

SCOTT CARRUTHERS BROOKS

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Education:

- 1995 University of Virginia. Ph.D. Environmental Sciences. Program focus: low-temperature geochemistry, environmental microbiology, hydrology. Dissertation: Geochemical and Microbiological Controls on Cobalt Mobility.
- 1991 University of Virginia. M.S. Environmental Sciences. Thesis: Influence of Inoculation with *Phanerochaete chrysosporium* Burds. on the Fate of Polynuclear Aromatic Hydrocarbons in Soils.
- 1984 University of Virginia. B.A. Psychology. Focus of major: neurobiology and physiology of memory.

Research Interests: Biogeochemistry of advecting fluids in the subsurface; geochemical factors influencing the fate and transport of solutes; microbially mediated geochemical changes in groundwater; geochemical constraints on bacterial activity in soils and groundwater; influence of physical, chemical, and mineralogical heterogeneities on the rates and equilibrium of reactions.

Research Experience

- 2004 – Present: **Senior Scientist**, Oak Ridge National Laboratory, Environmental Sciences Division.
- 1997 - 2003: **Research Staff Scientist**, Oak Ridge National Laboratory, Environmental Sciences Division.
- 1994 - 1997 **Postdoctoral Research Associate**, Environmental Sciences Division, Oak Ridge National Laboratory. Under the direction of Dr. Philip Jardine.
- 1991 - 1994 **Research Assistant** on project funded by the Co-contaminant Chemistry Subprogram of the Subsurface Science Program, sponsored by the U. S. Department of Energy. Responsible for the design and completion of original research on the biogeochemistry of mixed wastes in the subsurface. Active in the instruction and supervision of undergraduate research interns.
- 6/89 - 7/91: **Research Microbiologist**, part-time, Hydrosystems, Inc., Sterling, Virginia. Designed and conducted bioremediation feasibility study for the L. A. Clarke Superfund Site. Prepared final report for submittal to Hydrosystems and the U. S. Environmental Protection Agency.
- 6/90 - 11/90: **Research Assistant** on project funded by Virginia Department of Waste Management. Responsibilities included sampling soil, sediment, and water from the Commonwealth of Virginia Emergency Fuel Storage Facility and analyzing the samples for petroleum hydrocarbons.

Teaching Experience

Spring 1992 Teaching Assistant for Quantitative Contaminant Hydrogeology. Responsible for the instruction of graduate-level lab section of class including set up of physical demonstrations and instruction in the use of numerous computer models (WATEQ4F, PHREEQE, MOC, BIO1D).

1984 - 1988 Science teacher, Collegiate School, Richmond, Virginia.

Professional Service and Affiliations

Associate Editor, *Water Resources Research*

Member, American Geophysical Union

Member, American Chemical Society, Environmental Chemistry and Geochemistry Divisions

Member, Sigma Xi

Publications

Kelly, S. D., K. M. Kemner, and S. C. Brooks. *in prep.* Extended aqueous uranyl complexes in contaminated groundwater systems. *Geochim. Cosmochim. Acta.*

Scheibe, T. D., Y. Fang, C. J. Murray, E. E. Roden, J. Chen, Y.-J. Chien, S. C. Brooks, S. S. Hubbard. *in review.* Transport and biogeochemical reaction of metals in a physically and chemically heterogeneous aquifer. *Geosphere.*

Zhang, F., G.-T. Yeh, J. C. Parker, S. C. Brooks, M. N. Pace, and P. M. Jardine. *in review.* Three-dimensional reactive chemical transport modeling in groundwater of watershed systems. *Water Resour. Res.*

Spalding, B. P. and S. C. Brooks. 2005. Permeable environmental leaching capsules (PELCAPs) for in situ evaluation of contaminant immobilization in soil. *Environ. Sci. Technol.* 39(22): 8912-8918.

Moon, J.-W., Y. Roh, T. J. Phelps, D. H. Phillips, D. B. Watson, Y.-J. Kim, and S. C. Brooks. *in press.* Physicochemical and mineralogical characterization of soil/saprolite cores from a field research site, Tennessee. *J. Environ. Qual.*

Brooks, S. C. 2005. Analysis of Metal-Chelating Agent Complexes by Capillary Electrophoresis. *In: Biogeochemistry of Chelating Agents* (eds. B. Nowack and J. VanBriesen). ACS Symposium Series 910:121-138.

