

PUBLICATIONS

Refereed

- Fortuna A., C.W. Honeycutt, G. Vandemark, T.S. Griffin, R.P. Larkin, Z. He, B.J. Wienhold, K. R. Sistani, S.L. Albrecht, B.L. Woodbury, H.A. Torbert, J.M. Powell, R.K. Hubbard, R.A. Eigenburg, R.J. Wright, R. Alldredge, and J. Harsh. 2012. Links among nitrogen cycling, nitrifier communities and edaphic properties in contrasting soils receiving dairy slurry. *J. Environ. Qual.* 41:262-272.
- Gebremariam, S., Beutel, M.W., Flury, M., Harsh, J.B., & Yonge, D.R. (2012). Non-singular adsorption/desorption of chlorpyrifos in soils and sediments: Experimental results and modeling. *Environmental Science & Technology.* 46(2), 869-875.
- Aramrak, Surachet, Markus Flury, and James Harsh. 2011. Detachment of deposited colloids by advancing and receding air-water interfaces. *Langmuir* 27(16):9985-9993.
- Gebremariam, Seyoum Yami, Marc W. Beutel, David R. Yonge, Markus Flury, and James B. Harsh. 2011. Adsorption and desorption of chlorpyrifos to soils and sediments. *The Reviews of Environmental Contamination and Toxicology.* 215:123-176.
- Shang, Jianying, Markus Flury, James B. Harsh, Richard L. Zollars. 2010. Contact angles of aluminosilicate clays as affected by relative humidity and exchangeable cations. *Colloids and Surfaces A: Physicochem. Eng. Aspects* 353:1-9.
- Shang, Jianying, Markus Flury, James B. Harsh, Richard L. Zollars. 2008. Comparison of different methods to measure contact angles of soil colloids. *J. Coll. Interface Sci.* 328:299-307.
- Brown, Tabitha T., Richard T. Koenig*, David R. Huggins, James B. Harsh, and Richard E. Rossi. 2008. Lime effects on soil acidity, crop yield and aluminum chemistry in inland Pacific Northwest direct-seed cropping systems. *Soil Sci. Soc. Amer. J.* 72:634-640.
- Deng, Y., M. Flury, and J.B. Harsh. 2006. Cancrinite and sodalite formation in the presence of cesium, potassium, magnesium, calcium, and strontium in Hanford waste tank simulants. *Applied Geochemistry.* 21:2049-2063.
- Deng, Y., J.B. Harsh, and M. Flury. 2006. Mineral formation during simulated leaks of Hanford waste tanks. *Applied Geochemistry.* 21:1392-1409.
- Mon, Jarai, Markus Flury, J.B. Harsh. 2006. Sorption of four triarylmethane dyes in a sandy soil determined by batch and column experiments. *Geoderma.* 133:217-224.
- Wendling, L.A., J.B. Harsh, C.D. Palmer, M. A. Hamilton, T. E. Ward, J.S. Boyle, and M. Flury. 2005. Cesium desorption from illite as affected by exudates from rhizosphere bacteria. *Environ. Sci. Technol.* 39:4505-4512.
- Wendling, L.A., J.B. Harsh, C.D. Palmer, M.A. Hamilton, H.M. Dion, J.S. Boyle, and M. Flury. 2005. Rhizosphere effects on cesium fixation sites of a soil containing micaceous clays. *Soil Sci. Soc. Amer. J.* 69:1652-1657.
- Czigany, S., M. Flury, and J.B. Harsh. 2005. Colloid stability in vadose zone Hanford sediments. *Environ. Sci. Technol.* 39:1506-1512.

