Curriculum Vitae

Donald L. Sparks

Unidel S. Hallock du Pont Chair in Soil and Environmental Chemistry

Francis Alison Professor

Professor of Plant and Soil Sciences, Chemistry and Biochemistry, Civil and Environmental Engineering, and Marine Science and Policy

Director, Delaware Environmental Institute (DENIN)

I. Education

B.S. Agronomy	1975, University of Kentucky, Lexington, Kentucky
M.S. Soil Science	1976, University of Kentucky, Lexington, Kentucky M.S. Thesis - "Physical, mineralogical, and chemical properties, including ammonium distribution, in the Shrouts soils of Kentucky"
Ph.D. Soil Science	1979, Virginia Polytechnic Institute and State University, Blacksburg, Virginia. Ph.D. Dissertation "Potassium adsorption and desorption kinetics in a soil system and its relation to plant uptake"

II. Experience in Higher Education

A. Undergraduate and Graduate Experience

1. Laboratory Assistant - 1975-1976, Soil Science
2. Graduate Research Fellow in Soil Science - 1976-1979

B. Faculty Appointments

1. Assistant Professor of Soil Chemistry, University of Delaware, Newark, Delaware, July 1979 - June 1983
2. Associate Professor of Soil Chemistry, University of Delaware, Newark, Delaware, July 1983 - June 1987
3. Professor of Soil Chemistry, University of Delaware, Newark, Delaware, July 1987 –
4. Professor of Civil and Environmental Engineering, University of Delaware, Newark, Delaware, July 1992 –
5. Distinguished Professor of Soil Science, University of Delaware, Newark, Delaware, July 1994 - June 2001
6. Francis Alison Professor, University of Delaware, Newark, Delaware, September 1996 –
7. Professor of Chemistry and Biochemistry, University of Delaware, Newark, Delaware - September, 1997 –

8. Professor of Marine Science and Policy, University of Delaware, Newark, Delaware - December, 1999 –
9. T. A. Baker Professor, University of Delaware, Newark, Delaware September, 2001-2002
10. S. Hallock du Pont Chair, University of Delaware, Newark, Delaware - September, 2002-

C. Visiting Professorships

1. Visiting Associate Professor of Soil Physical Chemistry, University of California, Riverside, California - December, 1985-April, 1986
2. Visiting Professor of Soil and Environmental Chemistry, INRA, Paul Cezanne University and University of Marseille, Aix-en-Provence, France, August 2005

D. Administrative Appointments

1. Assistant Chairperson, Department of Plant Science, University of Delaware, 1984 - 1985
2. Chairperson, Department of Plant and Soil Sciences, University of Delaware, 1989 -2008
3. Director, Center for Critical Zone Research, 2006- 2009
4. Director, Delaware Environmental Institute, 2009 -
5. Lead Principal Investigator, Christina River Basin Critical Zone Observatory, 2009 – 2014
6. NSF EPSCoR Principal Investigator and Project Director for DE EPSCoR Program, 2005-2018

E. Professional Appointments

1987 Chair-Elect, Div. S-2 (Soil Chemistry), Soil Science Society of America

1994 Elected Vice-Chair, Commission II (Soil Chemistry), International Society of Soil Science

1998 President-Elect, Soil Science Society of America

1998 Elected Chair, Commission II (Soil Chemistry), International Union of Soil Science

1999 President, Soil Science Society of America

2000 President-Elect, International Union of Soil Sciences

2000 Member, National Research Council/National Academy of Sciences, U.S. Committee for Soil Science

2001-2002 National Research Council/National Academy of Sciences Committee on Biosolids Applied to Land

2002 President, International Union of Soil Sciences

2002 Scientific Advisory Board, Advanced Light Source, Lawrence Berkeley National Laboratory

2003 SUNY-Stony Brook Molecular Environmental Science Institute

2004 Review Panel for Environmental Sciences Department at Swiss Federal Institute of Technology (ETH), May 2-7, 2004.

2008 Executive Committee, American Geological Institute

2008 American Geological Foundation Trustee

2013-2018 Chair, NAS U.S. National Committee for Soil Science

2015-2019, Advisory Board, European Commission Project on the Critical Zone

2015-2019, Advisory Board, Aqua Diva CZ, Germany

2016- Advisory Board, NanoEarth, VA Tech

2018-2020 Member, NAS Committee on Catalyzing Research Opportunities in the Earth Sciences

III. Professional Honors and Awards

1979 Sigma Xi Award from Virginia Polytechnic Institute and State University for Outstanding Ph.D. dissertation in Physical Sciences

1983 Sigma Xi Distinguished Scientist Award from Univ. of Delaware

1983 Nominated for Presidential Young Investigator Award, The National Science Foundation

1984 Cited by International Potash Institute for Outstanding Research on Soil Potassium

1985 American Society of Agronomy Visiting Scientist Award

1986 Research Award, Northeastern Branch, American Society of Agronomy

1989 Fellow, Soil Science Society of America

1989 Fellow, American Society of Agronomy

1991 F.D. Chester Distinguished Performance Award - College of Agricultural Sciences

1991 M.L. and Chrystie M. Jackson Soil Science Award

1993 Who's Who in America, American Men in Science

1994 Named 1st Distinguished Professor in the College of Agricultural Sciences

1994 Soil Science Research Award, Soil Science Society of America

1995 American Men and Women of Science

1996 Recipient of the University of Delaware Francis Alison Award

1998 Fellow, American Association for the Advancement of Science

2001 Sir Frederick McMaster Visiting Lecturer Fellowship, CSIRO, Australia

2001 T.A. Baker Professor in Plant and Soil Sciences

2002 University of Kentucky Gamma Sigma Delta Chapter Outstanding Alumnus Award

2002 University of Delaware Doctoral Student Advising and Mentoring Award

2002 S. Hallock du Pont Chair in Plant and Soil Sciences

2003 Gold Medal for Distinguished Research Achievements, Polish Society of Soil Science

2003 American Society of Agronomy Environmental Quality Research Award

2004 Roscoe Ellis, Jr. Memorial Lecturer, Kansas State University

2005 Sterling B. Hendricks Memorial Lecturer and Medal, USDA/ARS

2007 Distinguished Alumnus, University of Kentucky

2007 Distinguished Alumnus, Virginia Tech

2007 Honorary Member, Polish Society of Soil Science

2008 Distinguished Lecturer, USDA, Beltsville

2008 Distinguished Lecturer, University of Florida

2008 Fellow, Geochemical Society and European Association of Geochemists

2010 Geoffrey Smith Mentoring Award, Northeast Association of Graduate Schools

2010 Liebig Medal, International Union of Soil Sciences

2011 Einstein Professor, Chinese Academy of Sciences

2011 Honorary Professor, Institute for Urban Environment, Xiamen, China

2012 Honorary Member, International Union of Soil Sciences

2012 Honorary Professor, Huazhong Agricultural University, Wuhan, China

2013 Weston Distinguished Lecturer, University of Wisconsin, Madison

2015 Geochemistry Medal, American Chemical Society

2015 Honorary Professor, Nanjing University

2015 Honorary Professor, Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China

2016 Clay Minerals Society's Pioneer in Clay Science Award

2019 Leo Walsh Distinguished Lecture in Soil Science, University of Wisconsin, Madison

IV. Publications

A. Books Authored

1. Sparks, D.L. 1989. Kinetics of Soil Chemical Processes. Academic Press, New York.
2. Sparks, D.L. 1995. Environmental Soil Chemistry, Academic Press, San Diego, CA
3. Sparks, D.L. 2002. Environmental Soil Chemistry, 2nd Edition, Academic Press, San Diego, CA

B. Books Edited

1. Sparks, D.L. 1986. Editor. Soil Physical Chemistry. CRC Press, Inc., Boca Raton, FL
2. Sparks, D.L., and D.L. Suarez. Editors. 1991. Rates of Soil Chemical Processes. Soil Sci. Soc. Am. Spec. Publ. 27. Soil Sci. Soc. Am., Madison, WI
3. Sparks, D.L. 1991. Editor. Advances in Agronomy. Vol. 46, Academic Press, New York
4. Sparks, D.L. 1992. Editor. Advances in Agronomy. Vol. 47, Academic Press, New York
5. Sparks, D.L. 1992. Editor. Advances in Agronomy. Vol. 48, Academic Press, New York
6. Sparks, D.L. 1993. Editor. Advances in Agronomy. Vol. 49, Academic Press, San Diego, CA
7. Sparks, D.L. 1993. Editor. Advances in Agronomy. Vol. 50, Academic Press, San Diego, CA
8. Sparks, D.L. 1993. Editor. Advances in Agronomy. Vol. 51, Academic Press, San Diego, CA
9. Sparks, D.L. 1994. Editor. Advances in Agronomy. Vol. 52, Academic Press, San Diego, CA

10. Sparks, D.L. 1994. Editor. Advances in Agronomy. Vol. 53, Academic Press, San Diego, CA
11. Sparks, D.L. 1995. Editor. Advances in Agronomy. Vol. 54, Academic Press, San Diego, CA
12. Sparks, D.L. 1995. Editor. Advances in Agronomy. Vol. 55, Academic Press, San Diego, CA
13. Sparks, D.L. 1995. Editor. The environmental chemistry of soils, "Geoderma" Special Volume, Elsevier, Amsterdam, The Netherlands.
14. Sparks, D.L. 1996. Editor. Methods of Soil Analysis: Chemical Methods and Processes. Am. Soc. Agron, Madison, WI
15. Sparks, D.L. 1996. Editor. Advances in Agronomy. Vol. 56, Academic Press, San Diego, CA
16. Sparks, D.L. 1996. Editor. Advances in Agronomy. Vol. 57, Academic Press, San Diego, CA.
17. Sparks, D.L. 1997. Editor. Advances in Agronomy. Vol. 58, Academic Press, San Diego, CA
18. Sparks, D.L. 1997. Editor. Advances in Agronomy. Vol. 59, Academic Press, San Diego, CA
19. Sparks, D.L. 1997. Editor. Advances in Agronomy. Vol. 60, Academic Press, San Diego, CA
20. Sparks, D.L. 1997. Editor. Advances in Agronomy. Vol. 61, Academic Press, San Diego, CA
21. Sparks, D.L. 1998. Editor. Advances in Agronomy. Vol. 62, Academic Press, San Diego, CA
22. Sparks, D.L. 1998. Editor. Advances in Agronomy. Vol. 63, Academic Press, San Diego, CA
23. Sparks, D.L. 1998. Editor. Advances in Agronomy. Vol. 64, Academic Press, San Diego, CA
24. Sparks, D.L. 1999. Editor. Soil Physical Chemistry, 2nd edition, CRC Press, Boca Raton, FL
25. Sparks, D.L., and T.J. Grundl. Editors. 1999. Mineral-Water Interfacial Reactions: Kinetics and Mechanisms. ACS Symp. Ser. 715, Am. Chem. Soc. Washington, DC
26. Sparks, D.L. 1999. Editor. Advances in Agronomy. Vol. 65, Academic Press, San Diego, CA
27. Sparks, D.L. 1999. Editor. Advances in Agronomy. Vol. 66, Academic Press, San Diego, CA
28. Sparks, D.L. 1999. Editor. Advances in Agronomy. Vol.67, Academic Press, San Diego, CA
29. Sparks, D.L. 2000. Editor. Advances in Agronomy. Vol. 68, Academic Press, San Diego, CA
30. Sparks, D.L. 2000. Editor. Advances in Agronomy. Vol. 69, Academic Press, San Diego, CA
31. Sparks, D.L. 2000. Editor. Advances in Agronomy. Vol. 70, Academic Press, San Diego, CA
32. Sparks, D.L. 2000. Editor. Advances in Agronomy. Vol. 71, Academic Press, San Diego, CA
33. Sparks, D.L. 2001. Editor. Advances in Agronomy. Vol. 72, Academic Press, San Diego, CA
34. Sparks, D.L. 2001. Editor. Advances in Agronomy. Vol. 73, Academic Press, San Diego, CA
35. Sparks, D.L. 2001. Editor. Advances in Agronomy. Vol. 74, Academic Press, San Diego, CA
36. Selim, H.M., and D.L. Sparks. 2001. Physical and chemical processes of water and solute transport/retention in soil. SSSA Spec. Publ. No. 56, Soil Sci. Soc. Am., Madison, WI
37. Selim, H.M., and D.L. Sparks. 2001. Heavy metals release in soils. Lewis Publishers, Boca Raton, FL
38. Sparks, D.L. 2002. Editor. Advances in Agronomy. Vol. 75, Academic Press, San Diego, CA
39. Sparks, D.L. 2002. Editor. Advances in Agronomy. Vol. 76, Academic Press, San Diego, CA
40. Sparks, D.L. 2002. Editor. Advances in Agronomy. Vol. 77, Academic Press, San Diego, CA
41. Sparks, D.L. 2003. Editor. Advances in Agronomy. Vol. 78, Academic Press, San Diego, CA

42. Sparks, D.L. 2003. Editor. Advances in Agronomy. Vol. 79, Academic Press, San Diego, CA
43. Sparks, D.L. 2003. Editor. Advances in Agronomy. Vol. 80, Academic Press, San Diego, CA
44. Sparks, D.L. 2004. Editor. Advances in Agronomy. Vol. 81, Academic Press, San Diego, CA
45. Sparks, D.L. 2004. Editor. Advances in Agronomy. Vol. 82, Academic Press, San Diego, CA
46. Sparks, D.L. 2004. Editor. Advances in Agronomy. Vol. 83, Academic Press, San Diego, CA
47. Sparks, D.L. 2004. Editor. Advances in Agronomy. Vol. 84, Academic Press, San Diego, CA
48. Hillel, D., J.L. Hatfield, D.S. Powlson, C. Rosenzweig, K. M. Scow, M.J. Singer and D. L. Sparks. 2005. Editors. Encyclopedia of Soils in the Environment. Elsevier Ltd., Oxford, UK
49. Sparks, D.L. 2005. Editor. Advances in Agronomy. Vol. 85, Academic Press, San Diego, CA
50. Sparks, D.L. 2005. Editor. Advances in Agronomy. Vol. 86, Academic Press, San Diego, CA
51. Sparks, D.L. 2005. Editor. Advances in Agronomy. Vol. 87, Academic Press, San Diego, CA
52. Sparks, D.L. 2005. Editor. Advances in Agronomy. Vol. 88, Academic Press, San Diego, CA
53. Sparks, D.L. 2005. Metals in the Environment. Elements, Vol. 4, No. 4, Mineralogical Soc. of Am., Washington, D.C
54. Tabatabai, M. A., and D. L. Sparks. Editors. 2005. Chemical Processes in Soils. No. 8. Soil Science Society of America Book Series. Soil Science Society of America, Madison, WI
55. Sparks, D.L. 2006. Editor. Advances in Agronomy. Vol. 89, Academic Press, San Diego, CA
56. Sparks, D.L. 2006. Editor. Advances in Agronomy. Vol. 90, Academic Press, San Diego, CA
57. Sparks, D.L. 2006. Editor. Advances in Agronomy. Vol. 91, Academic Press, San Diego, CA
58. Sparks, D.L. 2006. Editor. Advances in Agronomy. Vol. 92, Academic Press, San Diego, CA
59. Sparks, D.L. 2006. Editor. Advances in Agronomy. Vol. 93, Academic Press, San Diego, CA
60. Sparks, D.L. 2007. Editor. Advances in Agronomy. Vol. 94, Academic Press, San Diego, CA
61. Sparks, D.L. 2007. Editor. Advances in Agronomy. Vol. 95, Academic Press, San Diego, CA
62. Sparks, D.L. 2007. Editor. Advances in Agronomy. Vol. 96, Academic Press, San Diego, CA
63. Sparks, D.L. 2008. Editor. Advances in Agronomy. Vol. 97, Academic Press, San Diego, CA
64. Sparks, D.L. 2008. Editor. Advances in Agronomy. Vol. 98, Academic Press, San Diego, CA
65. Sparks, D.L. 2008. Editor. Advances in Agronomy. Vol. 99, Academic Press, San Diego, CA
66. Sparks, D.L. 2008. Editor. Advances in Agronomy. Vol. 100, Academic Press San Diego, CA
67. Sparks, D.L. 2009. Editor. Advances in Agronomy. Vol. 101, Academic Press, San Diego, CA
68. Sparks, D.L. 2009. Editor. Advances in Agronomy. Vol. 102, Academic Press, San Diego, CA
69. Sparks, D.L. 2009. Editor. Advances in Agronomy. Vol. 103, Academic Press, San Diego, CA
70. Sparks, D.L. 2009. Editor. Advances in Agronomy. Vol. 104, Academic Press, San Diego, CA
71. Sparks, D.L. 2010. Editor. Advances in Agronomy. Vol. 105, Academic Press, San Diego, CA
72. Sparks, D.L. 2010. Editor. Advances in Agronomy. Vol. 106, Academic Press, San Diego, CA
73. Sparks, D. L. 2010. Editor. Advances in Agronomy. Vol. 107, Academic Press, San Diego, CA

74. Sparks, D. L. 2010. Editor. Advances in Agronomy. Vol. 108, Academic Press, San Diego, CA
75. Sparks, D. L. 2010. Editor. Advances in Agronomy. Vol. 109, Academic Press, San Diego, CA
76. Sparks, D. L. 2011. Editor. Advances in Agronomy. Vol. 110, Academic Press, San Diego, CA
77. Sparks, D. L. 2011. Editor. Advances in Agronomy. Vol. 111, Academic Press, San Diego, CA
78. Sparks, D. L. 2011. Editor. Advances in Agronomy. Vol. 112, Academic Press, San Diego, CA
79. Sparks, D. L. 2011. Editor. Advances in Agronomy. Vol. 113, Academic Press, San Diego, CA
80. Sparks, D. L. 2012. Editor. Advances in Agronomy. Vol. 114, Academic Press, San Diego, CA
81. Sparks, D. L. 2012. Editor. Advances in Agronomy, Vol. 115, Academic Press, San Diego, CA
82. Sparks, D. L. 2012. Editor, Advances in Agronomy, Vol. 116, Academic Press, San Diego, CA
83. Sparks, D. L. 2012. Editor, Advances in Agronomy, Vol. 117, Academic Press, San Diego, CA
84. Sparks, D. L. 2013. Editor, Advances in Agronomy, Vol. 118, Academic Press, San Diego, CA
85. Sparks, D. L. 2013. Editor, Advances in Agronomy, Vol. 119, Academic Press, San Diego, CA
86. Sparks, D. L. 2013. Editor, Advances in Agronomy, Vol. 120, Academic Press, San Diego, CA
87. Sparks, D. L. 2013. Editor, Advances in Agronomy, Vol. 121, Academic Press, San Diego, CA
88. Xu, J. and D. L. Sparks, 2013. Editors, Molecular Environmental Soil Science. Springer, Dordrecht.
89. Sparks, D.L. 2013. Editor, Advances in Agronomy, Vol. 122, Academic Press, San Diego, CA
90. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 123, Academic Press, San Diego, CA
91. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 124, Academic Press, San Diego, CA
92. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 125, Academic Press, San Diego, CA
93. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 126, Academic Press, San Diego, CA
94. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 127, Academic Press, San Diego, CA
95. Sparks, D.L. 2014. Editor, Advances in Agronomy, Vol. 128, Academic Press, San Diego, CA
96. Sparks, D.L. 2015. Editor, Advances in Agronomy, Vol. 129, Academic Press, San Diego, CA
97. Sparks, D.L. 2015. Editor, Advances in Agronomy, Vol. 130, Academic Press, San Diego, CA
98. Sparks, D.L. 2015. Editor, Advances in Agronomy, Vol. 131, Academic Press, San Diego, CA
99. Sparks, D.L. 2015. Editor, Advances in Agronomy, Vol. 132, Academic Press, San Diego, CA
100. Sparks, D. L. 2015. Editor, Advances in Agronomy, Vol. 133, Academic Press, San Diego, CA
101. Sparks, D. L. 2015. Editor, Advances in Agronomy, Vol. 134, Academic Press, San Diego, CA
102. Feng, W., W. Li, M. Zhu, D. L. Sparks. 2015. (Eds.). Advances in the Environmental Biogeochemistry of Manganese Oxides, ACS Symposium Series, American Chemical Society, Washington, D.C. DOI: 10. 1021/bk-2015-1197
103. Sparks, D. L. 2016. Editor, Advances in Agronomy, Vol. 135, Academic Press, San Diego, CA
104. Sparks, D. L. 2016. Editor, Advances in Agronomy, Vol. 136, Academic Press, San Diego, CA
105. Sparks, D. L. 2016. Editor, Advances in Agronomy, Vol. 137, Academic Press, San Diego, CA
106. Sparks, D. L. 2016. Editor, Advances in Agronomy, Vol. 138, Academic Press, San Diego, CA

107. Sparks, D.L. 2016. Editor, Advances in Agronomy, Vol. 139, Academic Press, San Diego, CA

108. Sparks, D.L. 2016. Editor, Advances in Agronomy, Vol. 140, Academic Press, San Diego, CA

109. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 141, Academic Press, San Diego, CA

110. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 142, Academic Press, San Diego, CA

111. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 143, Academic Press, San Diego, CA

112. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 144, Academic Press, San Diego, CA

113. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 145, Academic Press, San Diego, CA

114. Sparks, D.L. 2017. Editor, Advances in Agronomy, Vol. 146, Academic Press, San Diego, CA

115. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 147, Academic Press, San Diego, CA

116. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 148, Academic Press, San Diego, CA

117. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 149, Academic Press, San Diego, CA

118. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 150, Academic Press, San Diego, CA

119. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 151, Academic Press, San Diego, CA

120. Sparks, D.L. 2018. Editor, Advances in Agronomy, Vol. 152, Academic Press, San Diego, CA

121. Sparks, D.L. 2019. Editor, Advances in Agronomy, Vol. 153-159, Academic Press, San Diego, CA

C. Chapters in Books

1. Sparks, D.L., and P.M. Huang. 1985. The physical chemistry of soil potassium. In R.E. Munson (ed.) Potassium in Agriculture. Soil Science Society of America, Madison, WI, p. 201-276.

2. Sparks, D.L. 1986. Kinetics of ionic reactions in clay minerals and soils. In N.C., Brady (ed.) Advances in Agronomy, Vol. 38, Academic Press, New York, p. 231-266.

3. Sparks, D.L. 1986. Kinetics of reactions in pure and mixed systems. In D.L. Sparks (ed.) Soil Physical Chemistry, CRC Press, Boca Raton, FL, p. 63-145.