Cole, D. R., D. J. Wesolowski, J. G. Blencoe, J. Horita, L. R. Riciputi, M. Fayek, L. M. Anovitz, and S. C. Brooks. 2005. Geochemistry at U. S. National Laboratories: Oak Ridge National Laboratory. *The Geochem. News.* 122:18-33.

Kelly S. D., Kemner K. M., Brooks S. C., Fredrickson J. K., Carroll S. L., Kennedy D. W., Zachara J. M., Plymale A. E., and Fendorf S. 2005. Ca-UO₂-CO₃ complexation - Implications for bioremediation of U(VI). *Physica Scripta.* T115:915-917.

Yang, J. K., M. O. Barnett, P. M. Jardine and S. C. Brooks. 2003. Factors controlling the bioaccessibility of arsenic(V) and lead(II) in soil. *Soil Sed. Contam.* 12(2):165-179.

- Gu, B., S. C. Brooks, Y. Roh, and P. M. Jardine. 2003. Geochemical reactions and dynamics during titration of a contaminated groundwater with high uranium, aluminum, and calcium. *Geochim. Cosmochim. Acta.* 67(15):2749-2761.
- Brooks, S. C., J. K. Fredrickson, S. L. Carroll, D. W. Kennedy, J. M. Zachara, A. E. Plymale, S. D. Kelly, K. M. Kemner, and S. Fendorf. 2003. Inhibition of bacterial U(VI) reduction by calcium. *Environ. Sci. Technol.* 37(9):1850-1858.
- Brooks, S. C. and S. L. Carroll. 2003. Geochemical reactions governing the fate of Co-NTA in contact with natural subsurface materials. *Appl. Geochem.* 18(3):423-433.
- Brooks, S. C. and S. L. Carroll. 2002. pH-dependent fate and transport of NTA-complexed cobalt through undisturbed cores of fractured shale saprolite. *J. Contam. Hydrol.* 58(3-4):191-207.
- Jardine, P. M., T. L. Mehlhorn, I. L. Larsen, W. B. Bailey, S. C. Brooks, Y. Roh, and J. P. Gwo. 2002. Influence of hydrological and geochemical processes on reactive contaminant transport in fractured shale bedrock. *J. Contam. Hydrol.* 55:137-159.
- Bostick, B. C., S. Fendorf, M. O. Barnett, P. M. Jardine, and S. C. Brooks. 2002. Uranyl surface species formed on subsurface media from DOE facilities. *Soil Sci. Soc. Am. J.* 66:99-108.
- Barnett, M. O., P. M. Jardine and S. C. Brooks. 2002. Uranium(VI) adsorption to heterogeneous subsurface media: Application of a surface complexation model. *Environ. Sci. Technol.* 36(5):937-942
- Guha, H., J. E. Saiers, S. C. Brooks, P. M. Jardine, and K. Jayachandran. 2001. Chromium transport, oxidation, and adsorption in manganese-coated sand. *J. Cont. Hydrol.* 49:311-334.
- Brooks, S.C. 2001. Waste characteristics of the former S-3 ponds and outline of uranium chemistry relevant to NABIR Field Research Center studies. ORNL/TM-2001/27.
- Saiers, J. E., H. Guha, P. M. Jardine, and S. C. Brooks. 2000. Development and evaluation of a mathematical model for the transport and oxidation-reduction of CoEDTA. *Water Res. Research.* 36:3151-3165.
- Mayes, M. A., P. M. Jardine, I. L. Larsen, S. C. Brooks, and S. E. Fendorf. 2000. Multispecies transport of metal-EDTA complexes and chromate through undisturbed columns of weathered, fractured saprolite. *J. Cont. Hydrol.* 45:243-265
- Barnett, M. O., P. M. Jardine, S. C. Brooks and H. M. Selim. 2000. Adsorption and transport of uranium(VI) in subsurface media. *Soil Sci. Soc. Am. J.* 64:908-917.
- Jardine, P.M., S.C. Brooks, G.V. Wilson, and W.E. Sanford. 2000. Basic research strategies for resolving remediation needs in contaminated fractured media. *In: Dynamics of Fluids in Fractured Rocks: Concepts and Recent Advances.* (ed. B. Faybishenko). American Geophysical Union, Geophysical Monograph Series. 122:389-400.

