

## **Bruce A. Kowert, Ph.D. Papers and Presentations**

### **Peer-Reviewed Publications. Undergraduate (\*) and Graduate (†) Student Co-Authors.**

1. B. A. Kowert, L. Marcoux, and A. J. Bard, *Journal of the American Chemical Society*, 94, 5538-5550, (1972). "Homogeneous Electron Transfer Reactions of Several Aromatic Anion and Cation Radicals."
2. F. Gerson, J. Jachimowicz, B. Kowert, and D. Leaver, *Helvetica Chimica Acta*, 56, 258-264 (1973). "ESR Spectra of Radical Anions in the Cyclazine Series."
3. F. Gerson, B. Kowert, and B. M. Peake, *Journal of the American Chemical Society*, 96, 118-120 (1974). "Spin Localization in the Spirobifluorene Radical Anion."
4. B. Kowert and D. Kivelson, *Journal of Chemical Physics*, 64, 5206-5217 (1976). "ESR Line Widths in Solution. VIII. Two-Component Diamagnetic Solvents."
5. B. A. Kowert, *Journal of Physical Chemistry*, 85, 229-235 (1981). "Determination of the Anisotropic and Nonsecular Contributions to ESR Line Widths in Liquids." Errata: *Journal of Physical Chemistry*, 85, 1772 (1981).
6. B. A. Kowert, J. J. Gambaro,\* K. M. Walters,† J. J. Crimi,\* and S. Mendez, Jr.,\* *Journal of Magnetic Resonance*, 63, 573-578 (1985). "Reorientational Information from the Intensities of Nitroxide Electron Spin Resonance Spectra."
7. B. A. Kowert, O. W. Yoon,† C. H. Klestinske,\* J. F. Schmidt,\* A.D. Baudendistel,\* and M. J. Palazzolo,\* *Journal of Physical Chemistry*, 89, 4146-4150, (1985). "Electron Spin Resonance Studies of Vanadyl Acetylacetonate in One- and Two-Component Solvents."
8. B. A. Kowert, *Journal of Magnetic Resonance*, 67, 138-142 (1986). "The Use of Electron Spin Resonance Line Widths to Obtain Anisotropic  $g$  Factors."
9. B. A. Kowert, G. K. Broeker,† S. J. Gentemann,† and M. J. Fehr,† *Journal of Magnetic Resonance*, 98, 362-380 (1992). "Investigation of the Reorientational Dynamics of the Bis(maleonitriledithiolato)nickel Anion Radical Using Electron Spin Resonance Lineshapes."
10. B. A. Kowert and W. I. Mariencheck,\* *Journal of Physical Chemistry*, 97, 11639-11642 (1993). "Electron Spin Resonance Studies of a Molecular Screw-Propeller."
11. B. A. Kowert, E. J. Higgins,\* W. I. Mariencheck,\* T. L. Stemmler,\* and V. Kantorovich,\* *Journal of Physical Chemistry*, 100, 11211-11217 (1996). "Electron Spin Resonance Studies of Reorientational Motion in Glass-Forming Liquids."
12. B. A. Kowert, *Journal of Physical Chemistry*, 100, 16373-16377 (1996). "The Allowed Values of Ratios of the Rotational Diffusion Constants for a Radical with Four Equivalent  $I = \frac{1}{2}$  Nuclei."
13. B. A. Kowert, T. L. Stemmler,† M. J. Fehr,† P. J. Sheaff,\* T. J. Gillum,\* N. C. Dang,\* A. M. Hughes,\* B. A. Staggemeier,\* and D. V. Zavich,\* *Journal of Physical Chemistry B*, 101, 8662-8666 (1997). "Studies of the Translational and Reorientational Motions of Planar Nickel Complex Ions."
14. B. A. Kowert and N. C. Dang,† *Journal of Physical Chemistry A*, 103, 779-781 (1999). "Diffusion of Dioxygen in  $n$ -Alkanes." (Letter)