4. Sparks, D.L. 1986. Potassium release from sandy soils. InH. von Peter (ed.) Nutrient Balances and the Need for Potassium. International Potash Institute, Bern, Switzerland, p. 93-105.

5. Sparks, D.L. 1987. Potassium dynamics in soil potassium. In B.A. Stewart (ed.) Advances in Soil Science. Vol. 6, Springer-Verlag, New York, p. 1-63.

6. Sparks, D.L. 1987. Kinetics of soil chemical processes: Past progress and future needs. In L.L. Boersma (ed.). Future Developments in Soil Science. Soil Science Society of America, Madison, WI, p. 61-73.

7. Sparks, D.L. 1989. Kinetics of reactions on soil systems. In McGraw-Hill Yearbook of Science and Engineering. McGraw-Hill, New York, p. 362-365.

8. Sparks, D.L. 1990. Kinetics of soil chemical processes: An overview. In Proc. of 14th International Soil Science Congress, Kyoto, Japan, p. II4-II9.

9. Feigenbaum, S., A. Bar-Tal, and D.L. Sparks. 1990. Dynamics of soil potassium in multicationic systems. In H. von Peter (ed.) Development of K-fertilizer Recommendations. Proc. 22nd Colloquium Int. Potash Institute, Bern, Switzerland, p. 145-161.

10. Schulthess, C.P., and D.L. Sparks. 1991. Equilibrium based modeling of chemical sorption on soils

and soil constituents. In B. A. Stewart (ed.) Advances in Soil Science, Vol. 16. Springer-Verlag New York, p.121-163.

11. Sparks, D.L. 1991. Chemical kinetics and mass transfer processes in soils and soil constituents. In J. Bear and Y. Corapcioglu (eds.) Transport Processes in Porous Media. NATO ASI Series E: Vol. 202, Kluwer Academic Publishers B.V., Dordrecht, p. 585-637.

12. Sparks, D.L., and P. Zhang. 1991. Relaxation methods for studying soil chemical processes. In D.L. Sparks and D.L. Suarez (eds.). Rates of Soil Chemical Processes. Soil Sci. Soc. Am. Spec. Publ. 27, Soil Science Society of America, Madison, WI, p. 61-94.

13. Aharoni, C., and D.L. Sparks. 1991. Kinetics of soil chemical reactions - A theoretical treatment. In D.L. Sparks and D.L. Suarez (eds.). Rates of Soil Chemical Processes. Soil Sci. Soc. Am. Spec. Publ. 27, Soil Science Society of America, Madison, WI, p. 1-18.

14. Sparks, D.L. 1992. Agronomy. In C. G. Morris (ed.) Academic Press Dictionary of Science and Technology. Harcourt Brace Jovanovich, Inc., San Diego, CA, p. 60.

15. Sparks, D.L. 1992. Soil kinetics. In W.A. Niernberg. (ed) Encyclopedia of Earth System Science. Vol. 4. Academic Press, New York, p. 219-229.

16. Sparks, D.L. 1993. Soil decontamination. In Morton Corn (ed) Handbook of Hazardous Materials. Academic Press, New York, p. 671-680.

17. Sparks, D.L. 1993. Kinetics of important soil chemical reactions. In J. Menon (ed). Research Trends in Agronomy, Council of Scientific Research Integration, Sreekanteswaram, India, p. 671-680.

18. Sparks, D.L. 1993. Soil and environmental chemistry research in the Northeastern USA: Challenges and opportunities for the 1990's. In J.T. Sims and E. Hadley (eds), Agricultural Research in the Northeastern United States: Critical Review and Future Perspectives, American Society of Agronomy, Madison, WI, p. 1-9.

19. Sparks, D.L., S.E. Fendorf, P.C. Zhang, and L. Tang. 1993. Kinetics and mechanisms of environmentally important reactions on soil colloidal surfaces. In D. Petruzzeli and F. Helfferich (eds) Migration and Fate of Pollutants in Soils and Subsoils. NATO ASI Series G, Vol. 32, Springer-Verlag, Berlin, p. 141-168.

20. Sparks, D.L. 1994. Advising M.S. students: Issues and perspectives. In P. Baveye (ed). Soil Science Education, Soil Science Society of America, Madison, WI, p. 53-59.

21. Sparks, D.L. 1994. Soil chemistry. In C.J. Arntzen (ed.) Encyclopedia of Agricultural Science, Vol. 4, Academic Press, San Diego, CA, p. 75-81.

22. Sparks, D.L. 1995. Kinetics of metal sorption reactions. In H.E. Allen, C.P. Huang, G.W. Bailey, and A.R. Bowers (eds.). Metal Speciation and Contamination of Soil. Lewis Publishers, Chelsea, MI, p. 35-58.

23. Fendorf, S.E., and D.L. Sparks. 1996. XAFS spectroscopy. In D.L. Sparks (ed). Methods of Soil Analysis: Part 3. Chemical Methods. Soil Sci. Soc. Am. Book Series 5, Soil Science Society of America, Madison, WI, p. 377-416.

24. Helmke, P.A., and D.L. Sparks. 1996. Lithium, sodium, potassium, cesium, and rubidium. In D.L. Sparks (ed). Methods of Soil Analysis: Part 3. Chemical Methods. Soil Sci. Soc. Am. Book Series 5, Soil Science Society of America, Madison, WI, p. 551-574.

25. Sparks, D.L., S.E. Fendorf, C.V. Toner, IV, and T.H. Carski. 1996. Kinetic methods and measurements. In D.L. Sparks (ed). Methods of Soil Analysis: Part 3. Chemical Methods. Soil Sci. Soc. Am. Book Series 5, Soil Science Society of America, Madison, WI, p. 1275-1307.

26. Sparks, D.L. 1998. Kinetics of sorption/release reactions on natural particles. In P.M. Huang, N. Senesi and J. Buffle (eds). Structure and Surface Reactions of Soil Particles, Wiley, New York, NY, p. 413-448.

27. Sparks, D.L. 1998. Kinetics of soil chemical phenomena: Future directions. In P.M. Huang, D.L. Sparks, and S.A. Boyd (eds.) Future Prospects for Soil Chemistry. SSSA Spec. Publ. 55, Soil Science Society of America, Madison, WI, p. 81-101.

28. Sparks, D.L. 1999. Kinetics and mechanisms of chemical reactions at the soil mineral/water interface. In D. L. Sparks (ed.). Soil Physical Chemistry, 2nd edition. CRC Press, Boca Raton, FL, p. 135-192.

29. Sparks, D.L. 1999. Kinetics and mechanisms of soil chemical reactions. In M.E. Sumner (ed) Handbook of Soil Science, CRC Press, Boca Raton, FL, p. B- 123-167.

30. Sparks, D.L. 1999. Bioavailability of soil potassium. In M.E. Sumner (ed.) Handbook of Soil Science, CRC Press, Boca Raton, FL, p. D38- D53.

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289. Giannetta, B., Siebecker, M., Plaza, C., Rovira, P., Vischetti, C., & Sparks, D.L. (2020). Iron(III) fate after complexation with soil organic matter in fine silt and clay fractions: an EXAFS spectroscopic approach. Soil & Tillage Research.

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V. Presentations

A. Invitational Papers and Presentations at Symposia

1980

1. Sparks, D.L. 1980. Kinetics and thermodynamics of potassium exchange in pure and in mixed systems. "Chemistry in the Soil Environment: Ion Exchange Symposium", Soil Science Society of America Meetings, Detroit, Michigan.

2. Jardine, P.M., and D.L. Sparks. 1982. Thermodynamics and kinetics of K-Ca exchange in soil. 56th Colloid and Surface Science Symposium, Blacksburg, Virginia, June 13-16.
3. Sparks, D.L. 1982. The role of boron in plant nutrition. Boron Symposium sponsored by U.S. Borax Corporation.
4. Sparks, D.L. 1982. Chemistry of soil potassium in Atlantic Coastal Plain Soils, Eastern Soil Fertility Symposium, Salisbury, Maryland.
5. Sparks, D.L. 1982. Ionic activities: An historical and theoretical overview. "Chemistry in the Soil Environment: Ion Exchange Symposium", Soil Science Society of America Meetings, Anaheim, California.
6. Sparks, D.L. 1983. On the kinetics of ion exchange in heterogeneous systems. Visiting scholar at the University of Kentucky, Lexington, Kentucky.
7. Sparks, D.L. 1984. Dynamics of soil potassium. Visiting Scholar, Rutgers University, New Brunswick, New Jersey.
8. Sparks, D.L. 1984. Kinetics and thermodynamics of potassium exchange in clay minerals, Symposium on Clay Mineralogy, Calgary, Canada, August, 1984.
9. Sparks, D.L. 1984. Chemistry of potassium on Atlantic Coastal Plain soils. Visiting Scholar, University of Maryland, College Park, Maryland, May, 1984.
10. Sparks, D.L. 1984. Kinetics and thermodynamics of potassium exchange in soils. Visiting Scholar, The Ohio State University, Columbus, Ohio, October, 1984.

1985

11. Sparks, D.L. 1985. Soil chemistry applications to soil management systems. Visiting Scholar, The Pennsylvania State University, University Park, Pennsylvania, February, 1985.
12. Sparks, D.L. 1985. Kinetics of ionic exchange in pure and in mixed systems. Visiting Scholar, Savannah River Ecology Laboratory, Aiken, South Carolina, April, 1985.
13. Sparks, D.L., and P.M. Huang. 1985. The physical chemistry of soil potassium. International Potassium Symposium, Atlanta, Georgia, July, 1985.
14. Sparks, D.L. 1985. Dynamics of soil potassium. Visiting Scholar, University of Saskatchewan, Saskatoon, Canada, October, 1985.
15. Sparks, D.L. 1986. Kinetics of ion exchange on soils and clay minerals. Visiting Professor Lecture, University of California, Riverside, Riverside, California, February, 1986.
16. Sparks, D.L. 1986. Dynamics of potassium exchange in soils and clay minerals. Visiting Professor, University of California, Riverside, Riverside, California, March, 1986.
17. Sparks, D.L. 1986. Physical chemistry of soil potassium. Visiting Scholar, University of California, Berkeley, Berkeley, California, March, 1986.
18. Sparks, D.L. 1986. Boron movement in the soil, uptake by the plant and rates required to correct a deficiency on different soil types, Boron Symposium, Richmond, Virginia, August, 1986.
19. Sparks, D.L. 1986. Potassium release from interlayers. International Potassium Congress, Reims, France, August, 1986.
20. Sparks, D.L. 1986. Elucidation of rate-limiting steps for ion exchange processes on clay mineral surfaces. Clay Surface and Colloid Symposium, Clay Minerals Society Meeting, Jackson, Mississippi, October, 1986.
21. Sparks, D.L. 1986. Kinetics of reactions on soil constituents. Visiting Scholar, Virginia Polytechnic Institute and State University, Blacksburg, VA, October, 1986.
22. Sparks, D.L. 1986. Kinetics of soil chemical processes. Soil chemistry invitational symposium. Soil Science Society of America Meeting, New Orleans, Louisiana.

23. Sparks, D.L. 1987. Chemistry of soil boron. U. S. Borax Corporation Research Division, Anaheim, CA, March, 1987.
24. Sparks, D.L. 1987. Physical chemistry of soil potassium. Lecture Series in Beijing, Nanjing, Wuhan, Hangzhou, and Ghangzhou, China, September,1987.
25. Sparks, D.L. 1988. Kinetics of soil chemical processes. USDA-ARS Eastern Regional Laboratory, Philadelphia, PA, May, 1988.
26. Sparks, D.L. 1988. Release of boron from soil organic matter. U. S. Borax Symposium, Louisville, KY, July, 1988.
27. Sparks, D.L., and C.P. Schulthess. 1988. Modeling chemical sorption on soils and soil constituents. Soil Chemistry Invitational Symposium. Soil Science Society of America Meeting, Anaheim, California.
28. Sparks, D.L. 1989. Kinetics of soil chemical processes. Lecture Series in Bet-Dagan and Haifa, Israel, March, 1989.
29. Sparks, D.L. 1989. Kinetics of reactions on soils and soil constituents and chemical sorption phenomena on soils and soil constituents. Willie Woltz Distinguished Lecturer. North Carolina State University, Raleigh, N.C., April, 1989.
30. Sparks, D.L. 1989. Chemical kinetics and mass transfer processes in soils and soil constituents. NATO Advanced Study Institute Lecturer, July 9-16, Pullman, Washington.
31. Sparks, D.L., and P.C. Zhang. 1989. Relaxation methods for studying kinetics of soil chemical phenomena. Kinetics of Soil Physicochemical Processes International Symposium. Soil Science Society of America Meeting, Las Vegas.
32. Aharoni, C., and D.L. Sparks. 1989. Application of chemical kinetics to heterogeneous soils. Kinetics of Soil Physicochemical Processes International Symposium. Soil Science Society of America Meeting, Las Vegas.

1990

33. Sparks, D.L. 1990. Kinetics of soil chemical processes: An overview. The invitational speaker in Kinetics of Ion Sorption on Soils Symposium, International Soil Science Congress, Kyoto, Japan.
34. Bar-Tal, A., S. Feigenbaum, and D.L. Sparks. 1990. Dynamics of soil potassium in multicationic systems. International Potash Institute Symposium, Minsk, Russia.
35. Zhang, Z.Z., P.C. Zhang, and D.L. Sparks. 1991. Dynamics and mechanisms of organic pollutant interactions on clay minerals. The Colloidal and Surface Chemistry of Clays Symposium, Am. Chem. Soc. Meeting, Atlanta, GA.
36. Sparks, D.L. 1991. Kinetics of metal sorption reactions. Metal Speciation and Contamination of Soil Workshop, Jekyll Island, GA, May 22-24.
37. Sparks, D.L. 1991. Physical chemistry of potassium. Justus von Liebig Univ., Giessen, Germany, August, 1991.
38. Sparks, D.L. 1991. Kinetics of soil chemical processes. Institut fur Strahlenschutz, Neuherberg, Germany.
39. Sparks, D.L., S.E. Fendorf, P.C. Zhang, and L. Tang. 1992. Kinetics and mechanisms of environmentally important reactions on soil colloidal surface, NATO-ASI "Migration and fate of pollutants in soils and subsoils". May, 1992, Maratea, Italy.
40. Sparks, D.L. 1992. Soil and environmental chemistry research in the Northeastern USA: Challenges and opportunities for the 1990's. Northeastern Branch, American Society of Agronomy, Meeting, Storrs, CT, June, 1992.
41. Sparks, D.L. 1992. Advising M.S. graduate students. SSSA Symposium "Soil science education: Philosophy and perspectives". SSSA Meeting, Minneapolis, Minnesota, October, 1992.

42. Sparks, D.L., and S.E. Fendorf. 1992. Rapid reaction kinetic techniques. Goldschmidt Conference, Reston, VA, May, 1992.
43. Sparks, D.L. 1993. The physical chemistry of soil potassium. Rothamsted Experimental Station, Harpenden, England. June, 1993.
44. Sparks, D.L. 1993. Surface chemistry of soils. University of Birmingham, Birmingham, England. July, 1993.
45. Sparks, D.L. 1993. Kinetics and mechanisms of environmentally important reactions in soils and on soil components. Lancaster University, Lancaster, England. July, 1993.
46. Fendorf, S.E., P.R. Grossl, and D.L. Sparks. 1993. Oxyanion surface structures on goethite. Soil Sci. Soc. Am. Meetings, Minneapolis, MN, November, 1993.
47. Sparks, D.L. 1993. Sorption of hydrolyzable ions on oxide surfaces. The Johns Hopkins University, Baltimore, MD. October, 1993.
48. Steffens, D., and D.L. Sparks. 1994. Effects of aging on the kinetics of nonexchangeable ammonium-nitrogen release from soils and clays. SSSA Meeting, Seattle, WA.
49. Eick, M.J., D.L. Sparks, D.C. Golden, and D.W. Ming. 1994. Dissolution of a lunar glass simulant: The effect of pH and organic acids at 298K. SSSA Meeting, Seattle, WA.
50. Stapleton, M.G., D.L. Sparks, and S.K. Dentel. 1994. Kinetics and mechanisms of pentachlorophenol sorption/desorption with an organo- clay. SSSA Meeting, Seattle, WA.
51. Fendorf, S.E., D.L. Sparks, and M. Fendorf. 1994. Mechanism of aluminum sorption on birnessite: Influences on chromium oxidation. Int. Soil Sci. Congr., Acapulco, Mexico.
52. Fendorf, S.E., and D.L. Sparks. 1994. Application of surface spectroscopics and microscopics to elucidate sorption mechanisms on oxide surfaces. Int. Soil Sci. Congr., Acapulco, Mexico.

1995

53. Scheidegger, A.M., and D.L. Sparks. 1995. Kinetics of the formation and the dissolution of nickel precipitates on pyrophyllite. Am. Chem. Soc. Meeting, April 6, Anaheim, CA.
54. Scheidegger, A.M., G. M. Lamble, and D. L. Sparks. 1995. Nickel speciation using in-situ spectroscopic and microscopic approaches. 3rd International Conference on Biogeochem. of Trace Elements, May 15-19, Paris, France.
55. Sparks, D.L. 1995. Kinetics of environmentally important reactions on natural materials. Visiting Scholar, Univ. of Saskatchewan, Saskatchewan, Canada.
56. Sparks, D.L. 1995. Kinetics and mechanisms of metal sorption/desorption on oxides. Swiss Federal Institute of Technology, Zurich, Switzerland.
57. Scheidegger, A.M., G.M. Lamble, and D.L. Sparks. 1996. Monitoring the kinetics of metal surface precipitate formation using x-ray absorption fine structure spectroscopy. Symposium on sorption of metals by earth materials. American Chemical Society National Meeting, New Orleans, LA, March 1996.
58. Strawn, D.G., and D.L. Sparks. 1996. Influence of aging on the kinetics of Pb release from soil. American Chemical Society National Meeting, New Orleans, LA, March 1996.
59. Scheidegger, A.M., G.M. Lamble, and D.L. Sparks. 1996. The kinetics of mixed Ni-Al hydroxide formation on clays and aluminum oxides as monitored by X-ray absorption fine structure (XAFS) spectroscopy. The 9th International Conference on X-ray Absorption Fine Structure, Grenoble, France, August 1996.
60. Sparks, D.L., A.M. Scheidegger, D.G. Strawn, and A.M. Brennan. 1996. Mechanisms of slow metal sorption on soils: An overview. Soil Sci. Soc. Am. Meeting, Indianapolis, IN, November 1996.
61. Sparks, D.L. 1997. Applications of soft x-ray radiation to the study of important inorganic species. Molecular Environmental Science in the Soft X-ray Region Workshop. Lawrence Berkeley National

Laboratory, Univ. of California, Berkeley, CA, March 27-28.

62. Sparks, D.L., A.M. Scheidegger, D.G. Strawn, and K.G. Scheckel. 1997. Kinetics and mechanisms of metal cation sorption at the mineral/water interface. In Kinetics and Mechanisms of Reactions at the Mineral/Water Interface. D.L. Sparks and T.J. Grundl (Co-Organizers) 213th Am. Chem. Soc. Meeting, San Francisco, CA, April 13-17.
63. Strawn, D.G., and D.L. Sparks. 1997. Sorption kinetics of trace elements in soils and soil materials. 4th Intern. Conf. on the Biogeochemistry of Trace Elements, Univ. of California, Berkeley, June 23-26.
64. Sparks, D.L. 1997. Kinetics and mechanisms of metal sorption at the mineral/water interface: A molecular approach. Paul Scherrer Institute, Villigen, Switzerland, August 26.
65. Sparks, D.L. 1997. Kinetics and mechanisms of sorption on soil minerals: A molecular approach. DuPont Thermodynamics, Kinetics, and Mechanisms symposium, DuPont Co., Wilmington, Delaware, November 3.
66. Sparks, D.L. 1998. Kinetics and mechanisms of metal sorption at the mineral/water interface: A molecular approach. Iowa, State University, Ames, Iowa, April, 1998.
67. Scheidegger, A.M., D.G. Strawn, D.R. Roberts, K.G. Scheckel, and D.L. Sparks. 1998. The dynamics of metal adsorption and surface precipitate formation on soil materials as monitored by surface molecular techniques. 16th World Congress of Soil Science, 20-26 August, Montpellier, France.
68. Scheinost, A.C., R.G. Ford, and D.L. Sparks. 1998. Characterization of polynuclear Ni species at the surface of phyllosilicates, gibbsite and amorphous silica using diffuse reflectance spectroscopy. V.M. Goldschmidt Conference, Toulouse, France, Mineralogical Mag. Vol. 62A:1332-1333. August 30-September 3.
69. Ford, R.G., and D.L. Sparks. 1998. Advances in understanding the mechanisms and rates of sorption phenomena for inorganic solutes in soils. SSSA Meeting, Baltimore, Oct. 18-22.
70. Ford, R.G., and D.L. Sparks. 1998. Potential formation of secondary hydrotalcite like precipitates during Zn and Cu sorption to pyrophyllite. V.M. Goldschmidt Conference, Toulouse, France, Mineralogical Mag. Vol. 62A:462-463.
71. Sparks, D.L. 1999. Frontiers in fundamental research on metal retention at natural surfaces. Symposium on Metals in the Environment: From Fundamental Research to Industrial Applications, DuPont Co., February 8, Wilmington, Delaware.
72. Sparks, D.L. 1999. Kinetics and mechanisms of metal sorption and precipitate transformation on soil minerals at the molecular scale. Texas A&M University, Dept. of Soil and Crop Sciences, College Station, TX, March 10.
73. Sparks, D.L. 1999. Surface precipitation in soils: Implications for metal mobility in the subsurface environment. Dept. of Civil and Environmental Engineering, Univ. of Delaware, April, 22.
74. Sparks, D.L. 1999. Metal sorption rates and mechanisms at the mineral- water interface. Chemistry Dept., Northeastern University, Boston, Massachusetts, May 20.
75. Sparks, D.L. 1999. Metal sorption at soil mineral surfaces: A continuum from adsorption to precipitation. Dept. of Geological and Environ. Sciences, Stanford Univ., Palo Alto, California, June 21.
76. Sparks, D.L. 1999. Kinetics of reactions at the soil mineral/water interface. Plenary lecture of symposium Reaction Kinetics: Linkage Between Soil Science and Plant Nutrition". Hohenheim Univ., Stuttgart, Germany.
77. Sparks, D.L. 1999. Frontiers in metal sorption kinetics and mechanisms at the mineral/water interface. Environmental Chemistry and Transport Symposium, Wiley Environ. Molecular Sciences Lab, Pacific Northwest National Laboratory, Richland, Washington, July 21.