- Fendorf, S. E., P. M. Jardine, R. R. Patterson, D. L. Taylor, and S. C. Brooks. 1999. Pyrolusite surface transformations measured in real-time during the reactive transport of Co(II)EDTA^{2-} . *Geochim. Cosmochim. Acta.* 63:3049-3057.
- Brooks, S. C., S. L. Carroll, and P. M. Jardine. 1999. Sustained bacterial reduction of $\text{Co}^{\text{III}}\text{EDTA}^-$ in the presence of competing geochemical oxidation during dynamic flow. *Environ. Sci. Technol.* 33:3002-3011.
- Jardine, P. M., S. E. Fendorf, M. A. Mayes, I. L. Larsen, S. C. Brooks, W. B. Bailey. 1999. Fate and transport of hexavalent chromium in undisturbed heterogeneous soil. *Environ. Sci. Technol.* 33:2939-2944.
- Fendorf, S. E., P. M. Jardine, D. L. Taylor, S. C. Brooks, and E. A. Rochette. 1998. Auto-inhibition of oxide mineral reductive capacity toward Co(II)EDTA . *In: Mineral-Water Interfacial Reactions: Kinetics and Mechanisms* (eds. D. L. Sparks and T. J. Grundl) ACS Symposium Series 715:358-371.
- Brooks, S. C., D. L. Taylor, and P. M. Jardine. 1998. Thermodynamics of bromide exchange on ferrihydrite: Implications for bromide transport. *Soil Sci. Soc. Am. J.* 62:1275-1279.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1998. Biodegradation of cobalt-citrate complexes: Implications for cobalt mobility in groundwater. *J. Cont. Hydrology.* 32:99-115.
- Brooks, S. C., and J. S. Herman. 1998. Rate and extent of cobalt sorption to representative aquifer minerals in the presence of a moderately strong organic ligand. *Appl. Geochem.* 13:77-88.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1997. Kinetic evaluation of the bioavailability of organic ligand biodegradation in the presence of common sesquioxide grain coatings. *Environ. Toxicol. Chem.* 16:862-870.
- Brooks, S. C., D. L. Taylor, and P. M. Jardine. 1996. Reactive transport of EDTA-complexed cobalt in the presence of ferrihydrite. *Geochim. Cosmochim. Acta.* 60(11):1899-1908.
- Brooks, S. C., and A. L. Mills. 1991. Influence of inorganic fertilizer amendment on the fate of polynuclear aromatic hydrocarbons in soil: Results of the bench-scale bioremediation feasibility study for the L. A. Clarke Superfund site, Fredericksburg, VA. Submitted to Hydrosystems, Inc. and United States Environmental Protection Agency.
- Herman, J. S., G. M. Hornberger, A. L. Mills, J. R. Hoelscher, S. C. Brooks, A. E. Clark, and C. H. Hall. 1990. Cheatham Annex Project. Submitted to the Virginia Department of Waste Management.

Presentations and Published Abstracts

- Fang, Y., T. D. Scheibe, E. E. Roden, and S. C. Brooks. 2005. Field-Scale Reactive Transport Simulations of Multiple Terminal Electron Accepting Processes. Geological Society of America Annual Meeting (October 16–19, 2005), Salt Lake City.
- Brooks, S. C. and B. P. Spalding. 2005. Permeable environmental leaching capsules (PELCAPS) for in situ evaluation of contaminant immobilization in soil. Abstracts of the 230th National Meeting, American Chemical Society, Washington, D.C., 28 August – 1 September 2005.

