

CURRICULUM VITA

Darrell G. Schulze

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Mailing Address: Department of Agronomy
Purdue University
915 W. State Street
West Lafayette, IN 47907-2054

Education:

- 1982 Doctor of Agricultural Sciences, Technical University of Munich, Freising, Germany
(Major: Soil Mineralogy)
- 1977 Master of Science, Texas A&M University, College Station, Texas (Major: Soil Science
/ Soil Mineralogy)
- 1975 Bachelor of Science, Texas A&M University, College Station, Texas (Major: Agronomy)

Professional Experience:

Professor of Soil Science, Purdue University, July 1996-present

Associate Interim Department Head, Agronomy Department, August 2009 through September
2010.

Visiting Professor, Department of Soil Science, Federal University of Lavras, Lavras, Brazil.
January through June, 1998.

Associate Professor of Agronomy, Purdue University, July 1988 - June 1996

Assistant Professor of Agronomy, Purdue University, July 1982 - June 1988.

Graduate research assistant, Institute for Soil Science, Technical University of Munich, Freising,
Germany, Sept. 1978 to June 1982.

Graduate student, Institute for Soil Science, Technical University of Munich, Freising, Germany,
Sept. 1977 to Sept. 1978. On scholarship from the Alexander von Humboldt Foundation,
New York.

Graduate research assistant, Soil & Crop Sciences Dept., Texas A&M University, College
Station, Texas, Sept. 1975 to Sept. 1977.

Soil Scientist (GS-7), USDA, Soil Conservation Service, Brenham, Texas, May 1975 to Sept.
1975.

Student trainee (GS-4), USDA, Soil Conservation Service, Bellville, Texas, Summer 1974.

Soil Conservation Aid (GS-3), USDA, Soil Conservation Service, Bellville, Texas, Summer 1973.

Courses Taught: (1982 – present)

Course Title	Years	Semester	Credit	Ave. No. Students
Soils and Landscapes	2012 – present	Fall	3	20
African Development Colloquium	2011 – present	Spring	3	10
Introductory Soil Science Laboratory	1995	Spring & Fall	3	25
Soil Chemistry	1992 - 1994	Each Spring	3	9
Clay Mineralogy	1987-present	Alternate years	4	6
Soil Classification Genesis and Survey	1982-1990; 2001-2011	Each Fall	3	15
Soil Morphology and Judging	1982-1986	Each Fall	1	10

Professional Societies:

AIPEA - International Association for the Study of Clays
 American Association for the Advancement of Science
 American Society of Agronomy
 The Clay Minerals Society
 Indiana Academy of Science
 Indiana Association of Professional Soil Classifiers
 Indiana Geographic Information Council
 International Union of Soil Sciences
 Mineralogical Society (Great Britain)
 Soil Science Society of America

Foreign Language:

Fluent in German.

Honorary Academic Societies:

Sigma Xi - scientific research society
The Honor Society of Phi Kappa Phi - scholastic honor society
Gamma Sigma Delta - agricultural honor society
The Fraternity of Alpha Zeta - agricultural honor society
Phi Sigma Society - biological sciences honor society
Phi Eta Sigma Fraternity - freshman scholastic honor society
Delta Phi Alpha - national honorary fraternity for German students

Honors and Awards:

Soil Science Education Award. 2014. Soil Science Society of America.

Excellence in GIS Award in the Educational Category. 2009. Indiana Geographic Information Council. Award for the creative use of GIS for teaching soil science.

Marion L. and Chrystie M. Jackson Mid-Career Clay Science Award. 1996. The Clay Minerals Society. Award recognized mid-career scientists who have made outstanding contributions to the field of clay science.

Marion L. and Chrystie M. Jackson Soil Science Award. 1993. Soil Science Society of America. Award recognizes mid-career soil scientists who have made outstanding contributions in the areas of soil chemistry and mineralogy.