- Mashal, K., J.B. Harsh, and M. Flury, 2005. Clay mineralogical transformations over time in Hanford sediments reacted with simulated tank waste. *Soil Sci. Soc. Am. J.*, 69: 531-538.
- Mashal, K., J.B. Harsh, M. Flury, and A. Felmy. 2005. Analysis of precipitates from reactions of hyperalkaline solutions with soluble silica, *Appl. Geochem.* 20:1357-1367.
- Chen, G., M. Flury, J.B. Harsh, and P. Lichtner. 2005. Colloid-facilitated transport of cesium in variably-saturated Hanford sediments. *Env. Sci. Technol.* 39:3435-3442.
- Jerez, J., M. Flury, J. Shang, Y. Deng, and J.B. Harsh. 2005. Coating of silica sand with aluminosilicate clays. *J. Colloid Interface Sci.* 294:155-164.
- Mon, J., M. Flury, and J.B. Harsh. 2005. Quantitative structure-activity relationships (QSAR) for screening of hydrological dye tracers. *J. Hydrol.* 316, 84-97.
- Mon, J., Y. Deng, M. Flury, and J. B. Harsh, 2005. Cesium incorporation and diffusion in cancrinite, sodalite, zeolite, and allophane, *Micropor. Mesopor. Mat.* 86:277-286.
- Czigany, S., M. Flury, J.B. Harsh, B.C. Williams, and J.M. Shira. 2005. Suitability of fiberglass wicks to sample colloids from vadose zone pore water. *Vadose Zone J.*, 4:175-183.
- Wendling, L. A., J. B. Harsh, C. D. Palmer, M. A. Hamilton, and M. Flury. 2004. Cesium interactions with illite in the presence of sodium oxalate. *Clays Clay Miner.* 52:375-381.
- Cherrey, K.D., M. Flury and J.B. Harsh. 2004. Correction to Nitrate and Colloid Transport through coarse Hanford Sediments under Steady-State, Variably-Saturated Flow, *Water Resour. Res.* 40:W03901.
- Flury, M., J. B. Harsh, and J. B. Mathison, 2004. Miscible displacement of salinity fronts: Implications for colloid mobilization, *Water Resour. Res.*, 39:1373.
- Flury, M., S. Czigany, G. Chen, and J.B. Harsh. 2004. Cesium migration in saturated silica sand and Hanford sediments as impacted by ionic strength, *J. Contam. Hydrol.*, 71:111-126,
- Mashal, K., J. B. Harsh, M. Flury, and A. R. Felmy. 2004. Colloid formation in Hanford sediments reacted with simulated tank waste, *Environ. Sci. Technol.* 38(21);5750-5756.
- Zhao, H., Y. Deng, J.B. Harsh, M. Flury, and J.S. Boyle. 2004. Alteration of kaolinite to cancrinite and sodalite by simulated Hanford tank waste and its impact on cesium retention. *Clays and Clay Minerals* 52:1-13.
- Diaz, Magali, Valérie Laperche, James Harsh' and René Prost. 2002. Far infrared spectra of K^+ in dioctahedral and trioctahedral mixed-layers minerals. *American Mineralogist* 89:1207-1214.
- Flury, M., J. B. Mathison, and J. B. Harsh. 2002. In situ mobilization of colloids and transport of cesium in Hanford sediments. *Environ. Sci. Technol.* 36:5335-5341.
- Dion, H.M., J.B. Harsh, and H.H. Hill. 2001. Competitive sorption between glyphosate and inorganic phosphate on clay minerals and low organic matter soils. *J. Radioanal. Nuclear Chem.* 249:385-390.
- Su, C. and J.B. Harsh. 1995. Solubility of interlayer- $Al(OH)_3$ and imogolite in a spodosol. *Soil Sci. Soc. Am. J.* 59:373-379.
- Su, C. and J.B. Harsh. 1998. Dissolution of allophane as a thermodynamically unstable solid in the