78. Peak, J.D., and D.L. Sparks. 1999. Kinetics of oxyanion sorption on metal oxides: A time-resolved ATR-FITR spectroscopic study. 5th Int. Conf. on the Biogeochemistry of Trace Elements, July 11-15, Vienna, Austria

79. Elzinga, E.J., and D.L. Sparks. 1999. Adsorption mechanisms of lead on amorphous silica. 5th Int. Conf. on the Biogeochemistry of trace elements. July 11-15, Vienna, Austria.

2000

80. Sparks, D.L. 2000. The role of molecular environmental science in advancing the frontiers of metal speciation in natural systems. Chemical Engineering IGERT (NSF) Program, Washington State Univ., March.

81. Sparks, D.L. 2000. Metal sorption/release on mineral surfaces. Soil and Crop Sciences Dept., Washington State Univ., March.

82. Sparks, D.L. 2000. Soil chemistry: Past Progress and Future Frontiers. IUSS Mid-Congress Symposium, Bangkok, Thailand, April.

83. Sparks, D.L. 2000. Metal precipitation and dissolution at the mineral/water interface, Rutgers University, New Brunswick, New Jersey, April.

84. Sparks, D.L. 2000. Series of 10 lectures on kinetics and surface chemistry of soils. University of Bari, Bari, Italy, May.

85. Sparks, D.L. 2000. Advances in understanding the kinetics and mechanisms of metal sorption at the mineral/water interface. Keynote Lecture. Third International Symposium of the Working Group M.O. "Interactions of Soil Minerals with Organic Contaminants and Microorganisms", Naples, Italy, May 22-26.

86. Sparks, D.L. 2000. Metal sorption and precipitation at the soil mineral/water interface: Implications for sequestration and remediation. Department of Land, Air and Water Resources, University of California- Davis, Davis, California, October.

87. Sparks, D.L. 2000. The role of molecular environmental science in advancing the frontiers of contaminant speciation. Nanophases in the Environment, Agriculture, and Technology (NEAT) Center, University of California-Davis, Davis, California, October.

88. Sparks, D.L. 2000. Frontiers in elucidating metal sorption mechanisms at the soil mineral water/interface using molecular scale techniques. Keynote Lecture, "Surface Chemical Processes in Natural Environments Symposium", Monte Verita, Ascona, Switzerland, October 1-6.

89. Sparks, D.L. 2001. Metal sorption kinetics and mechanisms at the mineral/water interface: Implications for sequestration and remediation. State University of New York, Stony Brook, New York, April 12.

90. Sparks, D.L. 2001. The role of molecular environmental science in advancing the frontiers of contaminant speciation and dynamics in natural systems. Harvard University, Cambridge, Massachusetts, April 19.

91. Sparks, D.L. 2001. Speciation of As and Zn in contaminated soils using micro-focused x-ray absorption spectroscopy. Brookhaven National Laboratory, Upton, New York, May 21.

92. Sparks, D.L. 2001. Frontiers in elucidating metal sorption mechanisms at the mineral/water interface: From the macroscopic to the molecular scale. Keynote Speaker in Environmental Surface Chemistry Symposium of 75th ACS Colloid and Surface Science Symposium, Carnegie-Mellon Univ., Pittsburgh, Pennsylvania, June 10-13.

93. Sparks, D.L. 2001. Frontiers in assessing the role of chemical speciation and natural attenuation on the bioavailability of contaminants in the terrestrial environment. Plenary talk at Bioavailability 2001-Chemical Bioavailability in the Terrestrial Environment, Adelaide, South Australia, CSIRO, November 18-20.

94. Sparks, D.L. 2001. Frontiers in assessing the role of chemical speciation and natural attenuation on the fate of contaminants in soils. CSIRO, Western Australia, Perth, Australia. November.

95. Sparks, D.L. 2001. The role of molecular environmental science in advancing the frontiers of chemical speciation and dynamics in natural systems. CSIRO, Canberra, Australia. November.

96. Sparks, D.L. 2001. The role of molecular environmental science in advancing the frontiers of chemical speciation and dynamics in natural systems. CSIRO, University of Melbourne, Australia. November.

97. Ford, R.G., Y. Arai and D.L. Sparks. 2001. Approaches to characterizing solid phase arsenic speciation in soils. 17th Int. Conf. On Contaminated Soils, Sediments and Water, October 22-25, Univ. of Massachusetts, Amherst, Massachusetts.

98. Sparks, D.L. 2002. Kinetics and mechanisms of metal sorption/desorption on natural materials: A multi-scale approach. University of Kentucky, Agronomy Dept., March.

99. Sparks, D.L. 2002. The role of synchrotron radiation in advancing frontiers in environmental soil science. Keynote Address, Synchrotron Environmental Science, May 6-8, Argonne National Laboratory, Advanced Photon Source, Argonne, Illinois.

100. Sparks, D.L. 2002. Metal sorption on soil mineral surfaces. Nanogeoscience Workshop, Lawrence Berkeley National Laboratory, Berkeley, California, June 14-16.

101. Sparks, D.L. 2002. The role of molecular scale investigations in advancing the frontiers of contaminant speciation and bioavailability in soils. Keynote Paper, Bouyoucos Conference on Molecular Level Processes Controlling Availability of Chemical Species to Plants and Microbes in Soil. June 23-27, Kassandra, Halkidiki, Greece.

102. Sparks, D.L. 2002. It's about scale and interfaces: Frontiers in basic soil science research. Plenary Address, 17th World Congress of Soil Science, August 13-21, Bangkok, Thailand.

103. Sparks, D.L. 2002. It's about scale and interfaces: From the landscape to the molecular. S. Hallock du Pont Inaugural Lecture, DBI, May 19.

104. Sparks, D.L. 2002. Frontiers in contaminant fate and speciation: It's about scale and interfaces. Princeton University, Princeton, New Jersey, October 10.

105. Sparks, D.L. 2002. Frontiers in contaminant fate and speciation: It's about scale and interfaces. USGS, Menlo Park, California, October 16.

106. Sparks, D. L. 2003. Frontiers in basic soil science research: grand challenges and opportunities. 26th Congress of the Polish Society of Soil Science, Plenary Presentation, Krakow, Poland. September 8-10.

107. Sparks, D. L. 2003. Frontiers in contaminant fate and speciation. The role of synchrotron radiation Keynote presentation. IUPAC, Canadian Chemical Society, Canadian Light Source, Ottawa, Canada, August 10-14.

108. Gräfe, M., D. L. Sparks, A. Lanzirotti and M. Marcus. 2003. In-situ speciation of arsenic contaminated soil using synchrotron based micro-focused X-ray fluorescence and X-ray absorption spectroscopy. 7th International Conference On The Biogeochemistry of Trace Elements. Uppsala, Sweden, June 15-19.

109. Dyer, J. A., N. C. Scrivner, B. Fritzler, P. Trivedi, D. L. Sparks, and S. Sanders. 2003. Predicting trace-metal fate in aqueous systems using a coupled equilibrium-surface-complexation, dynamic-simulation model. 2ndInt., Symp. on Underground Injection Science and Technology. LBNL, Berkeley, California. October 22-25.

110. Trivedi, P., D. L. Sparks, J. A. Dyer, N. C. Scrivner, and K. Pandya. 2003. Short-and long-term fate of trace metal contaminants in anoxic aqueous environments as a function of background-electrolyte and temperature. 2nd Int. Symp. on Underground Injection Science and Technology. LBNL,

Berkeley, California. October 22-25.

111. Nachtegaal, M., C. J. Jacobsen, and D. L. Sparks. 2003. X-ray microscopic and NEXAFS spectroscopic studies of humic substances and their metal binding affinity. Environmental Molecular Science Workshop at NSLS User Meeting, National Synchrotron Light Source, Brookhaven National Laboratory, Upton, New York.
112. Sparks, D. L., 2004. Shedding Light on Soil Contamination and Remediation: The Role of Synchrotron Radiation, Roscoe Ellis, Jr. Lecturer, Kansas State University, Manhattan, Kansas, March 17.
113. Sparks, D.L. 2004. It's About Scale and Interfaces: Soil Chemistry from the Landscape to the Molecular. Kansas State University, Manhattan, Kansas, March 18.
114. Sparks, D. L. 2004. Kinetics and mechanisms of metal sorption at the soil mineral/water interface. The continuum from adsorption to precipitation. Keynote Lecture, in "Chemistry of Metals in Terrestrial Aquatic Systems" symposium. 227th Am. Chem. Soc. National Meeting, Anaheim, California March 28 - April 1.
115. Sparks, D.L. 2004. The role of synchrotron radiation in advancing the frontiers of water-rock interactions. Keynote speaker. Proceedings of the Eleventh International Symposium on Water-Rock Interaction WRI-11. Saratoga Springs, New York. June 27 - July 2.
116. Borda, M.J., D.L. Sparks, M.A.A. Schoonen, and D.R. Strongin. 2004. Using time-lapse ATR-FTIR spectroscopy to investigate reactions at the water- rock interface. Proceedings of the Eleventh International Symposium on Water-Rock Interaction WRI-11. Saratoga Springs, New York. June 27-July 2.
117. Dyer, J.A., N.C. Scrivner and D.L. Sparks. 2004. Coupling uncertainty analysis with a surface complexation model. Proceedings of the Eleventh International Symposium on Water-Rock Interaction WRI-11. Saratoga Springs, New York. June 27 - July 2.
118. Sparks, D.L., 2004. Multi-scale assessment of ion sorption kinetics at the mineral/water interface. Keynote speaker. 228th ACS National Meeting, Philadelphia, Pennsylvania August 22-26.
119. Sparks, D.L. 2004. Shedding light on metal speciation at mineral surfaces: The role of synchrotron-based spectroscopic techniques. Keynote speaker. 228th ACS National Meeting, Philadelphia, Pennsylvania. August 22-26.
120. Sparks, D.L. 2004. Shedding light on remediation of polluted soils. The role of synchrotion radiation. Keynote speaker. Eurosoil 2004, Freiburg, Germany. September 9.
121. Sparks, D.L. 2004. Grand challenges and opportunities in basic soil science research and the discipline of soil science. Plenary speaker. Super Soil 2004. Sydney, Australia, December 5.

2005

122. Paul, K., M. Borda, J. Kubicki, D. Sparks. 2005. SO42- coordination and speciation at the Fe-(Hydr)oxide-H2O Interface: MO/DFT & FTIR Results. IUSS Symposium, Voemma, October.
123. Sparks, D.L. 2005. Kinetics of Chemical Reactions in Environmental Systems: Research Needs and Challenges. Keynote Talk NSLS UsersU Meeting, In-situ Analyses in Environmental Systems, Brookhaven National Laboratory, Upton, New York, May 23-25.
124. Sparks, D.L. 2005 The Role of XAFS in Advancing the Frontiers of Molecular Environmental Science. Keynote Talk 4th Summer School of Condensed Matters Research, Zuoz, Switzerland, August 14-21.
125. Sparks, D.L. 2005. Advances in Elucidating Biogeochemical Processes in Soils: It's About Scale and Interfaces. Keynote Talk. 7th International Symposium of Geochemistry of the Earth's Surface (GES-7), Aix-en-Provence. August 23-27.
126. Sparks, D.L. 2005.Grand Challenges and Opportunities in the Environmental Sciences: The Importance of Basic Research and Technology. Sterling B. Hendricks Memorial Lecture, American

Chemical Society Meeting, Washington, D.C., August 31.

127. Sparks, D.L. 2005. Frontiers in Contaminant Speciation and Reactivity in Terrestrial Environments: The Role of Synchroton Radiation. Plenary Talk. Japanese Society of Soil Science and Plant Nutrition Meeting, Matsue, Japan, September 6-8.
128. Sparks, D.L. 2005.Frontiers in Soil Science: Technology and the Information Age. Plenary Talk. Frontiers of Soil Science-Messages from Soil Scientists in Asia, Japan Council of Science, Tokyo, Japan, September 12.
129. Sparks, D.L. 2005. Future Directions in Basic Soil Science Research: Opportunities and Challenges. Plenary Talk. International Symposium 2005, Application of Emerging Soil Science Research and its Role in the Conservation of Agricultural Ecosystems, Seoul, Korea, September 28-29.
130. Sparks, D.L. 2005. Complex Environmental Systems/Ecosystem Health. Governor Minner's Council on Science and Technology, Delaware Biotechnology Institute, Newark, Delaware, October 4.
131. Tappero, R., M. Marcus, E. Peltier, R. L. Chaney and D. L. Sparks. 2005. Plant- Metal-Soil Interactions: Results from synchrotron-based X-ray fluorescence (SXRF), X-ray absorption spectroscopy (XAS), and computed microtomography (CMT). Synchrotron Environmental Sciences III (SES III) Workshop, Brookhaven, National Lab, Upton, New York September 20.
132. Paul, K.W., M. J. Borda, J. D. Kubicki and D. L. Sparks. 2005. How Dehydration Affects SO42- Adsorption at the Fe-(Hydr)oxide-H2O Interface. IUSS Symposium Advances of Molecular Modeling Perspectives for Soil Research. University of Natural Resources and Applied Life Sciences, Vienna, Austria, October 21-22.
133. McNear, D. H. and D. L. Sparks. 2005. Using synchrotron-based techniques to explore heavy metal interactions at the plant-soil-water interface. Canadian Light Source Inc. Annual Users' Meeting and Workshops, Saskatoon, Saskatchewan, Canada, November 18-20.
134. Tappero, R. and D. L. Sparks. 2006. Root-induced changes in metal speciation in the rhizosphere and metal homeostasis in a Ni/Co hyperaccumulator: A spectromicroscopic investigation. 16th Annual V.M. Goldschmidt Conference, Melbourne, Australia.
135. Sparks, D.L. 2006. Use of X-ray Absorption Spectroscopy in Advancing the Frontiers of Interfacial Geochemistry. Keynote Talk. Spectroscopy of Interfaces: Geochemistry Interfaces. 231st Am. Society Chemistry National Meeting, Atlanta, Georgia, March 26-30.
136. Sparks, D.L. 2006. Advances in Understanding Hydrobiogeochemical Processes Important in Soil Protection. Invited Talk. 17th International Soil Tillage Research Organization Conference, "Sustainability- Its Impact on Soil Management and Environment", Kiel, Germany, August 28-September 3.
137. Sparks, D.L., S. Parikh, M. Borda, and B.J. Lafferty. 2006. Advances in the Use of Real-Time Molecular Scale Techniques to Explore Reaction Mechanisms at the Mineral/Water Interface. Invited Talk. A Symposium in Honor of Garrison Sposito. 232nd Am. Chemistry Society National Meeting, San Francisco, California, September 10-14.
138. Sparks, D.L. 2007. The Role of X-ray Absorption Spectroscopy (XAS) in Advancing the Frontiers of Environmental Interfacial Chemistry. Invited Talk. ACIS 2007 Australian Colloid and Interface Symposium, Coogee Beach, Sydney, Australia, February 4-8.
139. Sparks, D.L. 2007. The Role of Molecular Environmental Science in Elucidating Biogeochemical Processes in the Earth's Critical Zone. Old Dominion University, Norfolk, Virginia, March 2.
140. Sparks, D.L. 2007. Frontiers in Exploration of Biogeochemical Processes at Critical Zone Interfaces. Department of Plant and Soil Sciences, University of Kentucky, April 27.
141. Sparks, D.L. 2007. The Role of Molecular Environmental Science in Elucidating Biogeochemical Processes in the Earth's Critical Zone. Old Dominion University, Norfolk, Virginia, March 2.

142. Sparks, D.L., 2007. Frontiers in Exploration of Biogeochemical Interfaces in the Earth's Critical Zone. Geophysical Laboratory, Carnegie Institution of Washington, Washington, D.C., June 4.
143. Sparks, D.L., 2007. The Role of Molecular Environmental Science Tools in Exploring Metal Cycling in the Natural Environment. Zhejiang University, Hangzhou, China, July 12.
144. Sparks, D.L., 2007. The Role of Molecular Environmental Science in Advancing the Frontiers of Trace Element Biogeochemistry. 9th International Conference on the Biogeochemistry of Trace Elements (ICOBTE), Beijing, China, July 15-19.
145. Sparks, D.L., 2007. Frontiers in Exploration of Biogeochemical Interfaces in the Earth's Critical Zone. China Agricultural University, Beijing, China, July 17.
146. Sparks, D.L., 2007. The Future of Soil: Opportunities and Challenges. The 27th Congress of the Polish Society of Soil Science P 70 Years Jubilee, Warsaw, Poland, September 3-7.
147. Sparks, D.L., 2007. Frontiers in Exploration of Biogeochemical Processes in the Earth's Critical Zone: The Role of Scale and Interfaces. Department of Crop and Soil Environmental Sciences, Virginia Tech, Blacksburg, Virginia, October 12.
148. Sparks, D.L., 2008. The Role of XAFS in Addressing Grand Challenges and Opportunities in Environmental Science. XAS NSLS-II Workshop, Brookhaven National Laboratory, Upton, New York, January 16.
149. Sparks, D.L., 2008. The Role of Synchrotron Radiation in Addressing Grand Challenges and Opportunities in Environmental Science, J. Bennett Johnston, Sr. Center for Advanced Microstructures and Devices (CAMD), Baton Rouge, Louisiana, April 4.
150. Sparks, D.L., 2008. Frontiers in Exploration of Biogeochemical Processes in The Earth's Critical Zone: The Role of Scale and Interfaces, Louisiana State University, Baton Rouge, Louisiana, April 4.
151. Sparks, D.L. 2008. Shining Light on Biogeochemical Processes in the Earth's Critical Zone. USDA Beltsville's Director Distinguished Lecturer, Beltsville, Maryland, June 11.
152. Sparks, D.L., S.J. Parikh, M. Ginder-Vogel and G. Landrot. 2008. Real-time Molecular Scale Redox Kinetics at the Mineral/Water Interface. 236th American Chemistry Society National Meeting, Philadelphia, Pennsylvania, August 17-21.
153. Sparks, D.L. 2008. Shining Light on Biogeochemical Processes in the Earth's Critical Zone, University of Florida, Gainesville, Florida, September 11-12.
154. Sparks, D.L. 2008. Exploring Frontiers in Kinetics and Mechanisms of Geochemical Processes at the Mineral/Water Interface. Keynote talk at Center for Environmental Kinetics Analysis "All Hands" 5th Annual Meeting. The Pennsylvania State University, University Park, Pennsylvania, October 22.
155. Sparks, D.L., S.J. Parikh, M. Ginder-Vogel and G. Landrot. 2008. Advances in Elucidating Reactivity and Speciation at the Mineral/water Interface: The Role of Analytical Techniques and Computational Modeling, Goldschmidt Conference 2008, Vancouver, Canada, July 13 - 18.
156. Zhu, M., M. Ginder-Vogel, S.J. Parikh and D.L. Sparks. 2009. pH Effects on the Structure of Biogenic Mn-oxides. 237th ACS National Meeting, Salt Lake City, Utah, March 22-26.
157. Sparks, D.L., M. Ginder-Vogel, B. J. Lafferty, and S.J. Parikh. 2009. A Multi-scale Investigation of the Kinetics and Mechanisms of As(III) Oxidation on Hydrous Manganese Oxide. 9th V.M. Goldschmidt Conference, Davos, Switzerland, June 21-26.
158. Ginder-Vogel, M., G. Landrot and D.L. Sparks. 2009. Quantification of Rapid Environmental Redox Processes Using Quick-scanning X-ray Absorption Spectroscopy (Q-XAS). 9th V.M. Goldschmidt Conference, Davos, Switzerland, June 21-26.
159. Sparks, D.L. 2009. Shining Light on Biogeochemical Processes in the Earth's Critical Zone: Probing the Atomic Scale. Lessons Learned from X- ray Applications to Environmental Science Workshop Forum. University of California, Davis, September 3. (Plenary Speaker).

160. Sparks, D.L. and M. Zhu. 2009. The Value of a Multi-Scale, Multi-Tool Approach in Elucidating Metal(loid) Biogeochemistry in the Environment. DFG-IUSS Symposium on Advances in Molecular Modeling of Biogeochemical Interfaces P Perspectives for Soil Research, Jena, Germany, October 6-9. (Keynote speaker).

161. Sparks, D.L. 2009. Advances in the Use of Synchrotron Radiation in Elucidating Environmental Interfacial Reaction Processes and Mechanisms in the Earth's Critical Zone. Molecular Environmental Soil Science at Biogeochemical Interfaces in the Earth's Critical Zone Symposium, Zhejian University, Hangzhou, China, October 10-14. (Plenary Speaker).

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162. Ginder-Vogel, M. and D.L. Sparks. 2010. Real-time Characterization of Heterogeneous As(III) Oxidation by Hydrous Manganese(IV) Oxide using Quick-scanning X-ray Absorption Spectroscopy (Q-XAS). 239th ACS National Meeting, San Francisco, California, March 21-25.

163. Siebecker, M. and D.L. Sparks. 2010. Nickel Speciation in Serpentine Soils using Synchrotron Radiation Techniques.19th World Congress of Soil Science: Soil Solutions for a Changing World. Brisbane, Australia, August 1-6.

164. Sparks, D.L., M. Ginder-Vogel and G. Landrot. 2010. In situ Characterization of Environmental Redox Reactions using Quick-scanning X-ray Absorption Spectroscopy (Q-XAS). 239th ACS National Meeting, San Francisco, California, March 21-25.

165. Sparks, D.L. 2010. Integrating Spectroscopic, Kinetic, and Modeling Approaches to Elucidating the Mechanisms of Contaminant Interactions in Heterogeneous Natural Systems. 93rd Canadian Chemistry Conference and Exhibition, Toronto, Ontario, Canada, May 29-June 2.

166. Sparks, D.L. 2010. Shining Light on Biogeochemical Processes at Soil Interfaces. Saskatoon 2010: Transfers and Transformations, Joint Conference of the CSSA & CSA, Saskatoon, Saskatchewan, Canada, June 20-24.

167. Sparks, D.L. 2010. A New Model for Training Soil Science Students to Compete in a Global Society. 19th World Congress of Soil Science: Soil Solutions for a Changing World. Brisbane, Australia, August 1-6

168. Sparks, D.L. 2010. The Role of Advanced Analytical Techniques in Elucidating Phosphorus Dynamics in the Environment, 4th International Symposium on Phosphorus Dynamics in the Soil-Plant Continuum (ISPDSPC), Beijing, China, September 19-23.