15. B. A. Kowert, A. M. Hughes,\* N. C. Dang,\* M. B. Martin,† G. H. Cheung,\* H. D. Tran,\* and J. P. Reed,\* *Chemical Physics*, 247, 435-443, (1999). “Translational Diffusion of Transition Metal Complexes.”
16. B. A. Kowert, N. C. Dang,† J. P. Reed,\* K. T. Sobush,\* and L. G. Seele III,\* *Journal of Physical Chemistry A*, 104, 8823-8828 (2000). “Diffusion of Dioxygen in Alkanes and Cycloalkanes.”
17. B. A. Kowert, N. C. Dang,† K. T. Sobush,\* and L. G. Seele III,\* *Journal of Physical Chemistry A*, 105, 1232-1237 (2001). “Diffusion of Aromatic Hydrocarbons in *n*-Alkanes and Cycloalkanes.”
18. B. A. Kowert, K. T. Sobush,\* N. C. Dang,† L.G. Seele III,\* C. F. Fuqua,\* and C. L. Mapes,\* *Chemical Physics Letters*, 353, 95-99 (2002). “Diffusion of Dioxygen in 1-Alkenes and Biphenyl in Perfluoro-*n*-alkanes.”
19. B. A. Kowert, N. C. Dang,† K. T. Sobush,\* and L. G. Seele III,\* *Journal of Physical Chemistry A*, 107, 1253-1257 (2003). “Diffusion of Buckminsterfullerene in *n*-Alkanes.”
20. B. A. Kowert, K. T. Sobush,\* C. F. Fuqua,\* C. L. Mapes,\* J. B. Jones,\* and J. A. Zahm,\* *Journal of Physical Chemistry A*, 107, 4790-4795 (2003). “Size-Dependent Diffusion in the *n*-Alkanes.”
21. B. A. Kowert, J. B. Jones,\* J. A. Zahm,\* and R. M. Turner II,\* *Molecular Physics*, 102, 1489-1497 (2004). “Size-Dependent Diffusion in Cycloalkanes.”
22. B. A. Kowert, G. K. Broeker,† S. J. Gentemann,† T. L. Stemmler,\*† M. J. Fehr,† A. J. Stemmler,\* E. M. Thurman-Keup,\* P. W. McCoo,\* T. B. Everett,\* D. J. Lupo,\* P. K. Fitzsimmons,\* and A. Barros Cordero,\* *Journal of Physical Chemistry B*, 111, 13404-13409 (2007). “Molecular Motion of a Nickel-bis(dithiolato) Complex in Solution.”
23. B. A. Kowert, R. M. Turner II,\* and C. V. C. Caldwell,\* *Chemical Physics*, 344, 114-120 (2008). “Diffusion of 1-Alkenes and Cyclohexene in Alkane Solvents.”
24. B. A. Kowert, M. J. Fehr,† and P. J. Sheaff,\* *Inorganic Chemistry*, 47, 5696-5701 (2008). “Self-Exchange Reaction of  $[\text{Ni}(\text{mnt})_2]^{1-,2-}$  in Nonaqueous Solutions.”
25. B. A. Kowert, E. M. Thurman-Keup,\* A. J. Stemmler,\* T. L. Stemmler,† M. J. Fehr,† C. V. C. Caldwell,\* and S. J. Gentemann,† *Journal of Physical Chemistry B*, 114, 2760-2765 (2010). “Electron Spin Resonance Studies of the Reorientational Motion of  $\text{Ni}(\text{mnt})_2^-$ .”
26. B. A. Kowert and M. B. Watson,\* *Journal of Physical Chemistry B*, 115, 9687-9694 (2011). “Diffusion of Organic Solutes in Squalane.”
27. B. A. Kowert, A. B. J. Stemmler,\* T. L. Stemmler,† S. J. Gentemann,† M. B. Watson,\* and V. S. Goodwill,\* *Journal of Physical Chemistry B*, 116, 7687-7694 (2012). “Molecular Motion of the Bis(maleonitriledithiolato)nickel Trianion in Solution.”
28. B. A. Kowert, M. B. Watson,\* and N. C. Dang, *Journal of Physical Chemistry B*, 118, 2157-2163 (2014). “Diffusion of Squalene in *n*-Alkanes and Squalane.”
29. B. A. Kowert and P. M. Register,\* *Journal of Physical Chemistry B*, 119, 12931-12937 (2015). “Diffusion of Benzene and Alkylbenzenes in *n*-Alkanes.”