- presence of boehmite at elevated temperatures and equilibrium vapor pressures. *Soil Science* 163:299-312.
- Rochette, E.A., J.B. Harsh, and H.H. Hill. 1998. Supercritical fluid extraction of 2,4-D from soils: pH and organic matter effects. *Soil Sci. Soc. Am. J.* 62:602-610.
- Voeller, P.J., B.A. Zamora, and J. Harsh. 1998. Growth response of native shrubs to acid mine spoil and to proposed soil amendments. *Plant and Soil* 198:209-217.
- Xu, S. and J.B. Harsh. 1997. Reply to "Comments on 'Influence of autocorrelation and measurement errors on interpretation of solubility diagrams. *Soil Sci. Soc. Am. J.* 61:331-332.
- Guo, C., W. Sun, J. Harsh, and A. Ogram. 1997. Hybridization analysis of microbial DNA from fuel oil- contaminated and noncontaminated soil. *Microbial Ecology* 34:178-187.
- Su, C. and J.B. Harsh. 1996. Alteration of imogolite, allophane and acidic soil clays by chemical extractants. *Soil Sci. Soc. Am. J.* 60:77-85
- Rochette, E., J.B. Harsh and H.H. Hill. 1996. Soil component interactions with 2,4-D under supercritical fluid conditions. *Environ. Sci. Technol.* 30:1220-1226.
- Xu, S. and J.B. Harsh. 1995. Influence of measurement errors and autocorrelation on interpretation of solubility diagrams. *Soil Sci. Soc. Am. J.* 59:1549-1557.
- Su, C. and J.B. Harsh. 1994. The electrophoretic mobility of allophane and imogolite in the presence of inorganic anions and citrate. *Clays & Clay Miner.* 41:461-471.
- Xu, S. and J.B. Harsh. 1994. Labile and nonlabile silica in acid solutions: Relation to the colloidal fraction. *Soil Sci. Soc. Amer. J.* 57:1271-1277.
- Su, C. and J.B. Harsh. 1994. Gibbs free energies of formation for imogolite and gibbsite from solubility measurements. *Geochim. Cosmochim. Acta.* 58:1667-1677.
- Ogram, A., M. Mathot, J.B. Harsh, J. Boyle, and C. Pettigrew. 1994. Effects of polymer length on the adsorption of DNA to soils. *Appl. Environ. Microbiol.* 60:393-396.
- Rochette, E., J.B. Harsh, and H.H. Hill. 1993. Supercritical fluid extraction of 2,4-D from soils. *Talanta.* 40:147-153.
- C. Su, J.B. Harsh, and P.M. Bertsch. 1992. Sodium and chloride adsorption by synthetic imogolite and allophanes. *Clays & Clay Minerals.* 40:280-286.
- Xu, S. and J.B. Harsh. 1992. Alkali cation selectivity and surface charge of 2:1 clay minerals. *Clays & Clay Minerals.* 40:567-574.
- Harsh, J.B., J. Boyle, Y. Yang and S.J. Traina. 1992. Adsorption of cations on imogolite and their effect on surface charge characteristics. *Clays & Clay Minerals.* 40:700-706.
- Shihe Xu and J. B. Harsh. 1990. Monovalent cation selectivity quantitatively modeled according to hard/soft acid/base theory. *Soil Sci. Soc. Amer.* 54:357-363.
- Shihe Xu and J. B. Harsh. 1990. Hard and soft acid base model verified for monovalent cation selectivity. *Soil Sci. Soc. Am. J.* 54:1596-1601.
- J.M. Zachara, J.A. Kittrick, and J.B. Harsh. 1988. The mechanism of zinc adsorption on calcite.

Geochim. Cosmochim. Acta. 52:1581-1591.

- J. M. Zachara, J. A. Kittrick, L. Dake, and J. B. Harsh. 1989. Solubility and electron spectroscopy of zinc precipitates on calcite. *Geochim. Cosmochim. Acta.* 53:9-19.
- J. B. Harsh, H. E. Doner, and D. W. Fuerstenau. 1988. Electrophoretic mobility and ion exchange behavior of hectorite and OH-Al-hectorite in the presence of various cations. *Soil Sci. Soc. Amer. J.* 52:1589-1592.
- R. Lehmann, H.H. Cheng, and J.B. Harsh. 1987. Oxidation of phenolic acids by soil iron and manganese oxides. *Soil Sci. Soc. Amer. J.* 51:352-356.
- J. B. Harsh and H. E. Doner. 1985. Influence of sorbed copper on the dynamics of Al(OH)₃ precipitation in hydroxy-aluminum-montmorillonite. *Clays Clay Miner.* 33:468-470.
- J. B. Harsh and H. E. Doner. 1985. The nature and stability of aluminum hydroxide precipitated on Wyoming montmorillonite. *Geoderma* 36:45-56.
- J. P. Reganold and J. B. Harsh. 1985. Expressing cation exchange capacity in milliequivalents per 100 grams and in SI units. *J. Agron. Educ.* 14:84- 90.
- J. B. Harsh and H. E. Doner. 1984. Specific adsorption of copper on an hydroxy-aluminum-montmorillonite complex. *Soil Sci. Soc. Am. J.* 48:1034-1039.
- J. B. Harsh, H. E. Doner, and M. B. McBride. 1984. Chemisorption of copper on hydroxy-aluminum-hectorite: An electron spin resonance study. *Clays Clay Miner.* 32:407-413.
- J. B. Harsh and H. E. Doner. 1981. Characterization of mercury in a riverwash soil. *J. Environ. Qual.* 10:333-337.