- Scheibe, T. D., S. C. Brooks, W. Kamolpornwijit, Y. Fang, and E. E. Roden. 2005. Identification of physical and chemical mass transfer processes by a tracer flush experiment. 2005 AGU, SEG, NABS and SPD/AAS Joint Assembly. New Orleans, LA. May 23-27, 2005.
- Kim, Y.-J., S. C. Brooks, W. Kamolpornwijit, T. D. Scheibe, and E. E. Roden. 2005. Immobilization of uranium(VI) in structured saprolite with microbial U(VI) reduction. 2005 AGU, SEG, NABS and SPD/AAS Joint Assembly. New Orleans, LA. May 23-27, 2005.
- Kamolpornwijit, W., Y. J. Kim, S. C. Brooks, T. D. Scheibe, and M. A. Mayes. 2005. Estimation of groundwater flow distribution in structured media from non-reactive tracer results under unsaturated condition. 2005 AGU, SEG, NABS and SPD/AAS Joint Assembly. New Orleans, LA. May 23-27, 2005.
- Kelly S. D., K.K. Kemner, S.C. Brooks, J. Fredrickson, T.Rasbury, C. Spotl, N.Sturchio, P. Fenter, S. Chattopadhyay, M. Boyanov, E. O'Loughlin, J. Kropf, "Biogeochemical processes affecting uranium in calcium carbonate systems – Atomic-scale interactions related to macroscopic properties" Geological Sciences Colloquium, Indiana University, Bloomington, IN, April 25, 2005.
- Beard, L. P., J. R. Sheehan, and S. C. Brooks. 2005. Time-lapse azimuthal resistivity survey in a highly industrialized area: problems, diagnosis, and solutions. Symposium on the Application of Geophysics to Environmental and Engineering Problems (SAGEEP). Atlanta, GA. April 3-7, 2005.
- Spane, F.A., T. D. Scheibe, S. C. Brooks, and W. Kamolpornwijit. 2004. Analysis of Pumping Test Results from an Unconfined Saprolitic Aquifer. Abstracts of the Fall Meeting, American Geophysical Union, San Francisco, December 13-17.
- Scheibe, T. D., S. C. Brooks, and E. Roden. 2004. Numerical Simulation of Field-Scale Transport and Biogeochemical Reactions Using a Particle-Based Method. Abstracts of the Fall Meeting, American Geophysical Union, San Francisco, December 13-17.
- Zhang, F, G. T. Yeh, J. C. Parker, Y.-J. Kim, S. C. Brooks, M. N. Pace, and P. M. Jardine. 2004. A General Paradigm of Modeling Three-Dimensional Subsurface Water Quality. Abstracts of the Fall Meeting, American Geophysical Union, San Francisco, December 13-17.
- Kim, Y.-J., S. C. Brooks, W. Kamolpornwijit, , T. D. Scheibe, and E. Roden. 2004. Fate and transport of U(VI) in weathered saprolite. Abstracts of the 2004 Meeting, Soil Science Society of America, Seattle, WA, November 1-4.
- Kim, Y-J, S. C. Brooks, W. Kamolpornwijit, M. A. Mayes, F. Zhang, T. D. Scheibe, and E. E. Roden. 2004. Rate and Extent of U(VI) Sorption onto Weathered Shale Saprolite. NABIR Field Research Center Workshop, Oak Ridge, TN, October 18-20.
- Zhang, F, J.C. Parker, M.N. Pace, Y-J. Kim, S. C. Brooks, and P. M. Jardine. 2004. Reactive uranium(VI) transport simulation using HYDROGEOCHEM(HGC) 5.0. NABIR Field Research Center Workshop, Oak Ridge, TN, October 18-20.
- Kelly, S. D., J. F. Banfield, S. C. Brooks, J. K. Fredrickson, E. T. Rasbury, C. Spotl, N. C. Sturchio, Y. Suzuki, K. M. Kemner, "Uranium in Calcium Carbonate Systems", 3rd Workshop on Speciation,

Techniques, and Facilities for Radioactive Materials at Synchrotron Light Sources, Lawrence Berkeley National Laboratory, Berkeley, CA, September 14-16, 2004.

