cyano complexes of transferrin. In: UCLA Symposia on Molecular and Cellular Biology, Vol. 98 (Winge, D. and Hamer, D., eds.) Alan R. Liss, Inc., (1988).

Abstracts and Posters

Lesko, Ava, Richardson, Hannah (Camille) and Cornelius, Jeffrey, Comparing Multivariate Data Analysis to Analyze Correlation of Fat, Carbohydrate and Sugar Contents in Dark vs. Milk Chocolate, 26th Annual Undergraduate Research Symposium, Southern Illinois University, Edwardsville, IL (2018).

Chacha, Stanley and Cornelius, Jeffrey, Converting Plastics into Fuel, 26th Annual Undergraduate Research Symposium, Southern Illinois University, Edwardsville, IL (2018).

Waller, Fiona and Cornelius, Jeffrey, Degradation of Sunscreen, 24th Annual Undergraduate Research Symposium, Southern Illinois University, Edwardsville, IL (2016).

Shepard, Cathrine, and Cornelius, Jeffrey, The Fate of Microplastics in the Mississippi and Illinois River, 23rd Annual Undergraduate Research Symposium, Southern Illinois University, Edwardsville, IL (2015).

Fielding, Garrett, and Cornelius, Jeffrey, Shear Thickening Fluid as a Means of Improving the Ballistic Properties of Aramid Fabrics, 22nd Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2014).

Mejia, Gabriela, and Cornelius, Jeffrey, Use of Alfalfa (Medicago sativa L.) in the Phytoremediation of Diesel-Contaminated Soil, 22nd Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2014).

Cornelius, Jeffrey, Harmadi, Hans and Richardson, Hannah (Camille), Diffuse Reflectance Lab Developed Using Principle Component Analysis (PCA) to Study Fat Content in Chocolate, 23rd

Biennial Conference on Chemical Education, Grand Valley University, Grand Rapids, MI (2014).

Harmadi, Hans, and Cornelius, Jeffrey, Analysis of Cocoa Butter in Chocolate Bars, 21st Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2013).

Nyapete, Calvin and Cornelius, Jeffrey, Synthesis of Trans-Chrysanthemic Acid, 21st Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2013).

Ocheing, Frederick, and Cornelius, Jeffrey, Synthesis of Fatty Acid Esters in situ Transesterification of Activated Sewage Sludge, 21st Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2013).

Atieno, Wendy and Cornelius, Jeffrey, Pollution Remediation in Nairobi Kenya, 20th Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2012).

Wandahwa, Sylvia and Cornelius, Jeffrey, Compounds and preservatives used in skin care products, 20th Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2012).

Calkins-Keyes, Stephen and Cornelius, Jeffrey, Is it Soap or Is it Biofuel?, 20th Annual Undergraduate Research Symposium, Sigma Chemical, St. Louis, MO (2012).

Kamusinga, Brian, and Cornelius, Jeffrey, Analysis of Color Degradation in Paper and Artwork Using VISNIR. 19th Annual Undergraduate Research Symposium, Florissant Valley Community College, St. Louis, MO (2011).

Fianu, Godfred and Cornelius, Jeffrey, Evaluating Different Methods of Extracting Eugenol from Cloves. 19th Annual Undergraduate Research Symposium, Florissant Valley Community College, St. Louis, MO (2011).

Kamusinga, Brian, and Cornelius, Jeffrey, Analysis of Color Degradation in Paper and Artwork Using VISNIR Analysis. 21st Biennial Conference on Chemical Education, University of North Texas, Denton, TX (2010).

Kamusinga, Brian, and Cornelius, Jeffrey, Analysis of Atomic Emission Data from Vreeland Spectroscope Using ImageJ Image Processing Software. 21st Biennial Conference on Chemical Education, University of North Texas, Denton, TX (2010).

Kamusinga, Brian, and Cornelius, Jeffrey, Analysis of Color Degradation in Paper and Artwork using VISNIR and Analysis of Atomic Emission Data from digital images, 18th Annual Undergraduate Research Symposium, Southern Illinois University, Edwardsville, IL (2010).

Yitambin, Ingrid, and Cornelius, Jeffrey, Jatropha as an Alternative to Fossils Fuels for a World Dangerously Dependent on Oil Supplies, 17th Annual Undergraduate Research Symposium, Saint Louis University, St. Louis, MO (2009).

Weigand, Alison, and Cornelius, Jeffrey, Southwest Illinois Ice Age Climate Using Stable Carbon Isotope Ratios in Soil Layers, 11th Annual Undergraduate Research Symposium, Saint Louis University, St. Louis, MO (2003).

Fianu, Cynthia, and Cornelius, Jeffrey, Synthesis and Analysis of Benzene Derivatives (Methyl m-nitro benzoate, Benzyl chloride and Benzocaine), 9th Annual Undergraduate Symposium, Southern Illinois University, Edwardsville, IL (2002).

Waterson, Elizabeth and Cornelius, Jeffrey, Characteristics of Soil Property Changes Resulting From a Forest Burn. 8th Annual Undergraduate Research Symposium, Principia College, Elsah, IL (2000).

Cornelius, Jeffrey, Surviving a Chemistry Renovation/Addition. Chemed-99, Sacred Heart University, Fairfield, CT (1999).