Alexander von Humboldt Scholarship (1976) - for one year of university study in agriculture in the Federal Republic of Germany

Outstanding Senior Agronomy Student, Texas A&M University (1975)

Luther Jones Fellowship in Agronomy, Texas A&M University (1974)

Houston Livestock Show and Rodeo Scholarship (1971)

American Farmer Degree (Future Farmers of America) (1971)

Refereed Journal Articles:

1. Schulze, D. G. and J. B. Dixon. 1979. High gradient magnetic separation of iron oxides and other magnetic minerals from soil clays. *Soil Sci. Soc. Amer. J.*, 43:793-799.
2. Torrent, J., U. Schwertmann and D. G. Schulze. 1980. Iron oxide mineralogy of some soils of two river terrace sequences in Spain. *Geoderma*, 23:191-208.
3. Schulze, D. G. 1981. Identification of soil iron oxide minerals by differential X-ray diffraction. *Soil Sci. Soc. Amer. J.*, 45:437-440.
4. Schwertmann, U., E. Murad and D. G. Schulze. 1981. Is there Holocene reddening (hematite formation) in soils of axeric temperate areas? *Geoderma*, 27:209-223.

5. Schwertmann, U., D. G. Schulze and E. Murad. 1981. Identification of ferrihydrite in soils by dissolution kinetics, differential x-ray diffraction and Mössbauer spectroscopy. *Soil Sci. Soc. Amer. J.*, 46:869-875.
6. Schulze, D. G. 1983. The influence of aluminum on iron oxides. VIII. Unit-cell dimensions of Al substituted goethites and estimation of Al from them. *Clays & Clay Min.*, 32:36-44.
7. Schulze, D. G. and U. Schwertmann. 1984. The influence of aluminum on iron oxides. X. Properties of Al substituted goethites. *Clay Min.*, 19:521-539.
8. Kosmas, C. S., D. P. Franzmeier and D. G. Schulze. 1986. Relationship among derivative spectroscopy, color, crystallite dimensions and Al substitution of synthetic goethites and hematites. *Clays & Clay Min.* 34:625-634.
9. Schulze, D. G. 1986. Correction of mismatches in 2 θ - scales during differential X-ray diffraction. *Clays & Clay Minerals* 34:681-685.
10. Schulze, D. G. and U. Schwertmann . 1986. The influence of aluminum on iron oxides. XIII. Properties of goethites synthesized in 0.3 M KOH at 25°C. *Clay Minerals* 22:83-92.
11. Fernandez, R. N. and D. G. Schulze. 1987. Calculation of soil color from reflectance spectra. *Soil Sci. Soc. Amer. J.* 51:1277-1282.
12. Fernandez, R. N., D. G. Schulze, D. L. Coffin, and G. E. Van Scoyoc. 1988. Color, organic matter, and pesticide adsorption relationships in a soil landscape. *Soil Sci. Soc. Amer. J.* 52:1023-1026.
13. Ebinger, M. H. and D. G. Schulze. 1989. Mn-substituted goethite and Fe-substituted groutite synthesized at acid pH. *Clays and Clay Minerals.* 37:151-156.
14. Ebinger, M. H. and D. G. Schulze. 1990. The influence of pH on the synthesis of mixed Fe-Mn minerals. *Clay Minerals* 25:507-518.
15. Shonk, J. L., L. D. Gaultney, D. G. Schulze, and G. E. Van Scoyoc. 1991. Spectroscopic sensing of soil organic matter contents. *Trans. Amer. Soc. Agric. Eng.* 35:1978-1984.
16. Morris, R. V., D. G. Schulze, H. V. Lauer, Jr., D. G. Agresti, and T. D. Shelfer. 1992. Reflectivity (visible and near-IR), Mossbauer, static magnetic, and x-ray diffraction properties of aluminum substituted hematites. *J. Geophys. Res.* 97:10,257-10,266
17. Fernandez, R. N. and D. G. Schulze. 1992. Munsell colors of soils simulated by mixtures of goethite and hematite with kaolinite. *Z. Pflanzenernähr. Bodenk.* 155:473-478.
18. Wendt, J. W., A. Berrada, M. G. Gaoh, and D. G. Schulze. 1993. Phosphorus sorption characteristics of productive and unproductive Niger soils. *Soil Sci. Soc. Amer. J.* 57:766-773.
19. Rhoton, F. E., J. M. Bigham, and D. G. Schulze. 1993. Mineralogical and chemical properties of Fe-Mn nodules from a sequence of eroded fragipan pedons. *Soil Sci. Amer. J.* 57: 1386-1392.