169. Sparks, D.L. 2010. Integrating Spectroscopic, Kinetic, and Modeling Approaches to Elucidate the Mechanisms of Contaminant Interactions in Heterogeneous Natural Systems, Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China, September 24.

170. Sparks, D.L. 2010. The Use of Q-XAS and ATR-FTIR Techniques to Elucidate Reaction Mechanisms at Biogeochemical Interfaces in Soil, Advanced Spectroscopic and Microscopic Characterization Techniques - Tools To Enlighten Biogeochemical Interfaces in Soil, Jena, Germany, October 4-5

171. Sparks, D.L. 2010. Time-resolved Metal(loid) Reactivity at Biogeochemical Interfaces, Institute of Biogeochemistry and Pollutant Dynamics, Department of Environmental Sciences, ETH Zurich, Switzerland, October 7.

172. Sparks, D.L. 2011. Analytical Approaches for Investigating Reaction Mechanisms at Carbon/Mineral and Metal(loid)/Mineral Interfaces. 6th ISMOM, International Symposium of Interactions of Soil Minerals with Organic Components and Microorganisms, 3rd Inter Congress of Commission 2.5 IUSS Soil Chemical, Physical and Biological Interfacial Reactions. Montpellier, France, June 26 - July 1.

173. Sparks, D.L., 2011. A Multi-Scale Assessment of the Kinetics and Mechanisms of As(III) Oxidation on Hydrous Manganese Oxide, ICOBTE 2011, 11th International Conference on the Biogeochemistry of Trace Elements, Florence, Italy July 3-7.

174. Sparks, D.L., M. Ginder-Vogel and G. Landrot. 2011. Time-resolved metal(loid) reactivity at biogeochemical interfaces. Goldschmidt 2011 Conference, Prague, Czech Republic, August 14-19. p. 1920.
175. Sparks, D.L. 2011. Shining Light on Biogeochemical Processes in the Rhizosphere. Post-Symposium Workshop on Advances in Rhizosphere Science. Department of Plant and Soil Sciences, University of Delaware, Newark, Delaware. August 25.
176. Sparks, D.L. 2011. Shining Light on Biogeochemical Processes. Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China. September 12.
177. Sparks, D.L. 2011. The Critical Role of Soil Science in Addressing Global Environmental Challenges. Einstein Professor Lecture, Institute of Soil Science. Chinese Academy of Sciences. Nanjing, China September 13.
178. Sparks, D.L. 2011. The Pathways and Processes Utilized to Develop the Critical Zone Observatories. Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China. September 14.
179. Sparks, D.L. 2011. The Critical Role of Soil Science in Addressing Global Environmental Challenges. Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang, China. September 15.
180. Sparks, D.L. 2011. The Critical Role of Environmental Science/Engineering in Addressing Global Challenges. Institute of Urban Environment, Chinese Academy of Sciences. Xiamen, China. September 20.
181. Zhu, M. and D. L. Sparks. 2012. Interactions between Cations and Nanoparticulate Layered Mn Oxides - A x-ray Atomic Pair Distribution Functions (PDF) Analysis. Spring 2012 American Chemical Society National Meeting, San Diego, California, March 25-29.
182. Lazareva, O., D.L. Sparks, A. Aufdenkamp, J. Kan, S. Hicks, J. LeMonte, W. Pan and C. Chen. 2012. Biogeochemical Transformation of Fe- and Mn- Along a Redox Gradient: Implications for Carbon Sequestration Within the Christina River Basin Critical Zone Observatory. Spring 2012 American Chemical Society National Meeting, San Diego, California. March 25-29.
183. Sparks, D. L., 2012. Frontiers in Soil and Environmental Chemistry: The Important Role of Synchrotron-Based Tools. 15th Annual Users' Meeting, Canadian Light Source, Saskatoon, Saskatchewan, Canada. May 3-4.
184. Sparks, D.L., C. Chen, O. Lazareva, J. Lemonte, J.J. Dynes, J. Wang, and T. Regier. 2012. The Role of Metal Redox Coupling Processes in Carbon Cycling and Stabilization, The 22nd V. M. Goldschmidt Conference, Montreal, Canada, June 24-29
185. Sparks, D.L. 2012. Grand Challenges in Soil and Environmental Sustainability: The Importance of Basic Biogeochemical Research. EUROSOIL 2012, 4th International Congress of ECSSS, Bari, Italy, July 2.
186. Sparks, D. L. 2012. Factors Impacting Carbon-Mineral Complexation Mechanisms in the Christiana River Basin Critical Zone Observatory, Stanford University, Stanford, California, August 23.
187. Sparks, D. L. 2012. Grand Challenges in Environmental Sustainability: The Importance of Basic Biogeochemical Research. Huazhong Agricultural University, Wuhan, China, September 3.
188. Sparks, D. L. 2012. Carbon-Metal mineral Complexation and Cycling in the Christina River Basin Critical Zone Observatory. 2nd International Conference on Geobiology, "Critical Zone Observatories for Sustainable Soil Development and Beyond", Huazhong Agricultural University, Wuhan, China, September 3.
189. Sparks, D. L. 2012. The Role of Metal Redox Coupling Processes in Carbon and Arsenic Cycling in the Critical Zone Observatories for Sustainable Soil Development and Beyond", Huazhong Agricultural University, Wuhan, China, September 4.
190. Sparks, D. L. 2012. The Role of Mineral Complexation and Metal Redox Coupling in Carbon Cycling

and Stabilization, 16th Meeting of the International Humic Substances Society, Zhejiang University, Hangzhou, China, September 9-14.

191. Sparks, D. L. 2012. The Role of Critical Zone Science in Promoting Environmental and Agricultural Sustainability. SSSA International Annual Meeting, Cincinnati, Ohio, October 21-24.
192. Sparks, D. L. 2012. The Role of a Multi-Scale and Multi-Tool Approach in Advancing the Frontiers of Soil Biogeochemistry. SSSA International Annual Meeting, Cincinnati, Ohio, October 21-24.
193. Sparks, D. L. 2012. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil and Food Nexus. University of Western Australia, Perth, Australia, November 12.
194. Sparks, D. L. 2012. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil and Food Nexus. University of South Australia, Adelaide, Australia, November 14.
195. Sparks, D. L. 2012. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil and Food Nexus. University of Queensland, Brisbane, Australia, November 16.
196. Sparks, D. L. 2012. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil and Food Nexus. University of Western Sydney, Sydney, Australia, November 19.
197. Sparks, D.L. 2013. The Role of Metal Redox Coupling Processes in Carbon and Arsenic Cycling in the Critical Zone. Department of Soil Science, Kasetsart University, Bangkok, Thailand. March 26.
198. Sparks, D.L. 2013. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil, and Food Nexus. Faculty of Agriculture, Kasetsart University, Bangkok, Thailand. March 28.
199. Sparks, D.L. 2013. Surface Precipitation Mechanisms and their role in Metal Sequestration in Natural Environments. 245th American Chemical Society National Meeting and Exposition, New Orleans, Louisiana. April 7-11.
200. Sparks, D.L. 2013. Shining Light on Environmental Biogeochemical Processes: The Role of Synchrotron Radiation. Institute of Soil Science, Nanjing, China. April 20.
201. Sparks, D.L. 2013. Soil and Environmental Sustainability: Research Challenges and Opportunities. Nanjing Agricultural University, Nanjing, China. April 22.
202. Sparks, D.L. 2013. The Role of Mineral Complexation and Redox Cycling on Carbon Sequestration in the Earth's Critical Zone. Critical Zone Processes and Their Effects on Climatic, Ecological, and Environmental Changes Workshop, Nanjing, China. April 23-25.
203. Sparks, D.L. 2013. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil, and Food Nexus. Northwest Agriculture University, Yangling, China. April 26.
204. Sparks, D.L. and C. Chen. 2013. Shedding Light on Carbon-mineral Complexation in the Soil Environment: Impacts on C Sequestration and Cycling. International Union of Soil Sciences, Madison, Wisconsin. June 3-6.
205. Sparks, D.L. 2013. C-mineral complexation and its role on C cycling and sequestration. XXXIV Brazilian Congress of Soil Sciences, Florianopolis, Brazil, July 28-August 2.
206. Sparks, D.L. 2013. Grand Challenges and Opportunities in Soil Chemistry in the 21st Century. XXXIV Brazilian Congress of Soil Sciences, Florianopolis, Brazil, July 28-August 2.
207. Sparks, D.L. 2013. Shining Light on Soil Biogeochemical Processes: Opportunities and Challenges in the 21st Century, German Soil Science Society Meeting, Rostock, Germany, September 7-12.
208. Sparks, D.L. 2013. Grand Challenges in Environmental Sustainability: The Water, Climate, Soil, and Food Nexus. The Weston Roundtable Distinguished Lecturer, University of Wisconsin-Madison, Madison, Wisconsin, October 23-25.
209. Sparks, D.L. 2013. The Role of Mineral Complexation and Metal Redox Coupling in Carbon Cycling and Stabilization. University of Wisconsin- Madison, Madison, Wisconsin, October 23-25.
210. Sparks, D.L. 2013. Grand Challenges and Opportunities in Environmental Sustainability: The Soil,

Water, Climate, and Food Nexus, University of Massachusetts, Amherst, MA Stockbridge School of Agriculture, Amherst, Massachusetts, November 18.

211. Sparks, D.L. 2014. Grand Challenges in Environmental Sustainability: The Soil, Water, Climate, and Food Nexus, University of Wuppertal, Wuppertal, Germany, January 9.
212. Sparks, D. L. 2014. Advances in the Use of Synchrotron-Based Techniques to Elucidate Biogeochemical Processes in Natural Systems. Applications of Synchrotron Radiation for Environmental and Earth Sciences. Brazilian Synchrotron Light Source, Campinas, Brazil, March 13-14.
213. Sparks, D.L., B. Lafferty, M. Ginder-Vogel, G. Landrot, M. Zhu, J. Fischel, M. Fischel. 2014. Multiscale Assessment of the Kinetics and Mechanisms of Metal-(loid) Oxidation at the Mn-oxide/Water Interface. 247th American Chemical Society National Meeting and Exposition, Dallas, Texas, March 16- 20.
214. Sparks, D.L. 2014. The Role of Mineral Complexation and Metal Redox Coupling in Carbon Cycling and Stabilization, Miami University, Department of Geology Seminar Series, Oxford, Ohio, April 4.
215. Sparks, D.L. 2014. Soil Science in the Anthropocene: Golden Opportunities and Grand Challenges. 20th World Congress of Soil Science, Jeju, Korea, June 8-13
216. Sparks, D.L. 2014. The Critical Role of Soils in Preserving and Enhancing a Sustainable World. 20th World Congress of Soil Science, Jeju, Korea, June 8- 13.
217. Sparks, D.L. and C. Chen. 2014. Shedding Light on Soil Organic Matter- Mineral Associations: Their Role in Carbon Cycling and Sequestration in the Terrestrial Environment. 20th World Congress of Soil Science, Jeju, Korea, June 8-13.
218. Sparks, D.L., and C. Chen. Redox Cycling Impacts on Carbon and Iron Dynamics in Terrestrial Ecosystems. The Sixth International Workshop on Soil and Sedimentary Organic Matter Stabilization and Destabilization (SOM6) at Kiawah Island, South Carolina, October 5-9.
219. Sparks, D.L. and C. Chen. 2014. The Role of Mineral Complexation and Metal Redox Coupling in Soil Carbon Cycling: Impacts of Climate Change. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.
220. Sparks, D.L. 2014. A Historical Perspective on the Chemistry and Mineralogy of Soil Potassium. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.
221. Sparks, D.L. 2014. Grand Challenges and Opportunities in Environmental Sustainability: The Water, Climate, Soil, and Food Nexus. Delaware Academy of Science Annual Fall Meeting, Newark, Delaware, November 15.
222. Sparks, D.L. 2014. Grand Challenges and Opportunities in Environmental Sustainability: The Water, Climate, Soil and Food Nexus. University of Pennsylvania, Philadelphia, Pennsylvania, December 5.

2015

223. Sparks, D.L. 2015. Kinetics and mechanisms of geochemical processes: It's about interfaces and scale. 249th ACS National Meeting, Denver, CO, March 22-26.
224. Chen, C. and D.L. Sparks. 2015. Properties and reactivity of Fe-organic matter associations. 249th ACS National Meeting, Denver, CO, March 22-26.
225. Sparks, D.L. 2015. Application of Near-Edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy and Scanning Transmission X-ray Microscopy (STXM) to Investigate Carbon Cycling in the Terrestrial Environment. SyncLight 2015, São Paulo, Brazil, July 13-24.
226. Sparks, D.L. 2015. Metal(loid) Speciation and Reactivity in Soils Using Synchrotron-Based Techniques. SyncLight 2015, Sao Paulo, Brazil, July 13- 24.
227. Sparks, D.L. 2015. Advances in the Use of Small Spatial and Temporal Scale Synchrotron-Based

Techniques to Elucidate Biogeochemical Processes in Natural Systems. Goldschmidt 2015, Prague, Czech Republic, August 16-21.

228. Gamble, A. and D.L. Sparks. 2015. Tender Energy X-Ray Spectroscopy for Determining Phosphorus Speciation in Soils. SyncLight 2015, Sao Paulo, Brazil, July 13-24.
229. Vidal-Esquivel, P., J. W. Stuckey and D.L. Sparks. 2015. Sorption of dissolved organic carbon on metal oxides. Undergraduate Research and Service Celebratory Symposium. Newark, DE, August 13.
230. Fischel, J. and D.L. Sparks. 2015. Fate transport and cycling of hexavalent chromium in the soil environment. Goldschmidt 2015, Prague, Czech Republic, August 16-21.
231. Chen, C., J. Wang, J. Dynes and D. L. Sparks. 2015. Organo-mineral associations in agricultural soils: insights from multi-elemental STXM- NEXAFS analysis. 249th ACS National Meeting, Denver, CO, March 22-26.
232. Jaisi, D., S. Joshi, R. Kukkadapu and D. L. Sparks. 2015. Scalling up molecular reactions to ecosystem processes: Organic matter degradation controlled phosphorus cycling in the Chesapeake Bay. 249th ACS National Meeting, Denver, CO, March 22-26.
233. Sparks, D.L. 2015. Shining Light on Carbon-Mineral Complexation in the Terrestrial Environment: Implications for Sequestration and Cycling. China Geological Survey, Beijing, China, October 13.
234. Sparks, D.L. 2015. Kinetics of Soil Chemical Processes: A Career Perspective. Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China, October 15.
235. Sparks, D.L. 2015. Shining Light on Metal Sorption Processes at the Mineral/Water Interface: It's About Kinetics. Nanjing University, Nanjing, China, October 16.
236. Sparks, D.L. 2015. Shedding Light on Carbon Cycling in the Earth's Critical Zone. China University of Geosciences, Wuhan, China, October 18.
237. Sparks, D.L. 2015. Advances in the Use of Small Spatial and Temporal Scale Synchrotron-Based Techniques to Elucidate Biogeochemical Processes in Natural Systems. Columbia University, New York City, NY, October 29.
238. Sparks, D.L. 2015. Grand Challenges in Environmental Sustainability: The Soil, Water, Climate, and Food Nexus. Iowa State University, Ames, IA, November 5.
239. Sparks, D.L. 2015. Shining Light on Carbon-Mineral Complexation in the Terrestrial Environment: Implications for Sequestration and Cycling. University of Nevada, Reno, NV, October 5.

2016

240. Sparks, D.L. 2016. The Role of Soils in Human Security in the 21st Century. Plant and Soil Sciences Department, University of Delaware, Febrtuary 12.
241. Sparks, K.L. 2016. Grand Challenges in Global Security: The Water, Climate, Soil and Food Nexus. The 12th Dahlia Greidinger Memorial Symposium 2016. Haifa, Israel, February 29-March 2.
242. Sparks, D.L. and H. Magen. 2016. Main Targets and Challenges for Assuring Global Food and Water Security. The 12th Dahlia Greidinger Memorial Symposium, Haifa, Israel, February 29-March 2.
243. Niebecker, M., G. Luther and D. Sparks. 2016. Precipitation and Kinetics of Mixed-metal Solids in Soils, Sediments, and Mineral Systems: Implications for Equilibrium Speciation Calculations. 250st American Chemical Society National Meeting and Exposition, San Diego, CA, March 13-17.
244. Sparks, D.L. 2016. Shining Light on Metal Speciation and Remediation of Contaminated Soils. Australian Land and Groundwater Association Meeting, Newcastle, Australia, April 5.
245. Yang, J. and D.L. Sparks, 2016. Carbon Sequestration in Mineral-organic Carbon Systems and Mineral-amended Soils. University of Newcastle, Newcastle, Australia, April 5.
246. Sparks, D.L. 2016. Advances in the Use of Synchrotron Radiation to Study Biogeochemical

Processes. The University of Newcastle (UON), Newcastle, Australia, April 6.

247. Sparks, D.L. 2016. The Water, Climate, Soil and Food Nexus: Grand Challenges and Opportunities. University of Wyoming, Laramie, WY, May 5.
248. Sparks, D.L. 2016. Advances In The Use Of Small Spatial And Temporal Scale Synchrotron-Based Techniques To Elucidate Biogeochemical Processes In Natural Systems. University of Wyoming, Laramie, WY, May 6.
249. Sparks, D.L. 2016. Advances In The Use Of Small Spatial And Temporal Scale Synchrotron-Based Techniques To Elucidate Biogeochemical Processes In Natural Systems. Department of Environmental Sciences, UC-Riverside, May 9.
250. Sparks, D.L. 2016. Drilling Into New Depths of Clay Science. Pioneer in Clay Science Lecture, Clay Minerals Society Meeting, Atlanta, GA, June 8.
251. Chen, C., D.L. Sparks and A. Thompson. 2016 The Impact of Redox Fluctuations on coupled Fe and C Cycling. Goldschmidt Conference, Yokohama, Japan, June 26 - July 1.
252. Michael, H.A., X. Yu, J. J. LeMonte, D. L. Sparks, A. Seyfferth, K. H. Kim, J. Heiss,W. J. Ullman and J. A. Guimond. 2016. Geochemical response to hydrologic change along landsea interfaces, AGU Fall Meeting, San Francisco, CA, Dec.12- 16.
253. Stuckey, J., J.J. LeMonte, X. Yu, M. Schaefer, B. D. Kocar, S. G. Benner, J. Rinklebe, R. Tappero, H. A. Michael, S. E. Fendorf and D. L. Sparks. 2016 Hydrologically Controlled Arsenic Release in Deltaic Wetlands and Coastal Riparian Zones, AGU Fall, San Francisco, CA, Dec.12-16.

2017

254. Sparks, D.L. 2017. Layered double hydroxides and their significant role in geochemical processes. American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2- 6.
255. Sparks, D.L. 2017. The Nexus Between Soil, Water, Food, and Climate: Big Challenges and Opportunities in the 21st Century. Korea National University, OJERI Institute, Seoul, Republic of Korea, May 1.
256. Sparks, D.L. 2017. The Nexus Between Soil, Water, Food, and Climate: Big Challenges and Opportunities in the 21st Century. National Taiwan University, Taipei, Taiwan, May 2.
257. Sparks, D.L. 2017. Advances in the Use of Small Spatial and Temporal Scale Synchrotron-Based Techniques to Elucidate Biogeochemical Processes in Natural Systems. Annual Meeting of Chinese Environmental Analytical Society, Chung-Lee City, Taiwan, May 4.
258. Sparks, D.L. 2017. The Nexus Between Soil, Water, Food, and Climate: Big Challenges and Opportunities in the 21st Century. Department of Soil Science, Stellenbosch University, Stellenbosch, South Africa, October 12, 2017.

2018

259. Sparks, D.L. 2018. Biogeochemical interfacial reactivity in a changing environment. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22. Invited Keynote presentation.
260. Sparks, D.L. 2018. Mineral/Water Interfacial Reactivity in a Changing Environment. 55th Annual Clay Minerals Society Meeting, June 11-14,2018, University of Illinois, Urbana, IL.
261. Sparks, D.L. 2018. Advances in the Use of Small Spatial and Temporal Scale Synchrotron-Based Techniques to Elucidate Soil Mineral Reactivity. 21st World Congress of Soil Science. Rio de Janeiro, Brazil, August 12-17.
262. Shining Light on Mineral/Water Interfacial Reactivity in a Changing Environment. 21st World Congress of Soil Science, Rio de Janeiro, Brazil, August 17, 2018.

2019

263. Sparks, D.L. 2019. Whither Soil Chemistry: Digging for Gold or Stuck in the Mud. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.
264. Sparks, D.L. 2019. Advances in the Use of Real-Time Molecular Scale Techniques and Kinetic Models to Elucidate Biogeochemical Processes in Natural Systems. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.
265. Sparks , D.L., Sommers, L.E., and Peterson, G.W. 2019. Larry Wilding's Contribution to International Soil Science. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.
266. Siebecker, M., Li, W., Sparks, D.L., Wang, Y., Chaney, R. 2019. Modeling EXAFS and XANES spectra of neoformed LDH and metal-enriched phyllosilicate minerals. American Chemical Society San Diego, CA, USA. Aug 25-29.
267. Sparks, D.L. 2019. Shedding Light on Biogeochemical Processes in Earth's Critical Zone. Brazilian Critical Zone Symposium-Integrating Environmental Science. Keynote Presentation. April 15-17, Piracicaba, Brazil.
268. Sparks, D.L. 2019. Impact of a Changing Environment on Soil Chemical Processes. The Leo M. Walsh Distinguished Lectureship in Soil Science. University of Wisconsin, Madison. April 24.
269. Sparks, D.L. 2019. Frontiers in Biogeochemical Cycling of Trace Elements in a Changing Environment. Plenary Presentation. International Conference on the Biogeochemical Cycling of Trace Elements. May 5-8, 2019. Nanjing, China.
270. Sparks, D.L. 2019. Biogeochemical Cycling of Trace Elements in a Changing Environment. Honorary Professorship Lecture, Tianjin University. May 10, 2019. Tianjin, China.
271. Fischel, J.S. & Sparks, D.L. 2019. Soil chemical processes and properties impacting chromium cycling in highly contaminated sediments. Keynote Presentation. International Conference on the Biogeochemical Cycling of Trace Elements. May 5-8, 2019. Nanjing, China.