30. C. C. Kirkpatrick, J. N. Truong,\* and B. A. Kowert, *Journal of Computational Chemistry*, **38**, 93-100 (2017). “*d*-Electron Count, Ion-pairing, and Diagonal Twist Angles in Metallo-bis(dithiolene) Complexes.”

31. B. A. Kowert *Journal of Physical Chemistry B*, **122**, 1940-1947 (2018). “Diffusion of Benzene and Alkylbenzenes in Nonpolar Solvents.”

32. B. A. Kowert *Journal of Physical Chemistry B*, **124**, 3716-3723 (2020). “Diffusion of Polymethylene Chain Molecules in Nonpolar Solvents.”

33. B. A. Kowert ACS Omega. “Diffusion of Squalene in Nonaqueous Solvents.”

**Invited Presentations. Undergraduate (\*) and Graduate (†) Student Co-Authors.**

1. "Electron Transfer Reactions of Organic Radicals," Physical Chemistry Institute, The University of Basel, Basel, Switzerland, December 20, 1972.

2. "ESR Studies of Molecular Reorientation in Mixed Solvents," Department of Chemistry, the University of Texas at San Antonio, San Antonio, Texas, December 19, 1975.

3. "Separation of Contributions to ESR Line Widths in Liquids," Chemistry Department, the University of Missouri in St. Louis, St. Louis, Missouri, February 12, 1979.

4. "The Use of ESR to Study the Reorientational Motion of Radicals in Liquids." Series of five lectures given to the Department of Chemistry, Philipps University, Marburg, West Germany, June 27-July 3, 1979.

5. "Determination of the Anisotropic and Nonsecular Contributions to ESR Line Widths in Liquids," Department of Chemistry, Indiana State University, Terre Haute, Indiana, April 5, 1982.

6. "Electron Spin Resonance Studies of Radical-Doped Polymers," 187th National Meeting of the American Chemical Society, St. Louis, Missouri, April 10, 1984. Co-authors: J. J. Gambaro\* and K. M. Walters.† Given at a symposium honoring Prof. Allen J. Bard upon receipt of the ACS Award in Analytical Chemistry.

7. "Electron Spin Resonance Studies of Molecular Motion in Elastomers," Department of Chemistry, University of Connecticut, Storrs, Connecticut, January 30, 1985.

8. "Selected Applications of Electron Spin Resonance in the Study of Chemical Systems," Institute of Materials Science, University of Connecticut, Storrs, Connecticut, March 21, 1985.

9. "Electron Spin Resonance Studies of Molecular Motion in Elastomers," Department of Chemistry, University of Delaware, Newark, Delaware, April 17, 1985.

10. "Sabbatical Spin-offs," Department of Chemistry, Saint Louis University, St. Louis, Missouri, October 15, 1994.

11. "ESR Studies of the Reorientational Motion of a Nickel Complex," Symposium Honoring Professor Daniel Kivelson on his Sixty-Seventh Birthday, UCLA Faculty Center, Los Angeles, California, November 24, 1996.

12. "The Physical and Chemical Dynamics of a Planar Nickel Complex," Division of Physical Chemistry Seminar, Department of Chemistry, University of North Carolina (Chapel Hill), February 5, 1998.

13. "The Diffusion of Organic Solutes in *n*-Alkanes and Cycloalkanes," Divisions of Analytical and Physical Chemistry, Department of Chemistry, University of Delaware, Newark, Delaware, October 6, 2003.