Cornelius, Jeffrey, Shedd, Melanie, and Noradoun, Tina, Study of Bioremediation of Atrazine and 2,4-D in Soils, Chemed-99, Sacred Heart University, Fairfield, CT (1999).

Tinsman, Mark and Cornelius, Jeffrey, Conducting Polymers. 7th Annual Undergraduate Research Symposium, Saint Louis University, St. Louis, MO (1999).

Shedd, Melanie and Cornelius, Jeffrey, Degradation of 2,4-D. 7th Annual Undergraduate Research Symposium, Saint Louis University, St. Louis, MO (1999).

Noradoun, Tina and Cornelius, Jeffrey, The Effect of Temperature on the Bioremediation of Atrazine in Soil. 7th Annual Undergraduate Research Symposium, Saint Louis University, St. Louis, MO (1999).

Ward, Bill and Cornelius, Jeffrey, Paper Preservation Techniques. 6th Annual Undergraduate Research Symposium, Southern Illinois University at Edwardsville, Edwardsville, IL (1998).

Bruland, Greg and Cornelius, Jeffrey, Mercury Contamination at Mingo Swamp. 6th Annual Undergraduate Research Symposium, Southern Illinois University at Edwardsville, Edwardsville, IL (1998).

Field, Jacquelyn and Cornelius, Jeffrey, Bioremediation Investigation of Diesel Contaminated Soil. 5th Annual Undergraduate Research Symposium, University of Missouri at St. Louis, MO (1997).

Parker, Jennifer and Cornelius, Jeffrey, Indoor Air Quality in a Pottery Studio. 4th Annual Undergraduate Research Symposium, University of Missouri at St. Louis, MO (1996).

Cornelius, J.B. and Snetsinger, P.A., Physical Chemistry with MATHCAD. Chemed-95, Old Dominion University, Norfolk, VA (1995).

Tetreau, Mark and Cornelius, J.B., A Method for Producing Fullerenes in a Small Undergraduate Lab or Make Buckyballs at Home in Your Spare Time. 3rd Annual Undergraduate Research Symposium, Southern Illinois University at Edwardsville, Edwardsville, IL (1995).

Simpson, Harold and Cornelius, J.B., Computer Aided Laboratory Techniques. 3rd Annual Undergraduate Research , Southern Illinois University at Edwardsville, Edwardsville, IL (1995).

Shi, Wen-Jin, Clarkson, R. B., Cornelius, J. B., and Belford, R. L., S-band angle-selected ESE study of weak nitrogen coupling to Cu(II). 34th Rocky Mountain Conference on Analytical Chemistry, Denver,Colorado (1992).

Aloo, M., Cornelius, J.B., and Holzberlein, T., Jiko Stove Improvements
Illinois section of American Association of Physics Teachers, Carbondale, Illinois (1990).

McCracken, J., Cammack, R., Chapman, A., Weiner, J.H., Cornelius, J.B. and Peisach, J. Electron spin-echo studies of E. coli fumarate reductase. XIII International Conference on Magnetic Resonance in Biological Systems, Madison, Wisconsin (1988)

Chasteen, N.D., Snetsinger, P.A., Swope, S.K., van Willigen, H., Cornelius, J.B. and McCracken, J. A novel mixed-ligand cyano complex of transferrin. XIII International Conference on Magnetic Resonance in Biological Systems, Madison, Wisconsin (1988).

Cornelius, J.B., McCracken, J., Belford, R.L. and Peisach, J. ESEEM studies of 14N and 15N pyridine weakly bound to copper benzac. 11th International Electron Paramagnetic Resonance Symposium, Denver, Colorado (1988).

Tipton, P.A., McCracken, J., Cornelius, J.B. and Peisach, J. Pulsed EPR studies of rabbit muscle pyruvate kinase. FASEB Meeting, Las Vegas, Nevada (1988).

Snetsinger,P.A., Cornelius, J.B., Clarkson, R.B. and Belford, R.L. Electron spin echo envelope modulation studies of natural abundance low-gamma nuclei. 10th International Electron Paramagnetic Resonance Symposium, Denver, Colorado (1987).

Clarkson, R.B., Belford, R.L., Cornelius, J.B., Snetsinger, P.A. and Bowman, M.K. Studying coal molecular structure with ESE spectroscopy. Invited paper. 191st National Meeting of the American Chemical Society, New York, NY (1986).

Clarkson, R.B., Belford, R.L., Cornelius, J.B. and Snetsinger, P.A. ENDOR and ESE of powders. 8th International Electron Paramagnetic Resonance Symposium, Denver, Colorado (1985).

Cornelius, J.B., Musselman, R.L., Sanger, T.J., Stecher, L.C., Trapp, R.M. and Watkins, S.F. Solid state effect in the near-ultraviolet spectra of tetracyanonickelates and its relationships to structure. Second Chemical Congress of the North American Continent, Las Vegas, Nevada (1980)

Cornelius, J.B., Trapp, R.M. and Musselman, R.L. One-dimensional solid-state effect in a tetracyanonickelate: polarized specular reflectance spectra of BaNi(CN)4-4H2O and the relationship to structure. 14th Great Lakes Regional Meeting, Macomb, Illinois (1980).

Cornelius, J.B., Stecher, L.C. and Musselman, R.L. Single crystal polarized specular-reflectance spectra of BaNi(CN)4-4H2O. 72nd Annual Illinois Academy of Science Meeting, Carbondale, Illinois (1979).