20. Schulze, D. G., J. L. Nagel, G. E. Van Scoyoc, T. L. Henderson, M. F. Baumgardner, and D. E. Stott. 1993. The significance of organic matter in determining soil color. p. 71-90. *In* J. M. Bigham and E. J. Ciolkosz (ed.) Soil color. Soil Sci. Soc. Amer. Special Publ. No. 31, Soil Science Society of America, Madison, WI.
21. dos Anjos, L. H., D. P. Franzmeier, and D. G. Schulze. 1995. Formation of soils with plinthite on a toposequence in Maranhão State, Brazil. *Geoderma*: 64:257-279.
22. Sutton, S. R., S. Bajt, J. Delaney, D. G. Schulze, and T. Tokunaga. 1995. Synchrotron x-ray fluorescence microprobe: Quantification and mapping of mixed valence state samples using micro-XANES. *Rev. Sci. Instrum.* 66:1464-1467.
23. Schulze, D. G., T. McCay-Buis, S. R. Sutton, and D. M. Huber. 1995. Manganese oxidation states in *Gaeumannomyces* infested wheat rhizospheres probed by micro XANES spectroscopy. *Phytopathology* 85:990-994.
24. Schulze, D. G., S. R. Sutton, and S. Bajt. 1995. Determination of manganese oxidation state in soils using x-ray absorption near-edge structure (XANES) spectroscopy. *Soil Sci. Soc. Amer. J.* 59:1540-1548.
25. Schulze, D. G., C. T. Johnston, and W. F. Bleam. 1995. Visualisation of clay mineral structures. *In*: G. J. Churchman, R. W. Fitzpatrick, and R. A. Eggleton (Eds.) *Clays: Controlling the Environment*. Proc. 10th Int. Clay Conf., Adelaide, Australia, 1993. CSIRO Publishing, Melbourne, Australia, pp. 15-18.
26. de Brito Galvão, T. C. and D. G. Schulze. 1996. Mineralogical properties of a collapsible lateritic soil from Minas Gerais, Brazil. *Soil Sci. Soc. Amer. J.* 60:1969-1978.
27. T. L. Rinehart, D. G. Schulze, R. M. Bricka, S. Bajt, and E. R. Blatchley, III. 1997. Chromium leaching versus oxidation state for a contaminated solidified/stabilized soil. *J. Haz. Mat.* 52:213-221.
28. Gruenhagen, S. E., D. G. Schulze, G. Chansiri, K. J. Hem, J. L. White, and S. L. Hem. 1997. Effect of sorbitol on the phosphate adsorptive capacity of ferrihydrite suspensions. *Phar. Dev. Tech.* 2:81-86.
29. Scheinost, A. C., D. G. Schulze, and U. Schwertmann. 1999. Diffuse reflectance spectra of Al substituted goethite: A ligand field approach. *Clays Clay Miner.* 47:156-164.
30. Weaver, C. M., D. G. Schulze, L. W. Peck, H. M. Magnusen, B. R. Martin, and S. E. Gruenhagen. 1999. Phosphate-binding capacity of ferrihydrite versus calcium acetate in rats. *Am. J. Kidney Diseases* 34:324-327.
31. Schwertmann, U., J. Friedl, H. Stanjek, and D. G. Schulze. 2000. The effect of Al on Fe oxides. XIX. Formation of Al-substituted hematite from ferrihydrite at 25°C and pH 4 to 7. *Clays Clay Miner.* 48:159-172.
32. Schwertmann, U., J. Friedl, H. Stanjek and D. G. Schulze. 2000. The effect of clay minerals on the formation of iron oxides from ferrihydrite after 16 years of aging at 25°C and pH 4-7. *Clays Miner.* 35:613-623.
33. Neuhäusler, U., C. Jacobson, D. Schulze, D. Stott, and S. Abend. 2000. A specimen chamber for soft x-ray spectromicroscopy on aqueous and liquid samples. *J. Synchrotron Rad.* 7:110-112.