14. "Physical and Chemical Dynamics at SLU," Department of Chemistry, Saint Louis University, St. Louis, Missouri, December 9, 2021. Seminar given upon retirement describing work done with SLU undergraduate and M.S.(R) students.

**Contributed Presentations by B. K. Undergraduate (\*) and Graduate (†) Student Co-Authors. Posters Are Indicated, Other Presentations Are Talks.**

1. "Analysis of ESR Studies of Rotational Motion in Liquids," 14th Midwest Regional Meeting of the American Chemical Society, Fayetteville, Arkansas, October 27, 1978.

2. "Separation of the Secular and Nonsecular Relaxation Contributions to ESR Line Widths in Liquids," 17th Midwest Regional Meeting of the American Chemical Society, Columbia, Missouri, November 5, 1981.

3. "ESR Studies in Two-Component Solvents. Diamagnetic Solids Dissolved in Diamagnetic Liquids," 17th Midwest Regional Meeting of the American Chemical Society, Columbia, Missouri, November 6, 1981. Co-authors: A. D. Baudendistel,\* C. H. Klestinske,\* and J. F. Schmidt.\*

4. "Reorientational Information from the Intensities of Nitroxide Electron Spin Resonance Spectra," 18th Midwest Regional Meeting of the American Chemical Society, Lawrence, Kansas, November 4, 1983. Co-authors: K. M. Walters,† J. J. Gambaro,\* J. J. Crimi,\* and S. Mendez, Jr.\*

5. (Poster) "Electron Spin Resonance Studies of Molecular Motion in Elastomers," Institute of Materials Science Board of Directors Poster Session, University of Connecticut, Storrs, Connecticut, May 8, 1985.

6. "Electron Spin Resonance Studies of Reorientational Motion in Nitroxide-Doped Elastomers," March Meeting of the American Physical Society, Las Vegas, Nevada, March 31, 1986. Co-authors: J. J. Gambaro\* and K. M. Walters-Thompson.†

7. "Electron Spin Resonance Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in Polar Solvents," March Meeting of the American Physical Society, Anaheim, California, March 13, 1990.

8. "ESR Studies of a Reorienting Nickel Complex," Missouri Conference on Physical Chemistry, University of Missouri, Columbia, Missouri, April 20, 1991.

9. "Application of the VTF Equation to Electron Spin Resonance Studies of Reorientational Motion," March Meeting of the American Physical Society, St. Louis, Missouri, March 19, 1996. Co-authors: T. J. Gillum,\* V. Kantorovich,\* and A. Barros Cordero.\*

10. "Diffusion of Dioxygen in *n*-Alkanes and Cycloalkanes," 34<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Quincy, Illinois, October 28, 1999. Co-authors: N. C. Dang† and J. P. Reed.\*

11. "Diffusion of Dioxygen and Aromatic Hydrocarbons in *n*-Alkanes and Cycloalkanes, March Meeting of the American Physical Society, Minneapolis, Minnesota, March 24, 2000. Co-authors: N. C. Dang,† J. P. Reed,\* K. T. Sobush,\* and L. G. Seele III.\*