2020

272. Fischel, M.H.H., Clarke, C.E., Sparks, D.L. Kinetics of arsenic oxidation by naturally formed manganese-oxides. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.
273. Sparks, D.L. Impact of Fe-oxide nanoparticles on biogeochemical cycling of elements in a changing environment. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

B. Presentations - Abstracts from Papers Presented at International, National, and Regional Meetings

1. Sparks, D.L., and H.H. Bailey. 1976. Distribution of fixed ammonium in 3 Typic Hapludalf profiles in Kentucky. Agron. Abstract. p. 167. American Society of Agronomy Meetings, Houston, Texas.
2. Sparks, D.L., L.W. Zelazny, and D.C. Martens. 1978. Potassium status of a Paleudult from the Virginia Coastal Plain. Abstr. of Southern Assoc. of Agricult. Scient. p. 4, New Orleans, Louisiana.
3. Sparks, D.L., L.W. Zelazny, and D.C. Martens. 1978. Kinetics of potassium exchange in a Paleudult from the Coastal Plain of Virginia. Agron. Abstr. p. 137, American Society of Agronomy Meetings, Chicago, Illinois.
4. Sparks, D.L., L.W. Zelazny, and D.C. Martens. 1979. Potassium Desorption Kinetics Using Miscible Displacement. Agron. Abstr. p. 153, American Society of Agronomy Meetings, Fort Collins, Colorado.
5. Sparks, D.L., W.F. Kitchel, W.J. Edmonds, and D.C. Martens. 1979. Ion Movement in Sandy Coastal Plain Soils as it Affects Soil Test Interpretations. Agron. Abstr. p. 174, American Society of

Agronomy Meetings, Fort Collins, Colorado.

1980

6. Sparks, D.L., and W.G. Pill. 1980. Pasteurization and nitrapyrin effects on soil nutrition and tomato growth. Abstr. of Northeastern Branch of American Soc. of Agron. p. 3, State College, Pennsylvania.

7. Sparks, D.L. 1980. Kinetics and thermodynamics of potassium exchange in pure and in mixed systems. Agron. Abstr. p. 145, American Society of Agronomy Meetings, Detroit, Michigan.

8. Sparks, D.L., and P.M. Jardine. 1980. Thermodynamics of potassium exchange in Delaware soils. Agron. Abstr. p. 145, American Society of Agronomy Meetings, Detroit, Michigan.

9. Sparks, D.L., and W.C. Liebhardt. 1980. Effect of long-term lime and potassium applications on Q/I relationships in sandy soil. Agron. Abstr. p. 145, American Society of Agronomy Meetings, Detroi t, Michigan.

10. Sparks, D.L., and W.H. Mitchell. 1980. Effect of tillage and irrigation practices and waste amendments on selected chemical properties of a Delaware soil. Agron. Abstr. p. 32, American Society of Agronomy Meetings, Detroit, Michigan.

11. Sparks, D.L., and J.E. Rechcigl. 1981. Comparison of batch and miscible displacement techniques to describe potassium adsorption kinetics in Delaware soils. Northeastern Branch of American Soc. of Agron., Orono, Maine.

12. Rechcigl, J.E., M.R. Teel, and D.L. Sparks. 1981. Effect of nitrapyrin and nitrogen source on NH4+-N fixation in a Matapeake soil. Northeastern Branch of American Soc. of Agron., Orono, Maine.

13. Sparks, D.L. 1982. Ion activities: An historical and theoretical overview. Agron. Abstr., American Society of Agronomy Meetings, Anaheim, California.

14. Jardine, P.M., and D.L. Sparks. 1982. Potassium-calcium exchange in a multireactive soil system: I. Kinetics. Agron. Abstr. p. 175, American Society of Agronomy Meetings, Anaheim, California.

15. Sparks, D.L., and P.M. Jardine. 1982. Potassium-calcium exchange in a multireactive soil system: II. Thermodynamics. Agron. Abstr. p. 180, American Society of Agronomy Meetings, Anaheim, California.

16. Martin, H.W., and D.L. Sparks. 1982. The kinetics of non-exchangeable potassium release in Coastal Plain soils. Agron. Abstr. p. 177, American Society of Agronomy Meetings, Anaheim, California.

17. Evans, C.M., and D.L. Sparks. 1983. Kinetics and mechanisms of boron sorption and desorption in Mid-Atlantic Coastal Plain soils. Agron. Abstr., American Society of Agronomy Meetings, Washington, D.C.

18. Teel, M.R., D.L. Sparks, E. Dunlop, and R. Turnbull. 1983. Infrared aerial photography: A tool for identifying soil texture boundaries. Agron. Abstr., American Society of Agronomy Meetings, Washington, D.C.

19. Teel, M.R., D.E. Baker, and D.L. Sparks. 1983. Correlation of soybean yields with cation ratios expressed as activities versus exchangeable indices. Agron. Abstr. Northeastern Branch-American Society of Agronomy, Baltimore, Maryland.

20. Sparks, D.L., and T.H. Carski. 1984. Kinetics of potassium exchange in heterogeneous systems. International Clay Minerals Symposium, Calgary, Canada.

21. Ogwada, R.A., and D.L. Sparks. 1984. Comparison of kinetic equations to describe kinetics of potassium exchange in soils. Canadian Society of Soil Science, Banff, Canada.

22. Ogwada, R.A., and D.L. Sparks. 1984. Comparison of equilibrium and kinetic approaches to describe K-Ca exchange in soils. Agron. Abstr. p. 179, American Society of Agronomy Meetings, Las Vegas, Nevada.

23. Carski, T.H., and D.L. Sparks. 1984. A modified miscible displacement technique to study adsorption-desorption phenomena in soils. Agron. Abstr. p. 176, American Society of Agronomy Meetings, Las Vegas, Nevada.

1985

24. Ogwada, R.A., and D.L. Sparks. 1985. Quantification of rate- limiting steps in ion adsorption processes in soils and clay minerals. Agron. Abstr. p. 150, American Society of Agronomy Meetings, Chicago, Illinois.

25. Sparks, D.L., and R.A. Ogwada. 1985. Use of mole or equivalent fractions in determining thermodynamic parameters for potassium exchange in soils. Agron. Abstr. p. 151, American Society of Agronomy Meetings, Chicago, Illinois.

26. Schulthess, C.P., and D.L. Sparks. 1985. Modeling of proton sorption on oxide and clay mineral surfaces. Agron. Abstr. p. 151, American Society of Agronomy Meetings, Chicago, Illinois.

27. Hendricks, G.J., D.L. Sparks, and D.R. Parker. 1985. Effect of timing of potassium applications on leaching and corn yields in Delaware soils in an intensive management system. Agron. Abstr. p. 25, American Society of Agronomy Meetings, Chicago, Illinois.

28. Alvarez, R.A., and D.L. Sparks. 1985. Anion polymerization and sorption on sesquioxides. Agron. Abstr. p. 144, American Society of Agronomy Meetings, Chicago, Illinois.

29. Mirecki, J., M.R. Noll, and D.L. Sparks. 1985. Sand mineralogy of Delaware Coastal Plain soils: Its role in supplying potassium. Agron. Abstr. p. 232, American Society of Agronomy Meetings, Chicago, Illinois.

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2010

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March 21-25.

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295. Aufdenkampe, A.K., D.L. Sparks, K. Yoo, L.A. Kaplan, and J.E. Pizzuto. 2010. Spatial and Temporal Integration of Carbon and Mineral Fluxes: A Whole Watershed Approach to Quantifying Anthropogenic Modification of Critical Zone Carbon Sequestration, 3rd Annual National CZO PI meeting, Boulder, Colorado, September 13-15.

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California, Oct. 31 - Nov. 3.

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306. Lazerava, O., D.L. Sparks, A. Aufdenkamp, K. Yoo, S. Hicks and J. Kan. 2011. Role of Fe- and Mn-Redox Coupling on the Carbon Cycle in a Mixed Land Use Watershed. CZO National Meeting, Tucson, Arizona, May 8-12.

307. Yoo, K., A. Aufdenkampe, C. Chen and D.L. Sparks. 2011. Christina River Basin Critical Zone Observatory: Carbon-mineral interactions from molecular to basin scales in the Anthropocene, Goldschmidt 2011 conference, Prague, Czech Republic, August 14-19. p. 1224.

308. Lazareva, O., D.L. Sparks, A. Aufdenkamp, K. Yoo, S. Hicks and J. Kan. 2011. Role of Fe- and Mn-redox coupling on the carbon cycle in a mixed land use watershed: Christina River Basin Critical Zone Observatory. Goldschmidt 2011 conference, Prague, Czech Republic, August 14-19. p. 1279.

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311. Li, W. and D.L. Sparks. 2011. An Investigation on the Formation Mechanism of Zn/Al Layer Double Hydroxide Surface Precipitates On Aluminum Oxide. ASA-CSSA-SSSA 2011 International Annual Meetings, "Fundamental for Life: Soil, Crop, & Environmental Sciences," San Antonio, Texas, Oct. 16-19.

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313. Wu, Y. and D.L. Sparks. 2011. Effects of Dissolved Fe(II) On As(III) Oxidation and As(V) Sequestration by Hydrous Manganese Oxide. ASA- CSSA-SSSA 2011 Annual Meetings, "Fundamental for Life: Soil, Crop, & Environmental Sciences," San Antonio, TX, Oct. 16-19.

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316. Carter, S.E., D.L. Sparks, A.M. Rule, R. Tappero and E. Benson. 2012. Distribution and Speciation of Arsenic in Poultry Particulate Emissions, The 22nd V.M. Goldschmidt Conference, Montréal, Canada, June 24-29.

317. Ginder-Vogel, M., B. Lafferty and D.L. Sparks. 2012. As(III) Oxidation by delta-MnO2: Kinetics, Mechanisms, and Inhibition, 22nd V.M. Goldschmidt Conference, Montréal, Canada, June 24-29.

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320. Sparks, D.L., C. Chen, O. Lazareva, J. Lemonte, J. J. Dynes, J. Wang, and T. Regier. 2012. The Role of Metal Redox Coupling Processes in Carbon Cycling and Stabilization, The 22nd V.M. Goldschmidt Conference, Montréal, Canada, June 24-29.

321. Sparks, D.L. 2012. Grand Challenges in Soil and Environmental Sustainability: The Importance of Basic Biogeochemical Research. EUROSOIL 2012, 4th International Congress of ECSSS, Bari, Italy, July 2.

322. Fischel, J.S., M. H.l Fischel, B. J. Lafferty, and D. L. Sparks. 2012. Arsenic Mobilization in the Critical Zone: Oxidation by Manganese Oxide Minerals. 244th ACS National Meeting, Philadelphia, Pennsylvania, August 19-23.

323. Moyer, C.E. R. Tappero, H. Bais and D. L. Sparks. 2012. Role of Iron Plaques in Immobilizing Arsenic in the Rice-root Environment. 244th ACS National Meeting. Philadelphia, Pennsylvania, August 19-23.

324. Ono, F. B., E. S. Penido, D. L. Sparks and L.-R. G. Guilherme. 2012. Understanding the Low Arsenic Bioaccessibility in Tailings From a Gold Mining Area. SSSA International Annual Meeting, Cincinnati, Ohio, Oct. 21- 24.

325. Abdala, D. B., P. A. Northrup, and D. L. Sparks. 2012. Surface Loading and Time Effects on Phosphorus Sorption Mechanism Examined by Extended X- Ray Absorption Fine Structure Spectroscopy at the Goethite/Water Interface. SSSA International Annual Meeting, Cincinnati, Ohio, October 21- 24.

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327. Elbana, T., H. M. M. Selim and D. L. Sparks. 2012. Lead and Tin Transport and Retention in Soils: Miscible Displacement and Modeling. SSSA International Annual Meeting, Cincinnati, Ohio, October 21-24.

328. Li, W., Y. Wang and D. L. Sparks. 2012. Effect of Glyphosate on Zn Adsorption/Precipitation on Aluminum Oxide: A Molecular Scale Study Using Spectroscopic Techniques. SSSA International Annual Meeting, Cincinnati, Ohio, October 21-24.

329. Li, W. M. Zhu, and D. L. Sparks. 2013. Advances in Understanding the Chemistry of Light Elements at Environmental Interfaces. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

330. Feng, X., W. Li, M. Zhu, P. Northrup, and D. L. Sparks. 2013. Sorption Mechanism of Myoinositol Hexaphosphate on Boehmite: A 31P NMR and P EXAFS Study. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

331. Li, W., X. Feng, P. Northrup, J. D. Kubicki and D. L. Sparks. 2013. Glyphosate Sorption Mechanism at the Boehmite/Water Interface Using Solid State 31P NMR and P XANES. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

332. Chen, C. and D. L. Sparks. 2013. Effect of Ferrihydrite-organic Matter Coprecipitation on the Fe(II)-catalyzed Transformation of Ferrihydrite. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

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334. Chen, C., J. J. Dynes, J. Wang, T. Regier and D. L. Sparks. 2013. Mechanisms of Ferrihydrite-organic Matter Complex Formation via Adsorption and Coprecipitation. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

335. Siebecker, M., W. Li, S. Khalid and D. L. Sparks. 2013. Real-time Sorption and Precipitation of Nickel on Clay Minerals: An in situ Quick-EXAFS Investigation. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

336. Northrup, P. and D. L. Sparks. 2013. Advances in Spatially-resolved Tender- energy X-ray Absorption Spectroscopy at NSLS and NSLS-II. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

337. Ginder-Vogel, M., B. Lafferty and D.L. Sparks. 2013. As(III) Oxidation by Hydrous Manganese(IV) oxide: Kinetics, Mechanisms, and Inhibition. 245th American Chemical Society National Meeting & Exposition, New Orleans, Louisiana, April 7-11.

338. Lopes, G. 2013. Sequential extraction of Zn, Pb, and Cd in soils from a mining area. XXXIV Brazilian Congress of Soil Sciences, Florianopolis, Brazil, July 28-August 2.

339. Ono, F. B. 2013. Arsenic in Dust Particles around a Metal Mining Area. XXXIV Brazilian Congress of Soil Sciences, Florianopolis, Brazil, July 28- August 2.

340. Lazareva, O., D. L. Sparks, R. Landis, N.R. Grosso, J. Collins, J. A. Dyer, C.J. Ptacek, S. Hicks and D. Montgomery. 2013. Understanding Biogeochemical Transformation and Mobilization of Hg from River Bank Soils: South River, Virginia. Goldschmidt 2013, Florence, Italy, August 25-30.

341. Fischel, J. S., M. H. Fischel, B. Lafferty, 2014. Kinetics of Arsenic Oxidation by Manganese Oxide Minerals: The Influence of Origin and Structure on Reactivity. 247th American Chemical Society National Meeting and Exposition, Dallas, Texas, March 16-20.

342. Starcher, A. N., W. Li, D. L. Sparks, 2014. Spectroscopic evidence of mixed divalent metal layered double hydroxide phase formation from the co- sorption of Fe(II) and Zn with A1-bearing mineral substrates. 247th American Chemical Society National Meeting and Exposition, Dallas, Texas, March 16-20.

343. Starcher, A. N., W. Li, D. L. Sparks, 2014. Green rust formation from Fe(II) sorption to A1-bearing phyllosilicates with structure Fe impurities. 247th American Chemical Society National Meeting and Exposition, Dallas, Texas, March 16-20.

344. Zhu, M., X. Feng and W. Li. 2014. Advances in Understanding the Environmental Geochemistry of Manganese (Mn) Oxides (Symposium). 247th American Chemical Society National Meeting and Exposition, Dallas, Texas March 16-20.

345. Feng, X., H. Zhao, F. Liu, W. Tan, G. Qiu, H. Yin, W. Li, M. Zhu, and D. L. Sparks. 2014. Transformation of Hexagonal Birnessite into Triclinicbinessite by Aqueouos Mn and the Formation of Todorokite. 247th American Chemical Society National Meeting and Exposition, Dallas, Texas, March 16-20.

346. Fischel, J., G. Landrot and D.L. Sparks. 2014. Formation Mechanisms for Chromium Hydroxide Precipitation on Mineral Surfaces: The Impact on Contaminant Mobility in the Soil. 20th World Congress of Soil Science, Jeju, Korea, June 8-13.

347. Fischel, M., J. Fischel, B. Lafferty and D.L. Sparks. 2014. Kinetics of Arsenic Oxidation by Manganese Oxide Minerals: The Influence of Origin and Structure on Reactivity. 20th World Congress of Soil Science, Jeju, Korea, June 8-13.

348. LeMonte, J. and D.L. Sparks. 2014. Impact of Sea Level Rise on Contaminant Mobility and Cycling. 20th World Congress of Soil Science, Jeju, Korea, June 8-13.

349. Feng, X., Y. Yan, W. Li, F. Liu, W. Tan, G. Qiu and D.L. Sparks. 2014. Rapid Surface Precipitation of Myo-Inositol Hexakisphosphate at the Surface of Amorphous Aluminum Hydroxide. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

350. Fischel, J. and D.L. Sparks. 2014a. Formation Mechanisms for Chromium Hydroxide Precipitation on Mineral Surfaces: The Impact on Contaminant Mobility in the Soil Environment. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

351. Fischel, J. and D.L. Sparks. 2014b. Mighty Manganese Oxides in Central Pennsylvania Soils. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

352. Fischel, M., D.L. Sparks, H.P. Bais, and R. Tappero. 2014. The Impact of Sea Level Rise on Arsenic Sorption in Phragmites Australis Root Plaques. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

353. Gamble, A.V., P. Northrup, W. Li, and D.L. Sparks. 2014. Tender Energy X- Ray Absorption Spectroscopy for Determining Phosphorus Speciation in Soils. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

354. LeMonte, J.J. and D.L. Sparks. 2014. Impacts of Sea Level Rise on Arsenic Mobility and Cycling. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

355. Lopes, G., W. Li, D.L. Sparks, and L.-R. G. Guilherme. 2014. Zinc Mobility and Speciation in Soils Affected By Mining and Smelting Activities in Minas Gerais, Brazil Using X-Ray Absorption Spectroscopy. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

356. Ono, F.B., E.S. Penido, R. Tappero, D.L. Sparks and L.-R. G. Guilherme. 2014. Bioaccessibility of Cadmium and Lead in Tailings from a Zinc Smelting Area in Brazil. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

357. Pan, W., S. Inamdar, D. L. Sparks, Y. Jin, and J. Kan. 2014. Influence of Microbial Fe (III) Reduction on Dom Sorption under Anoxic Condition. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

358. Starcher, A.N., W. Li and D.L. Sparks. 2014. Spectroscopic Evidence for Fe(II)-Layered Hydroxide

Phase Formation on Pyrophyllite. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

359. Wang, X., W. Li, M. Zhu, F. Liu, X. Feng, and D.L. Sparks. 2014. Effect of Ferrihydrite Crystallite Size on Phosphate Adsorption Reactivity. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

360. Yang, J., D.L. Sparks, N.S. Bolan, and C. Rumpel. 2014. Synergistic Impact of Iron Cation on Dissolved Organic Matter Sorption to Soil Minerals. Soil Science Society of America (SSSA) International Annual Meeting, Long Beach, California, November 2-5.

2015

361. Chen, C., J. Wang, J. Dynes and D.L. Sparks. 2015. Organo-mineral associations in agricultural soils: insights from multi-elemental STXM- NEXAFS analysis. 249th ACS National Meeting, Denver, CO, March 22-26.

362. Feng, X., X. Wang, W. Li, M. Zhu, F. Liu and D.L. Sparks. 2015. Crystallite size effects on the structure and physicochemical properties of ferrihydrite. 249th ACS National Meeting, Denver, CO, March 22-26.

363. Fischel, J. and D.L. Sparks. 2015. Fate, transport, and cycling of hexavalent chromium in the soil environment. 249th ACS National Meeting, Denver, CO, March 22-26.

364. Fischel, J. and D.L. Sparks. 2015. Fate transport and cycling of hexavalent chromium in the soil environment. Goldschmidt 2015, Prague, Czech Republic, August 16-21.

365. Fischel, M. and D.L. Sparks. 2015. Impact of sea level rise on arsenic and chromium sorption in Phragmites Australis root plaques. 249th ACS National Meeting, Denver, CO, March 22-26.

366. Gamble, A. and D.L. Sparks. 2015. Tender Energy X-Ray Spectroscopy for Determining Phosphorus Speciation in Soils. SyncLight 2015, Sao Paulo, Brazil, July 13-24.

367. Jaisi D., S. Joshi, R. Kukkadapu and D.L. Sparks. 2015. Scaling up molecular reactions to ecosystem processes: Organic matter degradation controlled phosphorus cycling in the Chesapeake Bay. 249th ACS National Meeting, Denver, CO, March 22-26.

368. LeMonte, J., R. Tappero and D.L. Sparks. 2015. Potential impacts of sea level rise on arsenic mobility and cycling. 249th ACS National Meeting, Denver, CO, March 22-26.

369. Li, W., M. Siebecker and D.L. Sparks. 2015. Tackling rapid reaction kinetics at the mineral- water interface using quick-scanning X-ray absorption spectroscopy. 249th ACS National Meeting, Denver, CO, March 22-26.

370. Wang, Y., T. Fan, D. Zhou, W. Li, M. Zhu and D.L. Sparks. 2015. Macroscopic and microscopic investigation of adsorption and precipitation of Zn on γ- alumina as affected by As. 249th ACS National Meeting, Denver, CO, March 22-26.

371. Yang, J., J. Liu, J. Wang and D.L. Sparks. 2015. Copper sequestration by black carbon in contaminated soil using STXM-C K-edge and Cu L- edge XANES spectroscopy. 249th ACS National Meeting, Denver, CO, March 22-26.

372. Yang, J., D.L. Sparks, N. Bolan, R. Cornelia and W. Pan. 2015. Ternary complexation of dissolved organic matter in kaolinite-Fe(III)-organic acid systems: An EXAFS spectroscopic study. 249th ACS National Meeting, Denver, CO, March 22-26.

373. Vidal-Esquivel, P., J. W. Stuckey and D.L. Sparks. 2015. Sorption of dissolved organic carbon on metal oxides. Undergraduate Research and Service Symposium. Newark, DE, August 13.

374. Wendt, B. and D.L. Sparks. 2015. The mystery of mobilization: How sea level rise may impact

arsenic mobility in coastal soils. Undergraduate Research and Service Celebratory Symposium. Newark, DE, August 13.

375. Wendt, B. and D.L. Sparks. 2015. Arsenic speciation according to varying reductive and oxidative electrochemical levels. Undergraduate Research and Service Celebratory Symposium. Newark, DE, August 13.