34. Burrell, L. S., C. T. Johnston, D. Schulze, J. Klein, J. L. White, and S. L. Hem. 2001. Aluminium phosphate adjuvants prepared by precipitation at constant pH. Part I. composition and structure. *Vaccine* 19:275-281.
35. Burrell, L. S., C. T. Johnston, D. Schulze, J. Klein, J. L. White, and S. L. Hem. 2001. Aluminium phosphate adjuvants prepared by precipitation at constant pH. Part II. Physicochemical properties. *Vaccine* 19:282-287.
36. Scheinost, A. C., H. Stanjek, D. G. Schulze, U. Gasser, and D. L. Sparks. 2001. Structural environment and oxidation state of Mn in goethite-groutite solid-solutions. *Amer. Miner.* 86:139-146.
37. Guest, C. A., D. G. Schulze, I. A. Thompson, and D. M. Huber. 2002. Correlating manganese XANES spectra with extractable soil manganese. *Soil Sci. Soc. Amer. J.* 66:1172-1181.
38. Marques, J. J., W. G. Teixeira, D. G. Schulze, and N. Curi. 2002. Mineralogy of soils with unusually high exchangeable Al from the western Amazon Region. *Clay Minerals*, 37: 651-661.
39. Li, H., L. S. Lee, D. G. Schulze, and C. A. Guest. 2003. Role of soil manganese in the oxidation of aromatic amines. *Environ. Sci. Technol.* 37:2686-2693.
40. Marques, J. J., D. G. Schulze, N. Curi, and S. A. Mertzman. 2004. Major element geochemistry and geomorphic relationships in Brazilian Cerrado soils. *Geoderma* 119:179-195.
41. Marques, J. J., D. G. Schulze, N. Curi, and S. A. Mertzman. 2004. Trace element geochemistry in Brazilian Cerrado soils. *Geoderma* 121:31-43.
42. Gomes, J. B. V., N. Curi, P. E. F. Motta, J. C. Ker, J. J. G. S. M. Marques, and D. G. Schulze. 2004. Análise de componentes principais de atributos físicos, químicos e mineralógicos de solos do bioma Cerrado. *R. Bras. Ci. Solo* 28:137-153.
43. Gomes, J. B. V., N. Curi, D. G. Schulze, J. J. G. S. M. Marques, J. C. Ker, and P. E. F. Motta. 2004. Mineralogia, morfologia e análise microscópica de solos do bioma Cerrado. *R. Bras. Ci. Solo* 28:679-694.
44. Thompson, I. A., D. M. Huber, C. A. Guest, and D. G. Schulze. 2005. Fungal manganese oxidation in a reduced soil. *Environmental Microbiology* 7:1480-1487.
45. Thompson, I. A., D. M. Huber, and D. G. Schulze. 2006. Evidence of a multicopper oxidase in Mn oxidation by *Gaeumannomyces graminis* var. *tritici*. *Phytopathology* 96:130-136.
46. Yao, K. P., D. G. Schulze, C. T. Johnston, and S. L. Hem. 2006. Aluminum hydroxide adjuvant produced under constant reactant concentration. *J. Pharm. Sci.*, 95:1822-1833.
47. Azevedo, A. C., and D. G. Schulze. 2007. Aggregate distribution, stability and release of water dispersible clay in two subtropical Oxisols. *Sci. Agric. (Piracicaba, Braz.)* 64:36-43.
48. Gomes, J. B. V., N. Curi, D. G. Schulze, J. J. G. S. M. Marques, J. C. Ker, and P. E. F. da Motta. 2007. Mineralogia e micromorfologia de solos esqueléticos do bioma Cerrado, no leste de Goiás. *R. Bras. Ci. Solo*, 31:875-886.