12. "Diffusion of Buckminsterfullerene in the *n*-Alkanes," 35<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, St. Louis, Missouri, October 26, 2000. Co-authors: N. C. Dang,† L. G. Seele III,\* and K. T. Sobush.\*
13. "Diffusion of Dioxygen and Aromatic Hydrocarbons in the *n*-Alkanes," March Meeting of the American Physical Society, Indianapolis, Indiana, March 18, 2002. Co-authors: K. T. Sobush,\* C. F. Fuqua,\* and C. L. Mapes.\* (Invited to serve as Chair of the session.)
14. "Diffusion of Organic Solutes in the *n*-Alkanes," 37<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Lawrence, Kansas, October 24, 2002. Co-authors: C. F. Fuqua,\* C. L. Mapes,\* J. B. Jones,\* J. A. Zahm,\* and K. T. Sobush.\*
15. "Diffusion of Oxygen and Organic Solutes in *n*-Alkanes and Cycloalkanes," 38<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Columbia, Missouri, November 6, 2003. Co-authors: J. B. Jones,\* J. A. Zahm,\* and R. M. Turner II.\*
16. "ESR Studies of a Reorienting Nickel Complex." 39<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Manhattan, Kansas, October 20, 2004.
17. "ESR Studies of a Reorienting Nickel Complex," March Meeting of the American Physical Society, Denver, Colorado, March 7, 2007.
18. "ESR Studies of a Nickel Complex Ion in Ethers," 60<sup>th</sup> Southeast Regional Meeting of the American Chemical Society, Nashville, Tennessee, November 12, 2008.
19. "Translational Diffusion of Hydrocarbon Solutes in Squalane," 38<sup>th</sup> Great Lakes Regional Meeting of the American Chemical Society, Chicago, Illinois, May 15, 2009.
20. "Solute Diffusion in *n*-Alkanes and Squalane," 46<sup>th</sup> Midwest/39<sup>th</sup> Great Lakes Joint Regional Meeting of the American Chemical Society, St. Louis, Missouri, October 21, 2011. Co-author: M. B. Watson.\*
21. "Molecular Motion of the Bis(maleonitriledithiolato)nickel Monoanion and Trianion in Solution," 67<sup>th</sup> Southwest Regional Meeting of the American Chemical Society, Austin, Texas, November 10, 2011. Co-authors: V. S. Goodwill\* and M. B. Watson.\*
22. "Diffusion of Squalene in Squalane," 64<sup>th</sup> Southeastern Regional Meeting of the American Chemical Society, Raleigh, North Carolina, November 14, 2012. Co-author: M. B. Watson.\*
23. Diffusion of Squalene in *n*-Alkanes and Squalane," American Physical Society Prairie Section Fall 2013 Meeting, Columbia, Missouri, November 8, 2013.
24. "Diffusion of Alkylbenzenes in *n*-Pentadecane," 49<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Columbia, Missouri, November 14, 2014. (Invited to serve as Moderator of the Physical Chemistry General Session.)
25. "Computational Study of a K-diglyme Adduct of  $[\text{NiS}_4\text{C}_4(\text{CN})_4]^{3-}$ ," 49<sup>th</sup> Midwest Regional Meeting of the American Chemical Society, Columbia, Missouri, November 14, 2014. Presenting co-author: C. C. Kirkpatrick. Co-author: J. Truong.
26. "Computational study of metallo-bis(dithiolene) complexes. Effect of d-Electron Count on the Central Twist Angle Between Two  $\text{MS}_2$  Planes; a Surprising Discovery for  $d^0$  Systems." 67<sup>th</sup> Southeastern/71<sup>st</sup> Southwest Regional Meeting of the American

Chemical Society, Memphis, Tennessee, November 17, 2015. Presenting co-author: C. C. Kirkpatrick. Co-author: J. Truong.\*

27. (Poster) "ESR Studies of the Molecular Motion of the Bis(maleonitriledithiolato)-nickel Monoanion and Trianion in Diglyme." Missouri Inorganic Day, St, Louis, Missouri, May 6, 2017.

28. (Poster) "*d*-Electron Count, Ion-Pairing and Diagonal Twist Angles in Metallo-bis(dithiolene) Complexes." Missouri Inorganic Day, St, Louis, Missouri, May 6, 2017. Presenting co-author: C. C. Kirkpatrick. Co-author: J. Truong.\*

29. "Diffusion of Benzene and Alkylbenzenes in Nonpolar Solvents," 52<sup>nd</sup> Midwest Regional Meeting of the American Chemical Society, Lawrence, Kansas, October 20, 2017. (Gave talk in the morning Physical Chemistry General Session. Invited to serve as Moderator of the afternoon session.)