376. Zhu, G., A. V. Gamble, M.H. Fischel and D.L. Sparks. 2015. Arsenic accumulation in aquatic marsh plants: Implications for water quality in Delaware. Undergraduate Research and Service Celebratory Symposium. Newark, DE, August 13.

377. Fischel, M. and D.L. Sparks. 2015. Impact of sea level rise on arsenic and chromium sorption in Phragmites Australis root plaques. Grad Student Research Symposium, Newark, DE, October 8.

378. Starcher, A.N., W. Li and D.L. Sparks. 2015. Spectroscopic Evidence for Fe(II)-Layered Hydroxide Phase Formation on Pyrophyllite. Grad Student Research Symposium, Newark, DE, October 8.

2016

379. Fischel, J. and D.L. Sparks. 2016. Superfund Cycling: The Fate of Hexavalent Chromium in the Subsurface Environment. The 12th Dahlia Greidinger Memorial Symposium 2016, Haifa, Israel, Feb 29 - March 2.

380. Cui, H.-J. and D.L. Sparks. 2016. Effects of adsorbed Cd(II) on the Mn(II)- catalyzed transformation of hexagonal birnessite. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13- 17.

381. Fischel, J. and D. L. Sparks. 2016. Superfund cycling: The fate of hexavalent chromium in the subsurface environment. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17.

382. Fischel, M. and D. L. Sparks. 2016. Impact of sea level rise on arsenic speciation in Phragmites australis and Spartina alterniflora. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17.

383. Gamble, A., P. Northrup and D. L. Sparks. 2016. Synchrotron-based techniques for determining phosphorus speciation in soils. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13- 17.

384. LeMonte, J., J. Stuckey, X. Yu, J. Rinklebe, R. Tappero, H. Michael and D. Sparks. 2016. Influence of sea level rise on arsenic mobility in coastal soils. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17.

385. Starcher, A., E. Elzinga, R. Kukkadapu and D. Sparks. 2016. Evidence for the formation of Fe-layered hydroxides using spectroscopic techniques. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17.

386. Stuckey, J. and D. Sparks. 2016. Impacts of manganese oxides on the retention, speciation, and lability of soil organic carbon. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13- 17.

387. Yang, J., J. Wang, D. Sparks, C. Rumpel and N. Bolan. 2016. Selective preservation of organic carbon species in amended field soils using multi- edge STXM coupled with XANES spectroscopy. 251st American Chemical Society National Meeting & Exposition, San Diego, CA, March 13-17.

388. Fischel, J.S. and D.L. Sparks. 2016. Superfund Cycling: The Fate of Hexavalent Chromium in the Subsurface Environment. Goldschmidt Conference, Yokohama, Japan, June 26 - July 1.

389. Fischel, M.H. and D.L. Sparks. 2016 The Impact of Sea Level Rise on Arsenic Speciation in Wetland

Flora. Goldschmidt Conference, Yokohama, Japan, June 26 - July 1.

390. Li, W., M.G. Siebecker and D.L. Sparks. 2016 Probing the Rapid Formation Kinetics of Ni-Al LDH Precipitates on γ-Alumina Using QEXAFS. Goldschmidt Conference, Yokohama, Japan, June 26 - July 1.

391. Starcher, A.N., W. Li, R. K. Kukkadapu, E. J. Elzinga and D. L. Sparks. 2016. Kinetics Of Fe-Layered Hydroxide Formation From Phyllosilicates Using Spectroscopy. Goldschmidt Conference, Yokohama, Japan, June 26 - July 1.

392. Zhu, G., J. W. Stuckey and D. L. Sparks. 2016. Impacts of Sorption and Coprecipitation on Soil Organic Carbon Reactivity Associated with Hydrous Manganese Oxide. Undergraduate Research and Service Celebratory Symposium, Newark, DE, August 11.

393. Fischel, J. and D. Sparks. 2016. Chromium Conundrum: Determining The Stability Of Legacy Contamination. 252nd American Chemical Society National Meeting & Exposition, Philadelphia, PA, August 21-25.

394. Yu, X, J. LeMonte, J. Stuckey, D. Sparks, J. Cargill, C. Russoniello and H. Michael. 2016. Hydrologic Controls On Arsenic Cycling Due To Tidal Fluctuation. 252nd American Chemical Society National Meeting & Exposition, Philadelphia, PA, August 21-25.

395. Gamble, A, P. Northrup and D. Sparks. 2016. Novel Spectroscopic Techniques To Examine Soil Phosphorus Speciation. 8th International Phosphorus Workshop (IPW8), Phosphorus 2020 - Challenge for Synthesis Agriculture & Ecosystem. Rostock, Germany, September 12-16.

396. Fischel, J. and D.L. Sparks. 2016. Superfund Cycling: The Fate of Hexavalent Chromium in the Subsurface Environment, ASA, CSSA & SSSA International Annual Meeting, Phoenix, AZ, November 6-9.

397. Fischel, M. and D.L. Sparks. 2016. Sea Level Rise Alters Arsenic Speciation in Wetland Plants and Soils, ASA, CSSA & SSSA International Annual Meeting, Phoenix, AZ, November 6-9.

398. Gamble, A.V. and D.L. Sparks. 2016. Soil Phosphorus Speciation Using Microspectroscopic Techniques, ASA, CSSA & SSSA International Annual Meeting, Phoenix, AZ, November 6-9.

399. Sanchez, J., J. Stuckey and D.L. Sparks. 2016. Impacts of a Shifting Redox Potential on Arsenic Sorption to Goethite, ASA, CSSA & SSSA Annual Meeting, Phoenix, AZ, November 6-9.

400. Stuckey, J.W., C. Goodwin, J. Wang, L. A. Kaplan, P. Vidal-Esquivel, T.P. Beebe Jr. and D.L. Sparks. 2016. Impacts of Hydrous Manganese Oxide and Goethite on Soil Organic Carbon Reactivity, ASA, CSSA & SSSA International Annual Meeting, Phoenix, AZ, November 6-9.

2017

401. Adhikari, D., T. Sowers, J. Stuckey, D. Sparks and Y. Yang. 2017. Formation and reactivity of ferrihydrite-soil organic carbon-calcium ternary complexes. American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2- 6.

402. Fischel, J. and D.L. Sparks. 2017. Enigmatic behavior of hexavalent chromium in a superfund site. American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2- 6.

403. Fischel, M., C. Dowding, D. Sparks. 2017. Arsenic oxidation by the mighty manganese soils of graskop. American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2- 6.

404. Siebecker, M. and D. Sparks. 2017. Structural insights on Ni-Al LDHs using wavelet analysis. American Chemical Society National Meeting & Exposition, San Francisco, CA, April 2- 6.

405. Sowers, T., J. Stuckey, D. Adhikari, Y. Yang and D. Sparks. 2017. Impact of calcium on the retention and stability of OM in Fe-(Ca)-OM adsorption complexes. American Chemical Society

National Meeting & Exposition, San Francisco, CA, April 2- 6.

406. Bateman, B. and D.L. Sparks. 2017 Chromium Oxidation by Manganese Oxides: An investigation Into Hexavalent Chromium Contamiantion at SuperFund Sites, Undergraduate Research and Service Scholar Celebratory Symposium, Newark, DE, August 10.

407. Wilson, Z., J. Sanchez, D. L. Sparks 2017. The Impact of Sea Level Rise on Arsenic Cycling and Mobility: pH and Ionic Strength Effects in a Goethite System, Undergraduate Research and Service Scholar Celebratory Symposium, Newark, DE, August 10.

408. Fischel, J.S. and D. L. Sparks. 2017. Enigmatic Behavior of Hexavalent Chromium in a Superfund Site. Goldschmidt 2017, Paris, France, August 13-18.

409. Fishcel, M.H.H., C.E. Clarke and D.L. Sparks. 2017. Arsenic oxidation by the mighty manganese soils of Graskop. Goldschmidt 2017, Paris, France, August 13-18.

410. Sowers, T.D.., J. W. Stuckey and D.L Sparks, 2017. Impact of Calcium on the retention and Stability of OM in Fe-(Ca)-OM Adsorption Complexes. Goldschmidt, Paris, France, August 13-18.

411. Betts, A.R. Starcher, A., Siebecker, M., Elzinga, E., and Sparks D.L. 2017. Precipitation of a Fe(II)-Al(III) layered double hydroxide (LDH) in an anaerobic soil clay fraction. Poster presentation. DENIN conference. University of Delaware.

2018

412. Adhikari, D., T.D. Sowers, J. Stuckey, D.L Sparks, Y. Yang. 2018. Formation and reactivity of ferrihydrite-organic carbon-calcium co-precipitate complexes. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22.

413. Coward, E.K., T. Ohno, A.F. Plante, D.L. Sparks. 2018. Adsorption and molecular fractionation of dissolved organic matter on iron-bearing mineral matrices of varying crystallinity. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22.

414. Fischel, J., D.L. Sparks. 2018. Shining light on Cr(III) oxidation mechanisms on Mn-oxides. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22.

415. Fischel, M., C. Clarke, D.L. Sparks. 2018. Arsenic oxidation by the mighty manganese soils of Graskop. American Chemical Society National Meeting, New Orleans, LA, March 18-22.

416. Sowers, T.D, J. Stuckey, D. Adhikari, Y. Yang, D.L. Sparks. 2018. Synergistic effect of calcium on organic carbon sequestration to ferrihydrite: Potential for Fe-Ca-OC ternary complexes. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22.

417. Xu, S., B. Chase, D.L. Sparks, J.F. Rabolt. 2018. A silver coated gold nanorod decorated fibrous SERS substrate for arsenic detection. American Chemical Society National Meeting & Exposition, New Orleans, LA, March 18-22.

418. Giannetta, B., C.Zaccone, C. Plaza, M.G. Siebecker, P, Rovira, C. Vischetti , D. L. Sparks. 2018. Soil Organic Matter-Mineral interactions across different land uses: the importance of Fe-mediated stabilization. European Geosciences Union General Assembly. Vienna, Austria, April 8–13.

419. Giannetta, B., M.G Siebecker, C. Plaza, C. Zaccone, P. Rovira, C. Vischetti, D. L. Sparks. 2018. Impact and reactivity of Fe(III)-OM complexes and Fe(III) polymerization in SOM fractions under different land uses. European Geosciences Union General Assembly. Vienna, Austria, April 8–13.

420. Giannetta, B., C. Plaza, C. Zaccone, M. G. Siebecker, P. Rovira, C. Vischetti, D. L. Sparks. 2018. Fe(III) fate after complexation with different soil organic matter fractions: retention capacity and mechanisms. European Geosciences Union General Assembly. Vienna, Austria, April 8–13.

421. Szerlag K., M.G. Siebecker, D. Jaisi, P. Northrup, D.L. Sparks. 2018. The chemistry of legacy

phosphorus in US Mid-Atlantic agricultural soils. University of Delaware College of Agriculture and Natural Resources Research Symposium. Newark, Delaware, April 30.

422. Szerlag, K.D., P. Northrup, M.G. Siebecker, D.P. Jaisi, D.L. Sparks. 2018. Legacy phosphorus speciation in US Mid-Atlantic agricultural soils using tender energy X-ray absorption spectroscopy (TES). The National Synchrotron Light Source II (NSLS-ll) and Center for Functional Nanomaterials (CFN) Users' Meeting, Brookhaven National Laboratory, New York, May 21-23.

423. Northrup P., R. Tappero, G. Flynn, S. Wirick, K. Szerlag, D. Sparks, S. Gill, M. Schoonen. 2018. Tender energy imaging and spectroscopy at TES (8-BM). The National Synchrotron Light Source II (NSLS-ll) and Center for Functional Nanomaterials (CFN) Users' Meeting, Brookhaven National Laboratory, New York, May 21-23.

424. Betts, A.R, M.G. Siebecker, D.L. Sparks. 2018. Oxidation status of subsoil clay during Fe(II) sorption alters the composition of precipitated Fe(II)-bearing layered double hydroxides. 55th Annual Meeting of the Clay Minerals Society. University of Illinois at Urbana-Champaign, Champaign, IL, June 11-14.

425. Szerlag K., M.G. Siebecker, D. Jaisi, P. Northrup, D.L. Sparks. 2018. The chemistry of legacy phosphorus in US Mid-Atlantic agricultural soils. 21st World Congress of Soil Science. Rio de Janeiro, Brazil, August 12-17.

426. Fischel, J.S. and D.L. Sparks. 2018. The Role of Soil Chemical Processes and Properties in Impacting Chromium Cycling in Highly Contaminated Soils. Rio de Janeiro, Brazil, August 12-17.

427. Fischel, M.H.H., C.E. Clarke, D.L. Sparks. 2018. Impact of climate on the mighty manganese soils of Graskop. 21st World Congress of Soil Science. Rio de Janeiro, Brazil, August 12-17.

428. Sowers, T.D., J.W. Stuckey, D. Adhikari, Y. Yang, D.L. Sparks. 2018. Probing the Effect of Calcium on Organic Carbon Sequestration to Ferrihydrite. 21st World Congress of Soil Science. Rio de Janeiro, Brazil, August 12-17.

429. Betts, A.R. and D.L. Sparks. 2018. Fe(II) interaction with natural clay minerals: role of structural Fe and aluminosilicates on Fe(II)-layered double hydroxide (LDH) formation. 21st World Congress of Soil Science. Rio de Janeiro, Brazil, August 12-17.

430. Coward E., T. Ohno, D.L. Sparks. 2018. Kinetic Structuring: Temporal Molecular Fractionation of Organic Matter during Mineral Adsorption. Goldschmidt. Boston, MA, USA. August 12-17.

431. Giannetta, B., C. Zaccone, C. Plaza, M.G. Siebecker, G. Aquilanti, M. Czyzychi, C. Vischetti, D.L. Sparks. 2018. A spectroscopic approach to Fe speciation in SOM pools under agricultural soils subjected to biochar and organic fertilizers. XXXVI Convegno Nazionale Società Italiana di Chimica Agraria (SICA), Dipartimento di Agraria, Università Mediterranea. September 24-26.

432. Coward, E.K., T Ohno, D.L.Sparks. 2018. Temporal molecular fractionation of organic matter during iron oxyhydroxide adsorption. American Geophysical Union, Washington, D.C., Dec 10-14.

433. Sowers, T.D., K.L. Holden, E.K. Coward, D.L. Sparks. 2018. Naturally-occurring bacteriogenic iron oxides as an unaccounted for component of aqueous carbon cycling. American Geophysical Union (AGU) Washington, D.C., Dec 10-14.

434. Giannetta, B., M.G. Siebecker, C. Zaccone, C. Plaza, G. Aquilanti, C. Vischetti, D.L. Sparks. 2018. Soil Organic Matter-Mineral interactions across pools in different land uses: the importance of Fe mineral dynamics in natural environments. American Geophysical Union (AGU) Washington, D.C., Dec 10-14.

2019

435. Fischel, F., C.E. Clarke, D.L. Sparks. 2019. Arsenic Oxidation By the Manganese Soils of Graskop.

Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

436. Sowers, T.C., K.L. Holden, E.K. Coward, D.L. Sparks. 2019. Biogenic Iron Oxides As an Unaccounted for Component of the Carbon Cycle. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

437. Holden, K.L., T.D. Sowers, D.L. Sparks. 2019. Biogenic Iron Oxides: The in Situ Growth and Variable Reactivity of a Carbon Sink in Natural Waters. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

438. Betts, A., D.L. Sparks. 2019. Coprecipitation of Green Rust with Aqueous Al and Si: Effects on Mineral Structure and Kinetics of Cr(VI) Reduction. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

439. Coward, E.K., TOhno, D.L. Sparks. 2019. Kinetic Structuring: Temporal Molecular Fractionation of Organic Matter at the Fe Oxyhydroxide Interface. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

440. Siebecker, M.G., R.L. Chaney, D.L. Sparks. 2019. Natural Speciation of Trace Metal Rich Soil Minerals at the Micrometer Scale Using Microfocused X-Ray Fluorescence, Diffraction, and Absorption. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

441. Fischel, J., D.L. Sparks. 2019. Soil Chemical Processes and Properties Impacting Chromium Cycling in Highly Contaminated Sediments. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

442. Sanchez, J., D.L. Sparks. 2019. The Impact of Redox Potential and Salinity on Arsenic Cycling and Mobility in Iron Oxide Systems. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

443. Giannetta, B., M.G. Siebecker, C. Zaccone, C. Plaza, G. Aquilanti, C. Vischetti, D.L. Sparks. 2019. The Role of Fe Species in SOM Stabilization in Agricultural Soils Subjected to Biochar and Organic Fertilizer Amendments. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

444. Szerlag, K., P. Northrup, R. Tappero, , M.G. Siebecker,, D.P. Jaisi, D.L. Sparks. 2019. The Solid Phase Speciation of Legacy Phosphorus in US Mid-Atlantic Agricultural Soils Using Micro-XRF Mapping and Micro-XANES. Soil Science Society of America International Soils Meeting (SSSA). San Diego, CA, USA. Jan 6-9.

445. Fischel, J.S. & Sparks, D.L. 2019. Soil Properties Impacting Chromium Cycling in Highly Contaminated Urban Sediments. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

446. LeMonte, J.J., Tappero, R., Rinklebe, J., and Sparks, D.L. 2019. How Future Sea Level Rise May Impact Legacy Arsenic in an Urban Soil. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

447. Izaditame, F., Siebecker, M.G., and Sparks , D.L. 2019. Sea-Level-Rise-Induced Release of Heavy Metals from Flood-Prone Contaminated Coastal Sediments. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

448. Szerlag, K.D., Izaditame, F., Northrop, Tappero, R., P., Jaisi, D. P., and Sparks, D.L. 2019. Phosphorus Solid Phase Speciation and Hedley Sequential Extraction Residues: Using Multi-Modal μ-XRF Mapping and μ-XANES to Speciate Legacy P in Agricultural Soils. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

449. Betts, A.B., Evers, A., Fischel, M.H.H., Tappero, R., P., and Sparks, D.L. 2019. Silicon Coprecipitation with Green Rust Carbonate and Sulfate and Its Effects on Formation and Air-Oxidation. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

450. Fischel. M.H.H., Clarke, C.E., and Sparks , D.L. 2019. Oxidative Capacity of Naturally Formed Manganese Oxides from Graskopn. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

451. Sricharoenvech, P., Tappero, R., Landrot, G., SIebecker, M.G, and Sparks, D.L. 2019. Desorption of Chromium from Contaminated Urban Soils. ASA-CSSA-SSSA International Annual Meeting). San Antonio, TX, USA. Nov. 10-13.

452. Fischel. M.H.H., Clarke, C.E., Sparks, D.L. 2019. Arsenic oxidation by the manganese soils of Graskop: Implications for oxide reactivity with a changing climate. International Conference on the Biogeochemical Cycling of Trace Elements. May 5-8, 2019. Nanjing, China.

453. McCrone, C., K.D. Szerlag, D.L. Sparks. 2019. Investigation of the Hedley sequential extraction in the identification of phosphorus pools and mobility in agricultural soils. DENIN Scholars Spring Undergraduate Research Symposium, Newark, Delaware, USA, May 10.

2020

454. Izaditame, F., Siebecker, M.G., Tappero, R., Sricharoenvech, P., Sparks, D.L. Arsenic fate under the shadow of sea-level rise. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

455. Sanchez, J., Stuckey, J., Tappero, R., Siebecker, M.G., Sparks, D.L. Sea level rise impacts on arsenic mobility in natural systems. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

456. Elavarthi, M., Szerlag, K.D., Sparks, D.L. Legacy phosphorus desorption from U.S. Mid-Atlantic agricultural soils. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

457. Szerlag, K.D., Izaditame, F., Northrup, P., Siebecker, M.G., Tappero, R., Jaisi, D., Sparks, D.L. Speciation of legacy P in soils using multi-modal μ-XRF mapping and μ-XANES. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

458. Coward, E., Ohno, T., Sparks, D.L. Temporal molecular fractionation of dissolved organic matter at the mineral interface: Importance and irrelevance of solid-phase speciation. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

459. Coward, E., Wani, R.P., Sowers, T.D., Sparks, D.L. Twin fate: Coupled iron-carbon biogeochemistry in thawing permafrost environments. American Chemical Society National Meeting. Philadelphia, PA. March 22-26.

C. Presentations to Agricultural Commodity Groups

1. Sparks, D.L. 1980. Potassium status of Atlantic Coastal Plain soils. College Fertilizer Conference, Virginia Beach, Virginia. Sponsored by Southern States Cooperative.

2. Sparks, D.L. 1980. Boron and potassium fertilization and leaching effects on sandy Delaware soils in an intensive corn management system. Maximum Yield Workshop, East Lansing, Michigan. Sponsored by Potash and Phosphate Institute.

3. Sparks, D.L. 1981. Boron and potassium fertilization to maximize corn yields on Delaware soils.

College Fertilizer Conference, Williamsburg, Virginia. Sponsored by Southern States Cooperative.

4. Sparks, D.L. 1981. Leaching of boron and potassium in sandy Atlantic Coastal Plain soils. Maximum Yield Workshop, Freehold, New Jersey. Sponsored by Potash and Phosphate Institute.

5. Sparks, D.L. 1982. Kinetics and thermodynamics of potassium exchange in mixed systems. University of Delaware Research Foundation Luncheon, Newark, Delaware.

6. Sparks, D.L. 1982. Principles of soil testing. Delaware Crop Improvement Association Annual Meeting, Felton, Delaware.

7. Sparks, D.L. 1982. The chemistry and fertility of soil potassium. Delaware Vegetable Growers Association Annual Meeting, Dover, Delaware

8. Sparks, D.L., and G.J. Hendricks. 1986. Broadcasting versus banding applications of K on Delaware soils as it affects corn (Zea mays L.) in an intensive management system. Agricultural Resources Day, Georgetown, Delaware.

9. Sparks, D.L. 1997. Metals in the soil environment, Mid-Atlantic Crop Management Workshop, Ocean City, Maryland, November 20.