49. Gao, X. D., and D. G. Schulze. 2010. Chemical and mineralogical characterization of arsenic, lead, chromium, and cadmium in a metal-contaminated Histosol. *Geoderma* 156:278-286. doi:10.1016/j.geoderma.2010.02.027
50. Gao, X. D., and D. G. Schulze. 2010. Precipitation and transformation of secondary Fe oxyhydroxides in a Histosol impacted by runoff from a lead smelter. *Clays and Clay Minerals* 58:377-387. doi:10.1346/CCMN.2010.0580308
51. Schulze, D. G. 2010. Historical descriptions of some soils and landscapes of Texas. *Physics and Chemistry of the Earth, Parts 35*:895-902. doi:10.1016/j.pce.2010.05.008.
52. Story, S., B. B. Bowen, K. C. Benison, and D. G. Schulze. 2010. Authigenic phyllosilicates in modern acid saline lake sediments and implications for Mars. *Journal of Geophysical Research* 115: E12012. doi:10.1029/2010JE003687
53. Mallory, J. J., R. H. Mohtar, G. C. Heathman, D. G. Schulze, E. Braudeau. 2011. Evaluating the effect of tillage on soil structural properties using the pedostructure concept. *Geoderma* 163:141-149. doi:10.1016/j.geoderma.2011.01.018
54. Mitzman, S., L. Unruh Snyder, D. G. Schulze, P. R. Owens, and M. Stowell Bracke. 2011. The Pilot Study of Integrating Spatial Educational Experiences (Isee) in an Undergraduate Crop Production Course. *J. Nat. Resour. Life Sci. Educ.* 40:91-101. doi:10.4195/jnrlse.2010.0029u
55. Colombo, C., V.M. Sellitto, G. Palumbo, E. Di Iorio, F. Terribile, D.G. Schulze. 2014. Clay formation and pedogenetic processes in tephra-derived soils and buried soils from Central-Southern Apennines (Italy). *Geoderma* 213:346-356. doi: 10.1016/j.geoderma.2013.08.005

Book Chapters

1. Schulze, D. G. 1988. Separation and concentration of Fe-containing phases. p. 63-81. In J. W. Stucki, B. A. Goodman, and U. Schwertmann (eds.) *Iron in soils and clay minerals*. D. Reidel Publishing Co., Boston.
2. Eggleton, R. A., D. G. Schulze, and J. W. Stucki. 1988. Introduction to crystal structures of iron-containing minerals. p. 141-164. In J. W. Stucki, B. A. Goodman, and U. Schwertmann (eds.) *Iron in soils and clay minerals*. D. Reidel Publishing Co., Boston.
3. Schulze, D. G. 1989. An introduction to soil clay mineralogy. In J. B. Dixon and S. B. Weed (eds.) *Minerals in Soil Environments*, (2nd ed.). Soil Science Society of America.
4. Schulze, D. G. 1994. Differential x-ray diffraction analysis of soil minerals. p. 412-428. In: J. E. Amonette and L. W. Zelazny (ed.) *Quantitative methods in soil mineralogy*. Soil Sci. Soc. Amer. Misc. Publ.
5. Schulze, D. G. and P. M. Bertsch. 1995. Synchrotron x-ray techniques in soil, plant, and environmental research. *Advances in Agronomy* 55:1-66.
6. Schulze, D. G. and P. M. Bertsch. 1999. Overview of synchrotron x-ray sources and synchrotron x-rays. p. 1-18. In D. G. Schulze, J. W. Stucki, and P. M. Bertsch (editors). *Synchrotron X-ray Methods in Clay Science*. The Clay Minerals Society, Boulder, CO.