30. "*d*-Electron Count, Ion-Pairing, and Diagonal Twist Angles in Metallo-bis(dithiolene) Complexes," 52<sup>nd</sup> Midwest Regional Meeting of the American Chemical Society, Lawrence, Kansas, October 20, 2017. Presenting co-author: C. C. Kirkpatrick. Co-author: J. Truong.\*

**Talks and Posters (Indicated) Presented at Professional Meetings by Undergraduate (\*) or Graduate (†) Students Working Under B. K.'s Direction. Students Making Presentations Are Underlined.**

1. "ESR Studies of Reorientational Motion in Ethereal Solvents," Collegiate Division of the Annual Meeting of the Missouri Academy of Science, Northeast Missouri State University, Kirksville, Missouri, April 25, 1980. Co-author: J. S. Kulevich.\*

2. "ESR Line Width Studies of Isotopically Substituted Nitroxide Radicals," 5th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 17, 1982. Co-authors: S. Mendez, Jr.,\* J. J. Crimi,\* K. Schmidt,\* and J. J. Gambaro.\*

3. "ESR Studies of Radical-Doped Polymers," 6th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 16, 1983. Co-authors: J. J. Gambaro\* and K. M. Walters.†

4. "Electron Spin Resonance Slow Motion Line Shapes," 7th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 7, 1984. Co-author: G. K. Broeker.\*

5. "Electron Spin Resonance Studies of Radical-Doped Elastomers," 7th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 7, 1984. Co-author: K. M. Walters.†

6. "Computer Simulation of Electron Spin Resonance Spectra of Slowly Reorienting Radicals," 9th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 5, 1986. Co-author: G. K. Broeker.†

7. "Electron Spin Resonance Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical and the Bis(maleonitriledithiolato)platinum Anion Radical in Dimethylformamide-Chloroform Mixtures," 11th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 23, 1988. Co-author: E. J. Higgins.\*

8. "An Electron Spin Resonance Study of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in 2-Methyltetrahydrofuran," 11th Annual Area

Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, April 23, 1988. Co-author: S. J. Gentemann.†

9. (Poster) "Electron Spin Resonance Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in Polar Solvents," Washington University Undergraduate Research Symposium, St. Louis, Missouri, October 7, 1988. Co-authors: S. J. Gentemann,† E. J. Higgins,\* W. I. Mariencheck,\* T. L. Stemmler,\* and L. Criscione.\*

10. "Computer Simulation of ESR Spectra of a Slowly Reorienting Nickel Complex," 12th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 22, 1989. Co-author: S. J. Gentemann.†

11. "The Study of a  $D_{2d}$  Manganese Complex of a Schiff Base Biquinone Radical Ligand," 12th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 22, 1989. Co-author: W. I. Mariencheck.\*

12. "Electron Spin Resonance Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)Nickel Anion Radical in Polar Solvents," Third National Conference on Undergraduate Research, Trinity University, San Antonio, Texas, April 29, 1989. Co-authors: T. L. Stemmler\* and W. I. Mariencheck.\*

13. (Poster) "Electron Spin Resonance Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in Polar Solvents," 24th Midwest Regional Meeting of the American Chemical Society, St. Louis, Missouri, November 2, 1989. Co-authors: A. B. Joern,\* E. M. Thurman,\* S. L. Austermann,\* and T. L. Stemmler.†

14. "ESR Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical," 13th Annual Area Collegiate Chemistry Meeting, Murray State University, Murray, Kentucky, March 31, 1990. Co-authors: T. L. Stemmler† and M. J. Fehr.†

15. "ESR Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Trianion Radical," Fourth National Conference on Undergraduate Research, Union College, Schenectady, New York, April 19, 1990. Co-author: A. B. Joern.\*

16. "ESR Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in a Series of Ethers," Fourth National Conference on Undergraduate Research, Union College, Schenectady, New York, April 19, 1990. Co-author: E. M. Thurman.\*

17. "ESR Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Trianion Radical," Collegiate Division of the Annual Meeting of the Missouri Academy of Science, Saint Louis University, St. Louis, Missouri, April 27, 1990. Co-author: A. B. Joern.\* Ms. Joern was awarded second prize in her session of 13 Chemistry Division talks; she received an engraved plaque and \$50.00.