D. Visiting Scholar Participation and Invitational Seminars

I have served as a Visiting Scholar and presented lectures and seminars at the following Universities, National Laboratories, and Institutes:

1. University of Kentucky, Lexington, KY, 1982

2. Rutgers University, New Brunswick, NJ, 1984

3. University of Maryland, College Park, MD, 1984

4. The Ohio State University, Columbus, OH, 1984

5. The Pennsylvania State University, State College, PA, 1985

6. Savannah River Ecology Laboratory, University of Georgia, 1985

7. University of Saskatchewan, Saskatoon, Canada, 1985

8. University of California, Riverside, CA, 1986

9. University of California, Berkeley, CA, 1986

10. Virginia Polytechnic Institute and State University, Blacksburg, VA, 1986

11. Nanjing Agricultural University, China, 1987, Canadian Potash Institute Lecturer

12. Jisiang Agricultural University, China, 1987, Canadian Potash Institute Lecturer

13. Hubei Institute of Soils and Fertilizer, China, 1987, Canadian Potash Institute Lecturer

14. U. S. Borax Research, Anaheim, CA, 1987

15. USDA-ARS Eastern Research Laboratory, 1988

16. Volcani Center, Bet Dagan, Israel, 1989

17. Technion University, Haifa, Israel, 1989

18. North Carolina State University, 1989, Raleigh, NC, Willie Woltz Distinguished Lecturer

19. University of Delaware, Newark, DE, Civil Engineering Dept., 1990

20. University of Delaware, Newark, DE, Provost's Dinner Seminar, 1990

21. University of Delaware, Newark, DE, Chemistry Dept., 1991

22. Justus von Liebig University, Giessen Germany, 1991

23. Institut fur Strahlenschutz, Neuherberg, Germany, 1991

24. Wageningen University, Wageningen, The Netherlands, 1991

25. Purdue University, West Lafayette, IN, 1991

26. Battelle, Pacific Northwest Laboratory, Richland, Washington, 1992

27. Rothamsted Experimental Station, Harpenden, England, 1993

28. University of Birmingham, Birmingham, England, 1993

29. Lancaster University, Lancaster, England, 1993

30. The Johns Hopkins University, Baltimore, MD, 1993

31. University of Saskatchewan, Saskatoon, Canada, 1995

32. Swiss Federal Institute of Technology, Zurich, Switzerland, 1995

33. University of Maryland, College Park, MD, Civil and Environmental Engineering Dept., 1996

34. University of Delaware, Newark, DE, Chemistry Department, 1996

35. Paul Scherrer Institute, Villigen, Switzerland, 1997

36. Lawrence Berkeley National Laboratory, University of California, Berkeley, CA, 1997

37. DuPont Co., Wilmington, DE, 1997

38. Iowa State University, Ames, Iowa, 1998

39. DuPont Co., Wilmington, DE, 1999

40. Texas A&M University, College Station, TX, 1999

41. Northeastern University, Boston, MA, 1999

42. University of Delaware, Newark, DE, Civil and Environmental Engineering Dept., 1999

43. Stanford University, Palo Alto, CA, 1999

44. Pacific Northwest National Laboratory, Richland, WA, 1999

45. Hohenheim University, Stuttgart, Germany, 1999

46. Washington State University, Pullman, WA, March, 2000

47. Rutgers University, New Brunswick, NJ, April, 2000

48. University of Bari, Bari, Italy, May, 2000

49. Iowa State University, Ames, IA, October, 2000

50. University of California-Davis, Davis, CA, October, 2000

51. State University of New York, Stony Brook, NY, March, 2001

52. Harvard University, Cambridge, MA, May, 2001

53. Brookhaven National Laboratory, Upton, NY, May, 2001

54. University of Sydney, Sydney, New South Wales, Australia, November, 2001

55. CSIRO, Perth, Western Australia, Australia, November, 2001

56. CSIRO, Adelaide, South Australia, Australia, November, 2001

57. University of Melbourne, Victoria, Australia, November, 2001

58. CSIRO, Canberra, New South Wales, Australia, November, 2001

59. CSIRO, Townsville, Queensland, Australia, November, 2001

60. University of Kentucky, Lexington, March, 2002

61. Argonne National Laboratory, Chicago, May, 2002.

62. Lawrence Berkeley National Laboratory, Berkeley, June, 2002.

63. Princeton University, Princeton, October, 2002.

64. U.S. Geological Survey, Menlo Park, CA, October, 2002.

65. Roscoe Ellis, Jr. (21st) Lecturer, Kansas State University, Manhattan, Kansas, March 17, 2004.

66. Brookhaven National Laboratory, Upton, New York, May, 2005.

67. Princeton University, Princeton, NJ, May 2006

68. Old Dominion University, March, 2007

69. University of Kentucky, April, 2007

70. Carnegie Institution of Washington, May, 2007

71. China Agricultural University, July, 2007

72. Virginia Tech, October, 2007

73. Brookhaven National Laboratory, January,2008

74. Center for Advanced Materials Design (CAMD), Louisiana State University, March, 2008

75. Louisiana State University, March, 2008

76. Virginia Tech, May, 2008

77. USDA, Beltsville, June, 2008

78. University of Florida, September, 2008

79. The Pennsylvania State University, October, 2008

80. University of California, Davis, Sept. 2009

81. Zhejiang University, Hangzhou, China, October, 2009

82. University of Saskatchewan, June, 2010

83. Research Center for Eco-Environmental Sciences, Chinese Academy of Sciences, Beijing, China, September, 2010

84. Swiss Federal Institute of Technology (ETH), Zurich, Switzerland, October, 2010

85. Chinese Academy of Sciences, Institute of Soil Science, Nanjing, China, September, 2011

86. Nanjing Agricultural Institute, Nanjing, China, September, 2011

87. Chinese Academy of Sciences, Inst. of Applied Ecology, Shenyang, China, September, 2011

88. Chinese Academy of Sciences, Inst. for Urban Environment, Xiamen, China, September, 2011

89. University of Saskatchewan, Saskatoon, Canada, May, 2012

90. Stanford University, Stanford, California, August, 2012

91. Wuhan University of Geoscience, Wuhan, China, September, 2012

92. Huazhong Agricultural University, Wuhan, China, September, 2012

93. University of Western Australia, Perth, Australia, November, 2012

94. University of South Australia, Adelaide, Australia, November, 2012

95. University of Queensland, Brisbane, Australia, November, 2012

96. University of Western Sydney, Sydney, Australia, November, 2012

97. The Kasetsart University, Bangkok, Thailand, March 2013

98. The Institute of Geochemistry Chinese Academy of Science, Nanjing, China, April, 2013

99. The Institute of Resource, Ecosystem and Environment of Agriculture, Nanjing Agricultural University, Nanjing, China, May, 2013

100. Universitat Rostock, Rostock, Germany, September, 2013

101. University of Wisconsin-Madison, Madison, Wisconsin, October, 2013

102. University of Massachusetts-Amherst, Amherst, Massachusetts, November, 2013

103. University of Wuppertal, Wuppertal, Germany, January, 2014

104. Miami University, Oxford, Ohio, March, 2014

105. University of Nevada, Reno, Nevada, October, 2015

106. Columbia University, New York, New York, November, 2015

107. Iowa State University, Ames, Iowa, November, 2015

108. Georgia Institute of Technology, Atlanta, Georgia, February, 2016

109. University of Wyoming, Laramie, Wyoming, May, 2016

110. University of California, Riverside, California, May, 2016

111. The University of New Castle (UON), Newcastle, Austalia, April 2016

112. Korea National University, OJERI Institute, Seoul, Republic of Korea, May 2017

113. National Taiwan University, Taipei, Taiwan, May 2017

114. Stellenbosch University, Stellenbosch, South Africa, October 12, 2017

115. University of Wisconsin, Madison

116. Chinese Academy of Agricultural Sciences, Beijing, China

VI. Professional Activities

A. Memberships in Professional and Learned Societies, Activities and Positions Held:

1. *American Society of Agronomy*

- Northeastern Soil Research Committee - Member - (1980-
- Soil Sample Bank Committee - Member (1980-1983)
- Membership Committee - Member - (1985-
- Co-Chairman American Society of Agronomy Northeastern Regional Branch Meetings - 1986
- Member, Research Awards Committee, Northeastern Branch, ASA - 1988-1989, Chairman, 1990
- Member, Visiting Scientist Awards Committee, 1988-1990 ASA Editor, Revision of ASA Monograph 9, Methods of Soil
- Analysis, Chemical methods, 3rd Edition Executive Committee, 1998-
- Joint Meetings Committee, 2002

2. *Soil Science Society of America*

- President-Elect 1998-1999 President 1999-2000 Past President 2000-2001
- Chaired a number of Sessions at National Meetings Soil Science Research Award Committee, 1987-1988 Representative from SSSA to AAAS Chemistry Division, 1988-1991
- Chairman-Elect, Div. S-2, Soil Science Society of America, 1987-1988
- Chairman, Div. S-2, Soil Science Society of America, 1988-1989
- Member - Soil Science Research Award Committee Nominating Committee, Div. S-2, Soil Science Society America, 1989-1992
- Nominating Committee, Soil Science Society of America,
- President, 1988-1989
- Associate Editor, Soil Science Society of America Journal, 1985-1987
- Technical Editor, (Divs. S-2, S-5, and S-9(, Soil Science Society of America Journal, 1988-
- Feasibility Committee on Revision of Agronomy 9, Part 2, Methods of Soil Analysis, Chemical and Microbiological Methods
- Co-Editor, Rates of Soil Chemical Processes, SSSA Spec. Publ.
- Board of Directors, 1989-1990 Fellows Committee, 1990-1991
- Soil Science Research Award Committee, 1991-1992 SSSA Budget and Finance Committee, 1993-1997, Chair, 1996, Past Chair, 1997 Council on History of SSSA, 1993-1997
- Co-Chairman, Working Group on Equilibrium/Kinetics, Div. S-2
- M.L. and Chrystie M. Jackson Soil Science Award Comm., 1994- 1996
- Co-Editor, "Future of Soil Chemistry", 1998 -
- Co-Editor, "Chemistry of Soil Chemical Processes", 1998 - President-Elect, 1998-1999
- Honorary Members Comm., 1998 - Distinguished Service Award Comm., 1998 - Council Society of Scientific Presidents, 1998 - Executive Committee, 1998 -
- President, 1999-2000 Past President, 2000-2001
- Associate Editor, Vadose Zone Journal, 2002- Editorial Committee, History of Soil Science, 2002-

3. *International Union of Soil Science (formerly International Society of Soil Science)*

   - Vice-Chair Commission II (Soil Chemistry) 1994-1998
   - Chair, Commission II (Soil Chemistry) 1998 President-Elect, 2000-2002
   - President, 2002-2006 Past President,
   - 2006-2010 Chair, Committee on Statutes and Structure, 2010-2014 Executive Committee, 2002-2014

4. *National Academy of Sciences*

   - U. S. National Committee on Soil Science, 1999; 2010-; Chair, 2013- 2016
   - Committee on Toxicants and Pathogens in Biosolids, 2000-2002.
   - Committee on Catalyzing Opportunities for Research in the Earth Sciences (CORES): A Decadal Survey for NSF's Division of Earth Science

5. *IUSS Representative to International Council for Science (ICSU), 2002-*

6. *Clay Minerals Society*

7. *Sigma Xi*

8. *Gamma Sigma Delta*

9. *American Association for Advancement of Science*

10. *American Chemical Society*

11. *American Geochemical Society*

12. *Francis Alison Society*

13. *Phi Kappa Phi*

14. *American Geophysical Union*

B. Editorial Boards

1. Associate Editor for Soil Chemistry (Division S-2), Soil Science Society of America Journal, 1985-1987

2. Technical Editor, Soil Science Society of America Journal Divs. S-5, S-9, 1988-1989, Div. S-2, 1990-1993

3. Editorial Board for Geoderma, 1985-

4. Editorial Board for Soil Science, 1987 -

5. Editor, Advances in Agronomy, 1990 –

6. Co-Editor-in-Chief, Geoderma, 1994-2005.

7. Associate Editor, Pedosphere, 1998 -

8. Associate Editor, Geochimica Cosmochimica Acta, 2000- 2011

9. Associate Editor, Environmental Soil Science Encyclopedia, 2000-2005

10. Co-Editor-in-Chief, Encyclopedia of Agricultural Sciences, 2001-

11. Associate Editor, Soil Science Reviews, 2002-

12. Associate Editor, Vadose Zone Journal, 2004-2010

13. Associate Editor, Encyclopedia of Soil Science, 2006-2009

14. Editorial Board, Chemical Geology, 2008-

15. Editorial Board, The Handbook of Environmental Chemistry, 2008-2011

16. Associate Editor, Soil Systems, 2016-

C. University, College, and Departmental Service (as Faculty Member and Department Chairman)

University of Delaware

1. *University*

- Faculty Senate 1982-1984, 1987-1989 Graduate Studies Committee 1982-1983
- University Promotion and Tenure Committee 1989-1990 Task Force to Expedite Contracts and Grants, 1988-1989 Provost's Screening Committee
- Committee to make Recommendations on Research at U. of D. Provost's Committee, 1991
- Budget Council, 1991-1993
- Environmental Studies Committee-Provost, 1994 - Delaware Biotechnology Institute Management Team 1998 - Chair of Chairs Group for DBI, 1999 -
- Member, Dean of Engineering Search Committee, 1999-2000 Chair, Crawford Greenewalt Chair in Plant Molecular Biology
- Search Committee (PLSC/DBI) 2000-2001 John Boyer Symposium Committee
- Presidential Search Committee, 2006 Environmental Cluster Hire Committee, 2010-2011
- Faculty Senate Committee on Student and Faculty Honors, 2009-; Chair, 2010-
- Search Committee, Vice Provost for Research, 2012 Search Committee, Geochemistry Faculty Position, 2012 Search Committee, Provost, 2012
- Co-Chair, RBB Review, 2013-
- Executive Committee, Strategic Initiatives, 2014
- Co-Chair of Budget Model Steering Committee, 2017-

2. *College*

- College Promotion and Tenure Committee, 1980-1981, 1984-1985; 1987-1988; Chairperson-1985; Chairperson-1988
- College Honors Day Committee, 1980 Land Procurement Committee, 1981-1982
- Delaware-Maryland Plant Food and Crop Protection-Board of Directors 1985
- Dean's Full Professor Advisory Committee, 1987 College Conference Committee, 1989
- College of Agricultural Sciences Scholarship Committee, 1989- Chair, Committee on Research/Extension Interactions, 1989 Dean's Search Committee, 1991
- W.J. Benton Retirement Committee
- Search Committee, Chair, Dept. of Food and Research Economics Search Committee, Chair, Director of Agricultural Communications
- Member, Search Committee, Department of Biological Sciences, 1995-1996
- Chair, Review of R. T. Allen, Entomology and Applied Ecology, 1995-1996
- Member Search Committee, Assistant Dean for Operations, 1996 Search Committee, 2 positions in Department of Civil and
- Environmental Engineering, 1996
- Center for Agricultural Biotechnology and Environmental Sciences Management Team, 1997 P1999
- College Honors Committee, 2009-2012

3. *Departmental*

- Graduate Studies Committee, 1979-1988 Graduate Studies Coordinator, 1988 Chairperson, Seminar Committee, 1981-1982 Curriculum Committee, 1981-1983
- Promotion and Tenure Committee, 1979-1985; 1986-1988; Chairperson, 1984, 1985, 1986
- Soil Fertility Search Committee, 1980 Soil Testing Search Committee, 1980 Research Committee, Chairperson, 1983;
- Member, 1986-1988
- Agronomy Building Committee, Chairperson, 1984-1988 Chairperson, Search Committee, Research Associate II,
- Soil Testing, 1984
- Soil Physics Search Committee, 1988
- Assistant Chairperson, Plant Science Department - 1983-1985 Chairperson, Search Committee, Soil Genesis Position, 1985 Member, Soil Microbiology Position, 1985
- Chairperson, Leo Cotnoir Retirement Dinner, 1985
- Co-Chairperson, M.R. Teel Retirement Dinner Committee, 1986 Member, Search Committee, Crop Management Position, 1986 Department Chairperson, 1989-2009
- Promotion and Tenure Committee, 2010-2011

D. Teaching Contributions

University of Delaware

- Environmental Soil Chemistry
- Kinetics and Surface Chemistry of Soils Soil Science Seminar
- Chemical and Mineralogical Analyses of Soils Introduction to Soil Science
- Professional Development

Teaching Grant Awards

- Sparks, D.L., and J.T. Sims. 1983. University of Delaware Improvement of Instruction Grant. $1,000
- Sims, J.T., and D.L. Sparks. 1984. University of Delaware Innovativeness in Teaching Award. $1,000

VII. Research Grant Awards

1. Cotnoir, L.J., C.R. Curtis, and D.L. Sparks. 1980. A preliminary investigation of conditions necessary for revegetation and possible reclamation of a fixed flue gas desulfurization (FGD) waste disposal site. Delmarva Power and Light Company. $24,000

2. Sparks, D.L. 1980-1981. Boron and potassium fertilization and leaching effects on sandy Delaware soils in an intensive corn management system. Potash and Phosphate Institute. $12,000

3. Sparks, D.L. 1980-1983. Boron fertilization of corn grown on Delaware sandy soils. U.S. Borax Corporation. $4,800

4. Sparks, D.L. 1981. Thermodynamics of potassium exchange in soils using a kinetics approach. University of Delaware Research Foundation. $9,500

5. Sparks, D.L. 1982-1984. Effect of timing of potassium applications on leaching and corn yield in Delaware soils in an intensive management system. Potash and Phosphate Institute. $21,000

6. Sparks, D.L., and C.R. Curtis. 1982-1983. An assessment of acid rain effects on elemental release from soils into groundwater. Water Resources, U.S. Department of the Interior. $12,500

7. Sparks, D.L., and R. Alvarez. 1984-1986. Vicariant fertilization for variable charge soils. Agency for International Development, Washington, D.C. $150,000

8. Sparks, D.L. 1985-1986. Placement of potassium fertilizers in sandy Delaware soils. Potash and Phosphate Institute. $20,000

9. Sparks, D.L. 1984-1987. Potassium-Cs+, Cs+-NH4+, and Cs+-Ca2+ exchange and selectivity on clay minerals and sediments. Department of Energy, Savannah River Ecology Laboratory. $33,000

10. Sparks, D.L. 1985-1987. Nitrate retention as it affects groundwater quality in mid- Atlantic soils. United States Geological Survey. $96,000

11. Sparks, D.L. 1986-1988. Chemistry and availability of potassium silicates in soils. E.I. DuPont de Nemours Corporation. $26,000

12. Sparks, D.L., and S. Feigenbaum. 1986-1988. Effect of irrigation with brackish and sewage effluent waters on potassium reactions in soils. United States-Israel Binational Agricultural Research and Development Fund. $190,000

13. Sparks, D.L. 1987-1988. Ion exchange equilibria on high organic matter content soils from Bikini Atoll. Bikini Atoll Rehabilitation Committee. $32,000

14. Sparks, D.L. 1988-1990. Kinetics of borate sorption-desorption on soil constituents. U.S. Borax Research. $31,000

15. Sparks, D.L. 1988-1993. Sorption and desorption of organics on smectite. E.I. DuPont de Nemours Corp. $475,000

16. Sparks, D.L., J.T. Sims, and J.J. Fuhrmann. 1989-1991. Pesticide mobility and retention in sandy Delaware soils. USDA. $73,000

17. Sparks, D.L. 1990-. Equipment grant for Department of Plant and Soil Sciences. Unidel Foundation. $100,000

18. Sparks, D.L. 1991-1993. Dynamics of ionic reactions on filtercake materials. E.I. DuPont de Nemours Corp. $107,000

19. Sparks, D.L. 1991-1993. Sorption and desorption kinetics of pesticides on Delaware soils and soil constituents. Department of the Interior, DE Water Resources Center. $25,500

20. Sparks, D.L. 1991-1993. Desorption/dissolution kinetics of metals and radionuclides from soil components. Washington State University, Battelle - DOE.$109,000

21. Dentel, S., and D.L. Sparks. 1991-1993. Equilibrium and kinetic studies of selective organic adsorption by surfactant-modified clays. U.S. Geological Survey.$131,027

22. Sparks, D.L. 1992-1993. Effects of kinetics on boron mobility in soils. Foundation for Agronomic Research. $40,000

23. Allen, H.E., C.P. Huang, and D.L. Sparks. 1990-1991. Adsorption of metals to New Jersey soils. N.J. Dept. of Environmental Protection. $57,357

24. Sparks, D.L. 1991-1993. DuPont Science and Engineering Grant to Department of Plant and Soil Sciences, DuPont Co. $30,000

25. Sparks, D.L., and Z.Z. Zhang. 1992-1994. Mechanisms of industrial contaminant interactions with soils, State of Delaware and DuPont Co. $123,000

26. Sparks, D.L. 1992-1995. Desorption and redox behavior of Ni and Cr from lunar simulants using equilibrium and kinetic approaches, NASA. $66,000

27. Sparks, D.L. 1994-1995. Use of x-ray absorption spectroscopy in remediation of contaminated soils. State of Delaware and DuPont Co. $50,000

28. Sparks, D.L. 1994-1996. Mechanisms of industrial contaminant interactions with soils. DRP - State and DuPont Co. $83,000

29. Sparks, D.L. 1994-1996. Use of x-ray absorption spectroscopy in remediation of contaminated soils. DRP - State and DuPont Co. $83,000

30. Sparks, D.L. 1994. Acquisition of atomic force microscope. UNIDEL, $75,000

31. Sparks, D.L. 1995. Effect of aging on the mechanisms of metal retention on soil components using x-ray absorption fine structure (XAFS) spectroscopy. College of Agric. Sciences Competitive Grant. $25,000.

32. Sparks, D.L., A.M. Scheidegger, and G.M. Lamble. 1996. Effect of residence time on mechanisms of metal retention/release on soils. USDA-NRICGP. $242,000

33. Sparks, D.L. 1996-1998. Mechanisms of industrial contaminant interactions with soils. DRP-State and DuPont Co. $75,000

34. Sparks, D.L. 1996-1998. Use of X-ray absorption spectroscopy in remediation of contaminated soils. DRP-State and DuPont Co. $135,000

35. Sims, J.T., and D.L. Sparks. 1996-1999. Geochemistry, geostatistics, and hydrology of phosphorous losses in agricultural drainage in the Atlantic Coastal Plain: Developing improved phosphorus management practices for surface water protection. USGS. $208,160

36. Sparks, D.L. 1998-2001. Darryl Roberts, NSF Fellowship. $75,000

37. Sparks, D.L. 1999-2002. Derek Peak, NSF Fellowship. $75,000

38. Sparks, D.L. 1997-1998. Surface complexation modeling of metal retention/ sequestration on sediments, soil components, and soils. DRP State and DuPont Co.$75,000

39. Sparks, D.L. 1999-2000. Surface complexation modeling of metal retention/ sequestration on sediments, soil components, and soils. DRP State and DuPont Co.$50,000.