7. Bertsch, P.M. and D. G. Schulze. 1999. Obtaining access to synchrotron-based techniques. p. 241-244. *In* D. G. Schulze, J. W. Stucki, and P. M. Bertsch (editors). *Synchrotron X-ray Methods in Clay Science*. The Clay Minerals Society, Boulder, CO.
8. Kämpf, N., A. C. Scheinost, and D. G. Schulze. 1999. Oxide minerals. p. F125 – F168. *In*: M. E. Sumner (ed.), *Handbook of Soil Science*. CRC Press, Boca Raton, FL.
9. Schulze, D. G. 2002. An introduction to soil clay mineralogy. *In* J. B. Dixon and D. G. Schulze (eds.). p. 1-35. *In*: *Soil Mineralogy with Environmental Applications*. Soil Science Society of America, Madison, WI.
10. Huang, P. M., M. K. Wang, N. Kämpf, and D. G. Schulze. 2002. Aluminum hydroxides. p. 261-289. *In*: *Soil Mineralogy with Environmental Applications*. Soil Science Society of America, Madison, WI.
11. Bigham, J. M., R. W. Fitzpatrick, and D. G. Schulze. 2002. Iron oxides. p. 323-366. *In*: *Soil Mineralogy with Environmental Applications*. Soil Science Society of America, Madison, WI.
12. Schulze, D. G. 2005. Clay Minerals. Vol. 1, p. 246-254. *In*: D. Hillel (editor-in-chief), *Encyclopedia of Soils in the Environment*, Elsevier / Academic Press, Boston.
13. Schulze, D. G., R. R. Struthers, P. R. Owens and G. E. Van Scoyoc. 2007. Teaching soil-landscape interactions using rugged tablet PCs in the field. p. 119-127 *in* D.A. Berque, J. C. Prey, R. H. Reed, (eds.), *The impact of tablet PCs and pen-based technology on education: Beyond the tipping point*. Purdue University Press, West Lafayette, IN.
14. Lanzirrotti, A., R. Tappero, and D. G. Schulze. 2010. Practical applications of synchrotron-based hard x-ray microprobes in soil sciences. p. 27-72 *in* B. Singh and M. Gräfe, *Synchrotron-based techniques in soil and sediment*. *Developments in Soil Science*, Vol. 34, Elsevier, The Netherlands.
15. Kämpf, N., A. C. Scheinost, and D. G. Schulze. 2012. Oxide minerals in soils. p. 22-1 – 22-34 *in*: P. M. Huang, Y. Li, and M. E. Sumner, (eds.), *Handbook of Soil Science – Properties and Processes*, 2nd ed., CRC Press Taylor & Francis Group, Boca Raton.
16. Schulze, D. G., P. R. Owens and G. E. Van Scoyoc. 2012. Learning about soil resources with digital soil maps. p. 33-1 – 33-7 *in*: P. M. Huang, Y. Li, and M. E. Sumner, (eds.), *Handbook of Soil Science – Resource Management and Environmental Impacts*, 2nd ed., CRC Press Taylor & Francis Group, Boca Raton.

Patents

1. Gaultney, L. D., G. E. Van Scoyoc, D. G. Schulze, and J. L. Shonk. Real-time soil organic matter sensor. U.S. Patent No. 5,044,756. 3 September 1991.

Books Edited

1. Schulze, D. G., J. W. Stucki, and P. M. Bertsch (editors). 1999. *Synchrotron X-ray Methods in Clay Science*, Clay Minerals Society, Boulder, CO. 244 p.

2. Dixon, J. B., and D. G. Schulze (editors). 2002. *Soil Mineralogy with Environmental Applications*. Soil Science Society of America, Madison, WI. 866 p.

Book Reviews

1. Schulze, D. G. 2002. Review of: *Minéraux argileux: structure cristalline, identification par diffraction de rayons X*, by Alain Bouchet, Alain Meunier, and Paul Sardini. *Clays and Clay Minerals*, 50:294-295.
2. Schulze, D.G. 2006. Book review of “*Clay Mineralogy: An Introductory Course*, Ray E. Ferrell, Jr. E-series #1, The Clay Minerals Society, Chantilly, VA” *Clays Clay Min.* 54:650.

Proceedings

1. Schulze, D. G. and P. M. Bertsch. 1994. Synchrotron x-ray techniques in soil chemistry and mineralogy research. Vol. 3a, p. 100-107. *In: Transactions of the 15th World Congress of Soil Science, Acapulco, Mexico, July 1994. International Society of Soil Science and the Mexican Society of Soil Science.*
2. de Brito Galvão, T. C., V. P. Drnevich, and D. G. Schulze. 1995. Chemical, mineralogical, and compressibility characteristics of a collapsible lateritic soil from Minas Gerais, Brazil. p. 39-44. *In E. E. Alonso and P. Delage (ed.) Unsaturated soils/ Sols non saturés - Proc. 1st Int. Conf. on Unsaturated Soils, UNSAT '95, Paris, France, 6-8 Sept. 1995. Balkema, Rotterdam.*
3. Schulze, D. G. 1996. Teaching soil mineralogy. p. 459-470. *In: V. H. Alvarez V., L. E. F. Fontes, and M. P. F. Fontes (eds.) O Solo nos Grandes Domínios Morfoclimáticos do Brasil e o Desenvolvimento Sustentado. Sociedade Brasileira de Ciência do Solo, Universidade Federal De Viçosa, Departamento de Solos, Viçosa, MG, Brazil.*
4. Schulze, D. G., and D. E. Stott. 1997. Soil structure alteration: The role of soil mineralogy, chemistry, and microbiology. *Proceedings of the XXVI Congress of the Brazilian Society of Soil Science, Rio de Janeiro, Brazil, 20-26 July 1997.*
5. Neuhäusler, U., S. Abend, S. Ziesmer, D. Schulze, D. Stott, K. Jones, H. Feng, C. Jacobsen, G. Lagaly. 1999. Soft X-ray spectromicroscopy on hydrated colloidal and environmental science samples. XRM99 - *Proceedings of the VIth International Conference on X-ray Microscopy, Berkeley, CA, August 1-6, 1999. American Institute of Physics, College Park, MD (in press).*
6. Melgar, J. C., T. S. Abney, D. G. Schulze, and D. M. Huber. 1999. Accumulación de manganeso en lesiones de hipocotilos de frijol soya inoculados con *Phytophthora sojae*. *Revista Technico Cientifica de la Escuela Nacional de Ciencias Forestales.* 10:80-90.