18. "ESR Studies of the Reorientational Motion of the Bis(maleonitriledithiolato)nickel Anion Radical in a Series of Ethers," Collegiate Division of the Annual Meeting of the Missouri Academy of Science, Saint Louis University, St. Louis, Missouri, April 27, 1990. Co-author: E. M. Thurman.\*

19. "Electron Spin Resonance Studies of the Reorientational and Chemical Dynamics of a Planar Nickel Complex," Fifth National Conference on Undergraduate Research, California Institute of Technology, Pasadena, California, March 22, 1991. Co-author: P. J. Sheaff.\*

20. "Electron Spin Resonance Studies of the Reorientational and Chemical Dynamics of a Planar Nickel Complex," 14th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 16, 1991. Co-authors: M. J. Fehr† and P. J. Sheaff.\*

21. "Electron Spin Resonance Studies of the Reorientational Motion of a Planar Nickel Complex," Sixth National Conference on Undergraduate Research, University of Minnesota, Minneapolis, Minnesota, March 26, 1992. Co-author: P. K. Fitzsimmons.\*
22. "Electron Spin Resonance Studies of the Reorientational Motion of a Planar Nickel Complex," 15th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 25, 1992. Co-author: P. K. Fitzsimmons.\*
23. "ESR Studies of the Reorientational Motion of a Nickel Complex," Ninth National Conference on Undergraduate Research, Union College, Schenectady, New York, April 20, 1995. Co-authors: V. Kantorovich\* and A. Barros Cordero.\*
24. "Application of the VTF Equation to Electron Spin Resonance Studies of Reorientational Motion," Tenth National Conference on Undergraduate Research, University of North Carolina, Asheville, North Carolina, April 18, 1996. Co-author: T. J. Gillum.\*
25. "Application of the Vogel-Tammann-Fulcher Equation to ESR Studies of Reorientational Motion in Glass-Forming Liquids," 19th Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 27, 1996. Co-author: T. J. Gillum.\*
26. "Translational Diffusion Coefficients of Molecules in Liquids," 11th National Conference on Undergraduate Research, University of Texas at Austin, Austin, Texas, April 25, 1997. Co-author: D. V. Zavich.\*
27. "Studies of the Translational Motion of Planar Nickel Complexes," 21st Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 25, 1998. Co-authors: N. C. Dang,\* H. D. Tran,\* and J. P. Reed.\*
28. "Comparison of the Translational and Rotational Motions of a Molecular Propeller," 21st Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 25, 1998. Co-authors: A. M. Hughes\* and G. H. Cheung.\*
29. "The Diffusion of Dioxygen in Cycloalkanes and Alkylbenzenes," 13th National Conference on Undergraduate Research, University of Rochester, Rochester, New York, April 8, 1999. Co-author: J. P. Reed.\*
30. (Poster) "Diffusion of Dioxygen in *n*-Alkanes," 5th Annual Research Day Symposium of the Graduate School, St. Louis University, St. Louis, Missouri, April 9, 1999. Co-author: N. C. Dang.†
31. "The Diffusion of Dioxygen in *n*-Alkanes and Cyclohexanes," 7th Annual Undergraduate Research Symposium of the St. Louis Section of the American Chemical Society, St. Louis, Missouri, April 21, 1999. Co-Author: J. P. Reed.\*
32. (Poster) "Diffusion of Dioxygen and Aromatic Hydrocarbons in *n*-Alkanes and Cycloalkanes," 6th Annual Research Day Symposium of the Graduate School, St. Louis University, St. Louis, Missouri, April 7, 2000. Co-author: N. C. Dang.†
33. (Poster) "Diffusion of Dioxygen and Aromatic Hydrocarbons in *n*-Alkanes and Cycloalkanes," 23rd Annual Area Collegiate Chemistry Meeting, University of Tennessee at Martin, Martin, Tennessee, April 15, 2000. Co-authors: N. C. Dang,† H. D. Tran,\* and J. P. Reed.\*
34. (Poster) "Diffusion of Aromatic Hydrocarbons in Alkanes and Cyclohexanes," 35th Midwest Regional Meeting of the American Chemical Society, St. Louis, Missouri, October 27, 2000.

