

# Darrell G Schulze

Professor of Soil Science

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Area of Expertise: Soil Mineralogy/Chemistry/Pedology

## Current Projects:

**A Sub-Saharan context for internationalizing crop, soil, and environmental science curricula.** *D. G. Schulze, G. E. Van Scoyoc, L. Unruh Snyder, B. Joern, P. R. Owens, S. Brouder, M. Crawford, H. I. Rowe (Purdue University), N. Freeman (Ivy Tech Community College), D. E. Stott (USDA, ARS, National Soil Erosion Research Laboratory), W. Ng'etich (Chepkoilel University College, Moi University, Eldoret, Kenya), P. Mnkeni (University of Fort Hare, Alice, South Africa).* Funding: USDA / NIFI / International Science and Education program. <http://www.csrees.usda.gov/fo/educationinternationalscience.cfm> .

**Integrating Spatial Educational Experiences (Isee) into Crop, Soil, and Environmental Science Curricula.** *D. G. Schulze, P. R. Owens, L. J. Snyder, G. E. Van Scoyoc, J. G. Graveel, G. C. Steinhardt (Agronomy Department), C. C.; Miller, M. Stowell Bracke (Purdue University Libraries), R. J. Glotzbach, B. Benes (Computer Graphics Technology).* Funding: USDA / NIFA/ Higher Education Challenge Grants Program. <http://www.csrees.usda.gov/fo/educationchallengehigheredhep.cfm> .



## Recently Completed Projects:

**Soil amendments to reduce bioavailability of metals in soils: Experimental studies and spectroscopic verification.** *M. K. Banks (Civil Engineering), A. P. Schwab (Agronomy), D. G. Schulze, and C. T. Johnston (Agronomy).* Funding: Army Corps of Engineers, Strategic Environmental Research and Development Program (SERDEP). <http://www.serdp.org/content/download/6372/85128/file/ER-1351-FR2.pdf> .

**New approach for improving phosphorus acquisition and aluminum tolerance of plants in marginal soils.** *R. Schaffert et al. (EMBRAPA, Brazil). Purdue collaborators: D. G. Schulze, C. T. Johnston (Agronomy), K.G. Raghothama (Horticulture).* Funding: McKnight Foundation, Collaborative Crop Research Program. [http://mcknight.ccrp.cornell.edu/projects/ehaf\\_cop/EHAF\\_cereal\\_roots/cereal\\_roots\\_project.html](http://mcknight.ccrp.cornell.edu/projects/ehaf_cop/EHAF_cereal_roots/cereal_roots_project.html) .

## Recent Publications:

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

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

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.

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

Lanzirotti, 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.

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

Kämpf, N., A. C. Scheinost, and D. G. Schulze. 2011. Oxide minerals in soils. In: *Handbook of Soil Science*, 2nd Ed. (in press).

Schulze, D. G., P. R. Owens and G. E. Van Scoyoc. 2011. Learning about soil resources with digital soil maps. In: *Handbook of Soil Science*, 2nd Ed. (in press).

**Teaching:**

AGRY 565 – Soils and Landscapes (every fall)  
AGRY 650 – Clay Mineralogy (every other year)  
AGRY 598 – African Development Activities (spring)

**Professional Experience:**

Professor, Department of Agronomy, Purdue University,  
Associate Professor, Department of Agronomy, Purdue University,  
Assistant Professor, Department of Agronomy, Purdue University,  
Soil Scientist, USDA Soil Conservation Service, Brenham, Texas, Summer 1975

**Awards and Honors:**

Marion L. and Chrystie M. Jackson Soil Science Award, Soil Science Society of America, 1993  
Marion L. and Chrystie M. Jackson Mid-Career Clay Science Award, The Clay Minerals Society, 1996

**Education:**

B.S., Texas A&M University, 1976  
M.S., Texas A&M University, 1977  
Ph.D., Technical University of Munich, 1982

**Date joined staff: July 1982**