Published Computer Programs

1. Schulze, D. G., and P. J. Hess. 1989. CLAYPLOT - An interactive program for displaying clay mineral structures. Version 3.02. Agronomy Dept., Purdue Univ., West Lafayette, IN. AES Agrivisual No. 36.

Published Workshop Reports

1. Schulze, D. G., and J. V. Smith. 1990. Synchrotron x-ray sources and new opportunities in the soil and environmental sciences: workshop report. ANL/APS/TM-7, Argonne National Laboratory, Argonne, IL.
2. Anderson, S. J., C. C. Ainsworth, P. M. Bertsch, J. M. Bigham, W. F. Bleam, P. R. Bloom, J. B. Harsh, D. G. Schulze, and J. W. Stucki. 1990. Applications of x-ray spectroscopy and anomalous scattering experiments in the soil and environmental sciences. *In*: D. G. Schulze and J. V. Smith (co-chairs), Synchrotron x-ray sources and new opportunities in the soil and environmental sciences: workshop report. ANL/APS/TM-7, Argonne National Laboratory, Argonne, IL.
3. D. G. Schulze, J. E. Amonette, S. J. Anderson, P. M. Bertsch, J. M. Bigham, J. B. Dixon, C. T. Johnston, J. W. Stucki, M. L. Thompson, and S. J. Traina. 1990. Synchrotron-based x-ray diffraction and scattering studies of soil materials. *In*: D. G. Schulze and J. V. Smith (co-chairs), Synchrotron x-ray sources and new opportunities in the soil and environmental sciences: workshop report. ANL/APS/TM-7, Argonne National Laboratory, Argonne, IL.

Other Publications

1. Niederbudde, E. A., U. Schwertmann, G. Rühlicke, D. G. Schulze, and H. M. Köster. 1980. Guide book to field trip A. Fourth Meeting of the European Clay Groups, Freising, G.F.R. 8-10 September 1980
2. Franzmeier, D. P., J. E. Yahner, G. C. Steinhardt, and D. G. Schulze. 1986. Understanding and judging Indiana soils. Purdue University Cooperative Extension Service, West Lafayette, Indiana. ID72.
3. Wilding, L. P., L. R. Hossner, C. W. Wendt, and D. G. Schulze. 1989. Land management and soil conservation research strategies and priorities in southwestern Niger. Report to Dr. Idrissa Soumana, Director General, National Institute for Agronomic Research of Niger (INRAN), Niamay, Niger (unpublished report).
4. Schulze, D. G. 1993. Instrumentation for agricultural and environmental research at the Advanced Photon Source. Video tape, 11 min 30 sec.
5. Franzmeier, D. P., G. C. Steinhardt, and D. G. Schulze. 2004. Indiana soil and landscape evaluation manual. Ver. 1.0. AY-323, Purdue University Cooperative Extension Service, West Lafayette, IN.
6. Schulze, D. G. 2007. From bogus soils to web soil survey. p. 10 *in* Purdue Agronomy Department Friends / Alumni Newsletter, Spring 2007. Agronomy Department, Purdue University, West Lafayette, IN.

Web Sites

Schulze, D. G., et al. 2011. Integrating Spatial Educational Experiences. <http://isee.purdue.edu/>