Co-authors: K. T. Sobush,\* N. C. Dang,† and L. G. Seele III.\*

35. (Poster) “Diffusion of Aromatic Solutes in *n*-Alkanes,” Undergraduate Research Symposium, 223rd National Meeting of the American Chemical Society, Orlando, Florida, April 8, 2002.

Co-authors: C. F. Fuqua,\* C. L. Mapes,\* and K. T. Sobush.\*

36. (Poster) “Diffusion of Oxygen and Biphenyl in Organic Solvents,” Undergraduate Research Symposium, 223rd National Meeting of the American Chemical Society, Orlando, Florida, April 8, 2002. Co-authors: C. L. Mapes,\* C. F. Fuqua,\* and K. T. Sobush.\*

37. (Poster) “Size-Dependent Diffusion of Organic Solutes in *n*-Alkanes and Cycloalkanes,” Undergraduate Research Symposium, 225th National Meeting of the American Chemical Society, New Orleans, Louisiana, March 24, 2003. Co-authors: J. B. Jones,\* J. A. Zahm,\* C. L. Mapes,\* C. F. Fuqua,\* and K. T. Sobush.\*

38. (Poster) “Diffusion Organic Solutes in Cycloalkanes,” Undergraduate Research Symposium, 227th National Meeting of the American Chemical Society, Anaheim, California, March 29, 2004. Co-authors: R. M. Turner II,\* J. B. Jones,\* and J. A. Zahm,\*

39. (Poster) “Diffusion of Alkenes in *n*-Alkanes,” Undergraduate Research Symposium, 229th National Meeting of the American Chemical Society, San Diego, California, March 14, 2005. Co-authors: C. V. C Caldwell,\* and R. M. Turner II.\*

40. (Poster) “Diffusion of 1-Alkenes in *n*-Alkanes,” Undergraduate Research Symposium, Combined Southeast-Southwest Regional Meeting of the American Chemical Society, Memphis, TN, November 4, 2005. Co-authors: C. V. C. Caldwell, \* and Robert M. Turner II. \*

41. (Poster) “ESR Studies of a Nickel Complex in a Series of Ethers,” Undergraduate Research Symposium, 231st National Meeting of the American Chemical Society, Atlanta, GA, March 27, 2006. Co-author: C. V. C. Caldwell.\*

42. (Poster) “Translational Diffusion of Hydrocarbon Solutes in Squalane,” Undergraduate Research Symposium, St. Louis Section of the American Chemical Society, Southern Illinois University Edwardsville, Edwardsville, IL, April 16, 2010. Co-author: M. B. Watson.\*

43. (Poster) “Translational Diffusion of Hydrocarbon Solutes in Squalane,” Undergraduate Poster Session, Division of Chemical Education, 241st National Meeting of the American Chemical Society, Anaheim, CA, March 28, 2011. Co-author: M. B. Watson.\*

44. (Poster) “ESR Studies of the Molecular Motion of the Bis(maleonitriledithiolato)nickel Trianion in Diglyme,” Undergraduate Poster Session, Division of Chemical Education, 243rd National Meeting of the American Chemical Society, San Diego, CA, March 26, 2012. Co-authors: V. S. Goodwill\* and M. B. Watson.\*

45. (Poster) “Diffusion of Alkylbenzenes in *n*-Alkanes,” Undergraduate Poster Session, Division of Chemical Education, 249th National Meeting of the American Chemical Society, Denver, CO, March 23, 2015. Co-author: P.M. Register.\*