- Kim, Y.-J., W. Kamolpornwijit, S. C. Brooks, T. D. Scheibe, and E. Roden. 2004. Rate and extent of uranium sorption onto saprolite. Abstracts of the Spring Meeting, American Geophysical Union, Montreal, May 17-21.
- Scheibe, T. D., Y. Fang, E. Roden, S. C. Brooks, Y.-J. Chien, and C. J. Murray. 2004. Microbial reduction of Fe(III) and U(VI) in aquifers: Simulations exploring coupled effects of heterogeneity and Fe(II) sorption. Abstracts of the Spring Meeting, American Geophysical Union, Montreal, May 17-21.
- Brooks, S. C., Carroll S. L., Fredrickson J. K. 2004. Oxidation of biogenic uraninite (U(IV)O₂) by manganese oxides. 227th ACS National Meeting, Anaheim, CA, March 28-April 1, 2004.
- S.D. Kelly, S. D., K. M. Kemner, S. C. Brooks, J. K. Fredrickson. 2003. XAFS Study of Calcium Complexation to Uranyl Bicarbonate. APS Activity Report 2002.
- Mehlhorn, T. L., P. M. Jardine, and S. C. Brooks. 2003. Field-scale transport of chelated metals in contaminated fractured shale bedrock. Abstracts of the 226th National Meeting, New York, NY, 7-11 September, American Chemical Society.
- Brooks, S.C., J. K. Fredrickson, K. M. Kemner. 2003. Uranium Aqueous Speciation at Contaminated Sites: Implications for Biogeochemical Reductive Precipitation. March 2003 meeting, NABIR Principal Investigators, Airlie, VA.
- Fredrickson, J. K., J. M. Zachara, and S. C. Brooks. 2003. Biogeochemical reactions controlling uranium and technetium solubility in microbially reduced sediments. March 2003 meeting, EAWAG, Italy.
- Kelly, S. D., K. M. Kemner, S. C. Brooks, and J. K. Fredrickson. 2003. Direct evidence for Ca-UO₂-CO₃ complexation. Abstracts of the 225th National Meeting, New Orleans, LA, 23-27 March, American Chemical Society.
- Palumbo, A.V., S.C. Brooks, P. Sobecky, and P. Powers. 2002. Microbially Induced Phosphorous Bioavailability Effects on Uranium Sequestration, 1st European Bioremediation Conference, Chania, Greece, 07/02/2001-07/05/2001.
- Zhang C. L., Brooks S. C., Jardine P. M., and Vali H. 2002. Factors affecting microbial uranium reduction: Implications for bioremediation. National Conference on Environmental Science and Technology, Sept 8-10, 2002, Greensboro, NC.
- Barnett, M. O., E. E. Roden, P. M., Jardine, and S. C. Brooks. 2001. Biogeochemical interactions of Uranium and Fe(III) oxides in subsurface environments. Abstracts of the 222nd National Meeting, American Chemical Society, Chicago, Ill. 26-30 August, 2001.
- Jardine, P. M., M. A. Mayes, T. L. Mehlhorn, S. C. Brooks, and S. E. Fendorf. 2001. Influence of hydrological and geochemical processes on reactive contaminant transport in fractured subsurface

- media. Sixth International Conference on the Biogeochemistry of Trace Elements, Guelph, Ontario, Canada. 29 July - 2 August 2001.
- Brooks, S. C. 2001. Biogeochemical reactions governing the fate and transport of $^{60}\text{CoEDTA}$. 11th Annual V. M. Goldschmidt Conference, Hot Springs, VA. 20-24 May 2001. *INVITED*
- P. M. Jardine, M. A. Mayes, T. L. Mehlhorn, and S. C. Brooks*. 2001. Reactive transport of chelated radionuclides through weathered shale saprolite: Observations from lab and field experimentation. 11th Annual V. M. Goldschmidt Conference, Hot Springs, VA. 20-24 May 2001. *INVITED*
- Brooks, S.C., and P. M. Jardine. 2000. The role of iron in the reactive transport of chelated metals: Observations from laboratory and field manipulations. Theis 2000 Conference. 15-18 September, 2000, Jackson Hole, WY. National Ground Water Association. *INVITED*.
- Guha, H., J. E. Saiers, S. C. Brooks, and K. Jayachandran. 1999. Transport of chromium through manganese-containing sediments. Abstracts of the 1999 Fall Meeting, 13-17 December, San Francisco, CA, American Geophysical Union, Washington, D.C.
- Brooks, S. C., S. L. Carroll, and P. M. Jardine. 1999. pH-dependent fate and transport of NTA-complexed cobalt in undisturbed soil columns. Abstracts of the 1999 Meeting, 1-4 November, Salt Lake City, UT, Soil Science Society of America, Madison, WI.
- Haun, D. B., P. M. Jardine, S. R. Pickrell, L. D. McKay, and S. C. Brooks. 1999. Field-scale intrinsic bioremediation of trichloroethylene in fractured shale. Abstracts of the 1999 Meeting, 1-4 November, Salt Lake City, UT, Soil Science Society of America, Madison, WI.
- Brooks, S. C., S. L. Carroll, and P. M. Jardine. 1999. Sustained bacterial reduction of $\text{Co}^{\text{III}}\text{EDTA}^-$ in the presence of competing geochemical oxidation during dynamic flow. Abstracts of the 218th Annual Meeting, 22-26 August, New Orleans, LA., American Chemical Society, Washington, D.C.
- Jardine, P. M., S. C. Brooks, M. A. Mayes, and T. L. Mehlhorn. 1999. Field-scale processes that govern the conceptual framework of hydrobiogeochemical models. 5th SIAM Conference on Mathematical and Computational Issues in the Geosciences. 24-27 March 1999, San Antonio, TX.
- Jardine, P. M., T. L. Mehlhorn, I. L. Larsen, and S. C. Brooks. 1999. Basic research strategies for resolving remediation needs in contaminated fractured subsurface media. Symposium on Dynamics of Fluids in Fractured Rocks: Concepts and Recent Advances. Lawrence Berkeley National Laboratory, 10-12 February 1999.
- Jardine, P. M., S. C. Brooks, T. L. Mehlhorn, I. L. Larsen, and W. B. Bailey. 1998. Influence of time-dependent physical and chemical processes on the migration of chelated radionuclides in fractured shale. Abstracts of the 1998 Fall Meeting, 6-10 December, San Francisco, CA, American Geophysical Union, Washington, D.C.
- Guha, H., J. E. Saiers, P. M. Jardine, S. C. Brooks. 1998. Development and evaluation of a mathematical model for oxidation, sorption, and transport of $\text{Co}(\text{II})\text{EDTA}^{2-}$. Abstracts of the 1998 Fall Meeting, 6-10 December, San Francisco, CA, American Geophysical Union, Washington, D.C.