40. Sparks, D.L. 1999-2002. The influence of aging and competitive sorption on the stabilization of metals via surface precipitation in soils. USDA-NRICGP $330,000

41. Sparks, D.L. 2000-2003. Stefan Hunger, USGS Fellowship. $48,000

42. Sparks, D.L. 2001-2003. Surface complexation modeling of metal retention/sequestration on sediments, soil components, and soils. DRP State and DuPont Co. $37,500

43. Sparks, D.L., Y. Jin, and A. M. Lenhoff. 2001-2004. Effect of colloids on virus survival and transport in porous media. USDA-NRICGP. $315,000

44. Sparks, D.L., and J.T. Sims. 2002. Institute of Soil and Environmental Quality. USDA Special Grant. $112,243.

45. Sims, J.T., and D.L. Sparks. 2002. USDA National Needs Graduate Fellowships. $276,000.

46. Sparks, D.L and J. T. Sims. 2003-2006. Jen Seiter WRC Fellowship. Fate and Transport of Arsenic in Delaware Soils: Impacts on Water Quality. $150,000.

47. Sparks, D.L. 2005-2008. Masayuki Shimizu ISEQ Fellowship. Using FTIR Spectromicroscopy to

Measure Cr Transformations and Distributions on the Mineral Surface Over Time. $51,000.

48. Sparks, D.L. 2004-2007. NSF IUSS Grant. National Science Foundation. $48,000

49. Sparks, D.L. and S. Brantley 2005 - 2007. Collaborative Research: Towards a Weathering System Science Consortium: Two Conferences on Biogeochemistry of the Critical Zone. National Science Foundation. $122,592.

50. Weir, D. S., K. Steiner, Sparks, D.L., C. Carey, and J. Rabolt. 2005 - 2008. NSF- EpSCoR and State of Delaware Research Infrastructure Improvement Program. National Science Foundation and State of Delaware. $12,000,000.

51. Sparks, D. L. and H. Allen. 2002 - 2006. EPA. The Impact of Surface Precipitation on Sequestration and Bioavailability of Metals in Soils. CSME. $111,483.

52. Sparks, D. L. and M. Borda. 2005 - 2006. The Surface Structure and Reactivity of Mn-Oxides and Their Impact on As Transformations in the Environment: A Multi-Scale Approach. National Science Foundation. $50,000.

53. Sparks, D.L., J. Fuhrmann, and H-Y. Holman. 2005 - 2008. Microbe- Mineral Interactions and their Influence on Arsenic-Transformations in the Soil Environment. USDA. $375,000.

54. Sparks, D.L. 2005 - 2007. Molecular Scale Assessment of Critical Zone Interfacial Reactions. EPSCoR. $81,832.

55. Huang, C.P., T. Beebe, and D.L. Sparks. 2006 - 2007. The Oxidation of Carbon Nano-tubes (CNTs) and Its Environmental Implications. EPSCoR. $44,330.

56. Sparks, D.L. and D. Strongin. 2006 - 2009. Investigating the Surface Structure and Reactivity of Bulk and Nanometer Scale Manganese Oxides. National Science Foundation. $329,572.

57. Sparks, D.L. and J. T. Sims. 2004 - 2006. Fate and Transport of Arsenic in Delaware Soils: Assessing Potential Impacts on Water Quality. DNREC. $150,000

58. Sparks, D.L. EPA. 2006 - 2008. The Impact of Surface Precipitation on Sequestration and Bioavailability of Metals in Soils. CSME. $77,000.

59. Bais, H. and D.L. Sparks. 2006 - 2007. The role of root exudation in metal mobilization in the Nickel (Ni)-hyper-accumulating species Alyssum murale. EPSCoR. $50,000.

60. Sparks, D.L., D.S. Weir, K.V. Steiner, S.G. Borleske, and V. Kalavacharla and T.M. Powers. 2008-2013. Building research and education infrastructure to enhance environmental science and its application to Delaware. National Science Foundation and State of Delaware. $20,000,000.

61. Bais, H. and D.L. Sparks. 2006 - 2007. The role of root exudation in metal mobilization in the Nickel (Ni)-hyper-accumulating species Alyssum murale. EPSCoR. $50,000.

62. Sparks, D.L., A. Aufdenkampe, L. Kaplan, J. Pizzuto, and K. Yoo. 2009-2014. CZO: Spatial and temporal integration of carbon and mineral fluxes: a whole watershed approach to quantifying anthropogenic modification of critical zone carbon sequestration. National

Science Foundation. $4,315,607

63. Bais, H., D. Sparks and K. Czymmek. 2009-2010. An intervention of organelle biochemistry to unravel the role of Nickel (Ni) hyperaccumulation mechanisms in Alyssum murale. EPSCoR. $49,603.

64. Ginder-Vogel, M., Sparks, D.L., and M.V. Johnston. 2009-2010. Quantification of Metal Distribution and Speciation in Particulate Matter Emitted from Delmarva Poultry Houses. EPSCoR. $50,000.

65. Sparks, D.L., Pizzuto, J. and D. Levia. 2010-2011. Ground Truth Vegetation Characteristics for CZO LiDAR Study. National Science Foundation. $30,031.

66. Sparks, D. L., Elzinga, E. 2012-2015. The Role of Layered Fe(II)-Al(III)-hydroxides in the Biogeochemical Cycling of Iron and Trace Metals in Riparian Environments. National Science Foundation. $262,415.

67. Duke, J., Sparks, D. L., Messer, K. and Michael, H. 2012-2013. WSC Category 1 Water Sustainability in Coastal Environments: Exploratory Research for an Integrated Study of the Effect of Anticipated Sea Level Rise on Contaminated Site Risk. National Science Foundation. $145,000.

68. Sparks, D. L. and Carter, S. Johns Hopkins University. 2011-2012. The National Institute for Occupational Safety and Health (NIOSH) $15,500.

69. Sparks, D. L. and Lazareva, O. 2012-2013. Understanding Biogeochemical Transformation and Mobilization of HG from River Bank Soils: South River, Virginia. DuPont. $62,404.

70. Sparks, D.L., K. D. Messer, V. Kalavacharla, and S. Smith. 2013-2018. Meeting Delaware's 21st Century Water and Energy Challenges Through Research, Education and Innovation. National Science Foundation and State of Delaware. $24,000,000.

71. Sparks, D.L. 2014 - 2016. Carbon Conundrum: Functional Characterization of Organic Matter-clay Mineral Interactions in Relation to Carbon Sequestration. Australian Research Council. $133,239.

72. Sparks, D.L. and A. Gamble. 2015 - 2017. Evaluation of Arsenic Speciation and Availability in Orchard Soils Contaminated with Lead Arsenate. Department of Natural Resources and Environmental Control. $52,902.

73. Jaisi, D., and D.L. Sparks. 2017-2020. Understanding sources, chemical forms, and stability of recalcitrant and residual phosphorus pools in agricultural soils. NIFA. $495,000.

74. Messer, K., H. Michael, D.L. Sparks, M. D'Souza, and V. Kalavacharla. 2018-2023. Delaware EPSCoR: Meeting Delaware's 21st Century Water and Energy Challenges through Research, Education, and Innovation. NSF and State of Delaware. $23,300,000.

Running total as of October 2018: ***ca $91 million USD***

VIII. Graduate Student Advisees and Awards They Received

A. Advisees

Served as Major Professor			Awards Received
1. Martin, H.	M.S.	1982	
2. Jardine, P.	M.S.	1983	Potash and Phosphate Fellowship, Presidential Career Award, and M.L. and Chrystie M. Jackson Soil Science Award, Distinguished Alumni Award
3. Evans, C.	M.S.	1983	University Scholarship
4. Carski. T.	Ph.D.	1986	University Fellowship, Northeastern Agronomy Society and Graduate Student Award
5. Ogwada, R.	Ph.D.	1986	
6. Schulthess, C.	Ph.D.	1987	University Fellowship, Emil Truog Award, SSSA
7. Sadusky, M.	M.S.	1987	University Scholarship, Potash and Phosphate Fellowship
8. Noll, M.	Ph.D.	1989	University Teaching Award
9. Eick, M.J.	M.S.	1990	Potash and Phosphate Fellowship
10. Zhang, P.	Ph.D.	1990	University Fellowship and Potash and Phosphate Fellowship
11. Fendorf, S.E.	Ph.D.	1992	University Fellowship, Outstanding Paper Award at Clay Minerals Society Meeting, 1991, Houston, TX, Theodore Wolf Dissertation Prize from UD, Emil Truog Soil Science Award, NE Branch of ASA Graduate Student Award, M.L. and Chrystie M. Jackson Soil Science Award, UD Presidential Citation Award
12. Toner, C.V., IV	Ph.D.	1993	University Fellowship
13. Stapleton, M.	Ph.D.	1995	University Fellowship, W.J. Benton Graduate Student Award, Lewis Publishers Graduate Student Award
14. Eick, M.	Ph.D.	1995	NASA National Fellowship
15. Tang, L.	Ph.D.	1996	
16. DiVincenzo	Ph.D.	1996	NEBASA Graduate Student Award
17. Ball, M.	M.S.	1996	
18. Zhou, M.	Ph.D.	1996	
19. Alcacio, T.	M.S.	1997	
20. Ware, D.	M.S.	1997	DuPont Fellowship
21. O'Reilly, E.	M.S.	1998	UD, College of Agricultural Sciences Fellowship, NEBASA Student Award
22. Strawn, D.	Ph.D.	1999	University Fellowship, Presidential Early Career Award for Scientists and Engineers
23. Elzinga, E.	Ph.D.	2000	UD, College of Agricultural Sciences Fellowship
24. Matocha, C.	Ph.D.	2000	DuPont Fellowship, Theodore Wolf Dissertation Prize from UD in the Physical and Life Sciences
25. Scheckel, K.	Ph.D.	2000	
26. Roberts, D.	Ph.D.	2001	NSF Fellowship
27. Arai, Y.	Ph.D.	2002	
28. Peak, D.	Ph.D.	2002	NSF Fellowship
29. Dyer, J.	Ph.D.	2002	Theodore Wolf Dissertation Prize in The Physical and Life Sciences
30. Nachtegaal, M.	Ph.D.	2003	

31.	Hunger, S.	Ph.D.	2003	USGS Fellowship
32.	Kirk, L.	M.S.	2003	University Fellowship
33.	Everhart, J.	M.S.	2003	
34.	Gräfe, M.	Ph.D.	2004	University Competitive Fellowship
35.	Staats, K.	M.S.	2005	Institute of Soil and Environmental Quality (ISEQ) Fellowship
36.	McNear, D. Jr.	Ph.D.	2006	University Fellowship, Best Student Paper Award, Geochemistry Div. 227th ACS National Meeting and University of Delaware Graduate Student Research Symposium, Graduate Student Oral Presentation Competition, First Place
37.	Paul, K.	Ph.D.	2007	USDA National Needs Fellowship
38.	Tappero, R.	Ph.D.	2009	USDA National Needs Fellowship
39.	Seiter, J.	Ph.D.	2009	DE Center for Water Resources Fellowship (USGS), Donald L. and Joy G. Sparks Graduate Fellowship in Soil Science
40.	Lafferty, B.	Ph.D.	2010	University Fellowship, Donald L. and Joy G. Sparks Graduate Fellowship in Soil Science
41.	Shimizu, M.	Ph.D.	2010	ISEQ Fellowship
42.	Zhu, M.	Ph.D.	2010	ISEQ Fellowship, UD Fellowship, Joe B. and Martha J. Dixon Award, SSSA and American Chemical Society, Div. of Environmental Chemistry, Graduate Student Award
43.	Landrot, G.	Ph.D.	2010	
44.	Khaokaew, S.	Ph.D.	2010	Anandamahidol Foundation, King of Thailand Fellowship
45.	Jones, L. C.	M.S.	2011	DENIN and EPA STAR Fellowships
46.	Moyer, C.	M.S.	2012	
47.	Chen, C.	Ph.D.	2013	
48.	Siebecker, M. G.	Ph.D.	2013	University Fellowship, The Donald L. and Joy G. Sparks Fellowship in Soil Science
49.	Abdala, D.	Ph.D.	2013	DENIN Graduate Fellowship
50.	Wu, Y.	Ph.D.	2014	ISEQ Fellowship
51.	Carter, S.	Ph.D.	2014	
52.	LeMonte, J.	Ph.D.	2016	DoD SMART Fellowship, The Donald L. and Joy G. Sparks Graduate Fellowship in Soil Science
53.	Starcher, A.	Ph.D.	2016	The Donald L. and Joy G. Sparks Graduate Fellowship in Soil Science
54.	Mihalic, J.	M.S.	2016	
55.	Gamble, A.	Ph.D.	2017	DENIN Environmental Fellow
56.	Givens, A.	M.S.	2017	
57.	Fischel, J.	Ph.D.	2017	NSF Graduate Fellowship, DENIN Graduate Fellowship
58.	Fischel, M.	Ph.D.	2018	NSF Graduate Fellowship, DENIN Graduate Fellowship
59.	Sanchez, J.	Ph.D.	2020	
60.	Sowers, T.	Ph.D.	2019	The Donald L. and Joy G. Sparks Graduate Fellowship in Soil Science, DENIN Environmental Fellow, Unidel Distinguished Scholar Fellowship, William J. Benton Graduate Student Award
61.	Betts, A.	Ph.D.	2019	
62.	Szerlag, K.	Ph.D.	2021	
63.	Sricharoenvech, P.	Ph.D.	2023	Anandamahidol Scholarship (King's Scholarship, Thailand)
64.	Izaditame, F,	Ph.D.	2021	

B. Advisory and/or Oral Examination Committee

Person	Degree	Year	Area
Brauer, D.	M.S.	1980	Plant Science (Plant Physiology)
Gau, S.	M.S.	1980	Plant Science (Plant Physiology)
Adams, J.	Ph.D.	1982	Plant Science (Plant Pathology)
Solano, L.	M.S.	1982	Plant Science (Soil Fertility)
Scibek, J.	M.S.	1982	Marine Studies (Marine Studies)
Sadler, N.	M.S.	1982	Plant Science (Soil Fertility)
Jardine, J.	Ph.D.	1983	Plant Science (Soil Fertility
Sandler, H.	M.S.	1983	Plant Science (Plant Pathology)
Levine, A.	M.S.	1983	Plant Science (Plant Pathology)
Berzonsky, W.	M.S.	1983	Plant Science (Plant Breeding)
Tien, P.	Ph.D.	1983	Civil Engineering
Solis, T.	M.S.	1985	Plant Science (Soil Fertility)
Kline, J.	M.S.	1986	Plant Science (Soil Fertility)
Bitzer, C.	M.S.	1986	Plant Science (Soil Fertility)
Tien, A.	Ph.D.	1987	Civil Engineering
Hsieh, S.	Ph.D.	1987	Civil Engineering
Park, S.	Ph.D.	1987	Civil Engineering
Gartley, K.	M.S.	1989	Plant Science (Soil Fertility)
Johnson, R.	Ph.D.	1989	Plant Science (Soil Fertility)
Liu, J.C.	Ph.D.	1989	Civil Engineering
Kresen, A.J.	M.S.	1990	Plant and Soil Sciences (Soil Microbiology)
Teaney, G.	M.S.	1990	Plant and Soil Sciences (Soil Microbiology)
Tang, Z.	Ph.D.	1991	Civil Engineering
Kingery, A.	Ph.D.	1995	Civil Engineering
Takayami, M.	Ph.D.	1995	Civil Engineering
MacIntosh, K.	Ph.D.	1995	Civil Engineering
Vadas, P.	M.S.	1995	Plant and Soil Sciences
Sallade, Y.	M.S.	1995	Plant and Soil Sciences
Jamrad, A.	Ph.D.	1993	Civil Engineering
Mozaffari, M.	Ph.D.	1993	Plant and Soil Sciences (Soil Fertility)
Li, Yimin	Ph.D.	1993	Plant and Soil Sciences (Soil Fertility)

Numerous Others Since 1993

C. Senior Degrees with Distinction (Served as Advisor) and Undergraduate Fellows

Jardine, P.	1981
Loux, M.	1981
Paterson, A.	1982
Sadusky, M.	1985
Toner, C., IV	1986
Edwards, D.	1990
Kuchak, A.	1993
O'Reilly, E.	1996
Staats, K.	2002
Rosen, B.	2005
Madison, A.	2005

D. Postdoctoral Fellows (Served as Supervisor)

1. Dr. M. Seyfried, 1987
2. Dr. A. Bar-Tal, 1987-1988
3. Dr. S. Grant, 1987-1989
4. Dr. Z. Zhang, 1988-1994
5. Dr. H. Sharma, 1988
6. Dr. P. Zhang, 1990-1991
7. Dr. R. Johnson, 1990-1992
8. Dr. Y. Salingar, 1991-1992
9. Dr. P. Grossl, 1991-1993
10. Dr. A. Scheidegger, 1993-1997, F.W. Clarke Award, 1999, Geochemical Society
11. Dr. R. Ford, 1997-1999
12. Dr. A. Scheinost, 1997-1999
13. Dr. N. (Yamaguchi) Uesugi, 1998-1999
14. Dr. F. Gillot, 2000-2001
15. Dr. Giorgio Senesi, 2000-2001
16. Dr. Paras Trivedi, 2001-2003
17. Dr. Youwen You, 2002-2003
18. Dr. Edward Peltier, 2002-2005
19. Dr. Michael Borda, 2003-2006
20. Dr. Shinwoo Lee, 2003-2005
21. Dr. Tiffany Thomas, 2004-2005
22. Dr. Zenqing Shi, 2006-2007
23. Dr. Sanjai Parikh, 2006-2008
24. Dr. Matthew Ginder-Vogel, 2006-2010
25. Dr. Olesya Lazareva, 2010-2014
26. Dr. Wei Li, 2010-2015
27. Dr. Jianjun Yang, 2013-2016
28. Dr. Chunmei Chen, 2014-2015
29. Dr. Jason Stuckey, 2014-2017
30. Dr. Xuan Yu, 2014-2018
31. Dr. Matthew Siebecker, 2016-2018
32. Dr. Elizabeth Coward, 2017-
33. Dr. Elizabeth Tomaszewski, 2019-

E. Visiting Professors and Scholars (Conducted research in my laboratories)

1. Dr. R. Alvarez (Distinguished Visiting Professor), 1985-1986
2. Dr. N. Pasricha, 1987-1988
3. Professor X. Jiahua, 1988
4. Dr. C. Aharoni (Distinguished Visiting Professor), 1989-1990
5. Dr. R. Keren, 1992-1993
6. Dr. D.D. Steffens, Justus Liebig University, Giessen, Germany, 1993-1994
7. J. Wu, Chinese Academy of Sciences, Peoples' Republic of China, 1994
8. G. Hu, Chinese Academy of Sciences, Peoples' Republic of China, 1994
9. J. Kleikemper, Institute of Terrestrial Ecology, Schlieren, Switzerland, 1995-1996
10. Dr. S. Feigenbaum, Institute of Soils and Water, Bet Dagan, Israel, 1995
11. Dr. L.E. Katz, University of Maine, Orono, Maine, Fall,1997
12. Dr. A. Shaviv, The Technion, Israel Institute of Technology, 1998-1999
13. Dr. D. Businelli, University of Perugia, Italy, 2001
14. F. Casciari, University of Perugia, Perugia, Italy, 2001
15. C. Dowding, University of Stellenbosch, Matieland, South Africa, 2003-2004
16. Dr. Xionghan Feng, Huazhong Agricultural University, Wuhan, China, 2007-2008
17. Dr. Tingqiang Li, China, 2008-2011
18. Dr. Marcelo Alves, Brazil, 2009-2010
19. Dr. Yujun Wang, China, 2010-2011; 2013
20. Dr. Alejandra Jara, 2011-2012
21. Wipawan Thaymuang, Kasetsart University, Bangkok, Thailand, 2011-2012
22. Dr. Xionghan Feng, Huazhong Agricultural University, Wuhan, China 2011-2012
23. Boontarik Chimchart, Kasetsart University, Bangkok, Thailand, 2011-2012
24. Fabio Ono, Federal University of Lavras - UFLA/Brazil, 2012
25. Guilherme Lopes, Federal University of Lavras- UFLA/Brazil, 2012-2013
26. Ling Li, Chinese Academy of Sciences, Guizhou ,China, 2012 -2013
27. Dr. Yang Chen, Nanjing University, 2014-2015
28. Dr. Dan Liu, Zhejiang Agricultural University, 2015
29. Jasmin Schiefer, University of Natural Resources and Life Sciences, Vienna, Austria, 2015
30. Rodolfo Fagundes Costa, Federal University of Viçosa, Viçosa, Brazil, 2015
31. Dr. Hao-Jie Cui, Chinese Academy of Sciences, Xiamen, China , 2015-2016
32. Jiali Yan, Nanjing Agricultural University, Nanjing, China, 2016-2018

33. Bruno Lago, University of São Paulo, Brazil, 2017
34. Beatrice Giannetta, University of Foggia, Foggia, Italy, 2017-2018
35. Dr. Junxia Li, China University of Geosciences, Wuhan, 2017-2019
36. Dr. Balwant Singh, University of Sydney, Sydney, Australia

IX. Reviews of Manuscripts, Grant Proposals and External Peers

Ad hoc reviewer, Science, Nature, PNAS, Soil Science Society of America Journal, Agronomy Journal, Soil Science, Journal of Environmental Quality, Geoderma, Water Resources Research, Canadian Journal of Soil Science, Indian Journal of Science, Journal of Soil Science, Clays and Clay Minerals, European Journal of Soil Science, Environmental Science and Technology, Langmuir, Geochimica et Cosmochimica Acta, J. Colloid and Interface Science, American Journal of Science, J. Electroanalytical Chemistry.

I have reviewed approximately 600 manuscripts since I have been at the University of Delaware. I have also served as a member of review panels for grant proposals submitted to: the Office of the Science Advisor, Agency for International Development; the National Science Foundation; the Department of Energy (reviewed subsurface chemistry program in 1991); USDA; and Canadian Research and Engineering Council and Switzerland National Research Council. Additionally, I have served as an external reviewer for a number of colleagues in the USA, Europe, and Asia who were seeking promotions, and served on two U.S. National Academy of Sciences Committees.

X. Consulting

E. I. DuPont de Nemours Corp. 1983 - 1990
Bikini Atoll Rehabilitation Committee Research
Triangle Institute
U. S. Borax Corp.
Department of Energy
Kencon, Inc.