- Jardine, P. M., T. L. Mehlhorn, I. L. Larsen, and S. C. Brooks. 1998. Influence of time-dependent physical and chemical processes on the migration of chelated radionuclides in fractured shale. Abstracts of the 1998 Meeting, 18-22 October, Baltimore, MD., Soil Science Society of America, Madison, WI.
- Zhang, C., S. C. Brooks, S. E. Fendorf, H. Vali, and P. M. Jardine. 1998. Microbial uranium reduction and biomineralization: Implication for immobilization of toxic metals and radionuclides. 17th Annual Meeting International Mineralogical Association, Toronto, August 1998.
- Brooks, S. C., S. L. Carroll, and P. M. Jardine. 1998. Bacterial reduction of Co(III)EDTA during dynamic flow with competing geochemical oxidation. Abstracts of the 1998 Spring Meeting, 26-29 May 1998, Boston, MA, American Geophysical Union, Washington, D.C.
- Jardine, P. M., S. C. Brooks, W. E. Sanford, T. L. Mehlhorn, I. L. Larsen, and J. P. Gwo. 1998. Multiple tracer techniques for quantifying contaminant mass transfer processes in fractured shale bedrock. Abstracts of the 1998 Spring Meeting, 26-29 May 1998, Boston, MA, American Geophysical Union, Washington, D.C.
- Brooks, S. C., and P. M. Jardine. 1997. Bacterial reduction of toxic metals during dynamic flow. Abstracts of the 1997 Meeting, 26-31 October 1997, Anaheim, CA. Soil Science Society of America, Madison, WI. *INVITED*.
- Mehlhorn, T. L., P. M. Jardine, S. C. Brooks, S. E. Fendorf, and J. E. Saiers. 1997. Geochemical processes governing the fate and transport of Cr(III) and Cr(VI) in soil. Abstracts of the 1997 Meeting, 26-31 October 1997, Anaheim, CA. Soil Science Society of America, Madison, WI.
- Mayes, M. A., O. C. Reedy, I. L. Larsen, S. C. Brooks, and P. M. Jardine. 1997. Multispecies contaminant transport in undisturbed columns of weathered fractured shale. Abstracts of the 1997 Meeting, 26-31 October 1997, Anaheim, CA. Soil Science Society of America, Madison, WI.
- Mayes, M. A., O. C. Reedy, I. L. Larsen, S. C. Brooks, and P. M. Jardine. 1997. Multispecies contaminant transport in undisturbed columns of weathered fractured shale. Abstracts of the 1997 Meeting, 20-23 October 1997, Salt Lake City, UT. Geological Society of America, Boulder, CO.
- Palumbo, A. V., T. J. Phelps, B. Gu, B. Kinsall, S. Pfiffner, L. Liang, S. C. Brooks, G. Jacobs. 1997. Biogeochemical sequestering of metals and radionuclides in zero valence iron barriers. Emerging Technologies in Hazardous Waste Management IX. Abstracts of the 1997 Meeting, 15-17 September 1997, Pittsburgh, PA. American Chemical Society, Washington D.C.
- Fendorf, S., Jardine, P. M., and Brooks, S. C. 1997. Sorption induced inhibition of redox reactions involving manganese oxides. Abstracts of the 1997 Meeting, San Francisco, CA. American Chemical Society, Washington, D.C.
- Jardine, P. M., Brooks, S. C., Hicks, D. S., Lu, B. W., Sanford, W. E., and Reedy, O. C. 1996. Tritium dynamics within Secondary Contaminant Sources in Fractured Shale Bedrock. Transactions of the 1996 International Meeting of the American Nuclear Society/ European Nuclear Society, November 10-14, 1996, Washington, D. C.

- Brooks, S. C., and P. M. Jardine. 1996. Reactive transport of EDTA-complexed cobalt in the presence of common subsurface minerals. Abstracts of the 33rd Annual Mtg. Clay Minerals Society, June 15-20, 1996, Gatlinburg, TN.
- Zhang, C., S. Liu, S. C. Brooks, T. J. Phelps, D. R. Cole, and S. Fortier. 1996. Physiochemical and mineralogical characterization of magnetite and maghemite formation by thermophilic iron-reducing bacteria. Abstracts of the 33rd Annual Mtg. Clay Minerals Society, June 15-20, 1996, Gatlinburg, TN.
- Brooks, S. C., P. M. Jardine, and D. L. Taylor. 1995. Ferric iron in ferrihydrite oxidizes Co(II)EDTA to Co(III)EDTA. American Society of Agronomy Meeting. Fall 1995. St. Louis.
- Brooks, S. C., P. M. Jardine, and D. L. Taylor. 1995. Reactive transport of Co-EDTA complexes in the presence of ferrihydrite. Abstr. H51B-3, p. 144, Abstracts of the Spring Mtg., Amer. Geophys. Union.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1995. The kinetics of organic ligand biodegradation in the presence of common sesquioxide grain coatings. Tri-Service Workshop: Bioavailability of Organic Contaminants in Soils and Sediments. 9-12 April 1995, Monterey, CA.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1994. Variations in cobalt-citrate mineralization rates with changes in temperature and sand surface mineralogy. Q422, Abstracts of the 94th General Mtg., Amer. Soc. Microbiol.
- Brooks, S. C., C. Arola, J. S. Herman, and A. L. Mills. 1994. Effects of mineralogical heterogeneity and citrate on cobalt transport through porous media. H11B-12, Abstracts of the Spring Mtg., Amer. Geophys. Union.
- Brooks, S. C. 1994. Biodegradation of cobalt-citrate complexes under simulated groundwater conditions: Implications for cobalt mobility in the subsurface. Abstracts of the 87th Annual Mtg., Air and Waste Management Association.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1993. Temperature, ligand concentration, and surface coating effects on the rate of cobalt adsorption. Abstr. H31B-24, p. 271, Abstracts of the Fall Mtg., Amer. Geophys. Union.
- Brooks, S. C., A. L. Mills, J. S. Herman, and G. M. Hornberger. 1993. Biodegradation of metal-citrate complexes in closed flow-through systems. Abstr. H31A-1, p.133, Abstracts of the Spring Mtg., Amer. Geophys. Union.
- Brooks, S. C., and A. L. Mills. 1991. Biodegradation of polynuclear aromatic hydrocarbons in nonsterile soil by the white-rot fungus *Phanerochaete chrysosporium* Burds. Abstracts of the 91st General Meeting of the American Society of Microbiology.

Honors

- Distinguished Scientific Achievement Award**, Environmental Sciences Division, Oak Ridge National Laboratory, 2003.
- Award of Excellence**, Society for Technical Communication/ East Tennessee Chapter, 2001.
- Award of Excellence**, Society for Technical Communication/ East Tennessee Chapter, 2000.

Award of Achievement, Society for Technical Communication/ East Tennessee Chapter, 1997.

Ph.D. Student Award, Physical Sciences, awarded by the University of Virginia chapter of the Society of Sigma Xi, 1994.

DuPont Fellowship of the University of Virginia, 1993-94.

Society of **Sigma Xi**, inducted April 1992.

Governor's Fellowship of the University of Virginia, 1990-91.

Sigma Gamma Epsilon, earth science honor society, inducted September 1990.

Raven Fellowship for Independent Research, University of Virginia, April 1990.