CHAPTERS IN BOOKS

- Contributed section on Gibb's Phase Rule in chapter on mineral equilibria by J. A. Kittrick and D. Rai in: *Minerals in Soil Environments* by J. B. Dixon and S. B. Weed (ed). SSSA Publ., Ann Arbor. 1989.
- J. B. Harsh and S. Xu. 1990. Microelectrophoresis applied to the surface chemistry of clay minerals. In: B.A. Stewart (ed.) *Advances in Soil Science Vol. 14*:131-165. (Invited).
- S. Xu and J.B. Harsh. 1991. Solid phase control of aluminum activity in an artificial plant growth medium containing hydroxy-Al-montmorillonite. In: R.J. Wright *et al.* (eds.) *Plant Soil Interactions at Low pH*. pp. 25-33. (Invited)
- W.L. Pan, R.A. Black, J.B. Harsh, J.H. Bassman, and J.S. Boyle. 1991. Morphology, root conductivity, and mineral accumulation of Northwest tree species in response to acid deposition in artificial soil. In: R.J. Wright *et al.* (eds.) *Plant soil interactions at low pH*. pp. 25-33.
- S. Kuo and J.B. Harsh. 1998. Physicochemical characterization of metals in soil and their plant availability. *Biogeochemistry of Trace Elements. (Advances in Environmental Science) Science Reviews.* Pp. 75-120.
- J.B. Harsh. 1999. Noncrystalline aluminosilicates in soil. In: M.E. Sumner and J. Stucki (eds.) *Handbook of Soil Science*. Pp. 169-180. CRC Press. (Invited)

- J.B. Harsh, J.D. Chorover, and E. Nizeyimana. 2002. Allophane and imogolite. Chapter 9 *in*: J.B. Dixon and D.E. Schulze (eds.) *Soil Mineralogy with Environmental Applications*. Soil Science Society of America Book Series, no. 7, Madison WI (Invited).
- J.B. Harsh. 2004. Poorly crystalline aluminosilicates. *In*: D. Hillel (ed.) *Encyclopedia of Soils in the Environment*. Elsevier. 2200 pp.
- J.B. Harsh. 2011. Noncrystalline aluminosilicates in soil. *In*: M.E. Sumner and J. Stucki (eds.) Handbook of Soil Science (2nd edition). CRC Press. (Invited)

OTHER PUBLICATIONS

- W.L. Pan and J.B. Harsh. 1991. Teaching techniques in soil science. Washington Land and People.
- Harsh, J.B. and H.H. Hill, Jr. 1993. Supercritical fluid extraction of 2,4-D, metribuzin, and urea herbicides from selected Washington soils: final report. [Pullman, Wash. : State of Washington Water Research Center.] (written by Elizabeth Rochette, Ph.D. candidate in soils).
- Harsh, J.B. and J. Boyle. 1994. Amendment screening for increasing infiltration rates in Warden and Ritzville silt loams. Proc. Washington State Potato Conference. Feb. 1994. Moses Lake, WA.
- Harsh, J.B., J. Boyle, M. Powell and G. De. 1996. Migration and plant uptake of metals in soil overlying waste rock at an inactive uranium mine. Technical report to the US Bureau of Mines and US Bureau of Indian Affairs.
- Kuo, S., J.B. Harsh, W.L. Pan, R.G. Stevens. 1999. Influence of metal rates and forms on crop productivity and metal uptake in some Washington soils. Annual Report to the Wash. State Dept. Agric. 57 pp.

ABSTRACTS

- J. B. Harsh, H. E. Doner, and D. W. Fuerstenau. 1985. Electrophoretic mobility and ion exchange behavior of hectorite and OH-Al-hectorite in the presence of various cations. The International Clay Conference 1985, Denver, Colorado.
- J. B. Harsh, T. Murarik, and J. Boyle. 1986. Surface properties of allophane and imogolite. Soil Sci. Soc. Amer. Ann. Meet., New Orleans.
- J. B. Harsh and Shihe Xu. 1987. Microelectrophoresis applied to the surface chemistry of clay minerals. Invited symposium presentation at the Soil Sci. Soc. Amer. Ann. Meet., Atlanta.
- S. Xu and J. B. Harsh. 1987. Electrophoretic mobility and exchange constants of reference clays saturated with monovalent cations. Soil Sci. Soc. Amer. Ann. Meet., Atlanta.
- J. B. Harsh, S. J. Traina and Chunming Su. 1989. Fluorescence quenching of Ce- imogolite by Cu²⁺, aminopyrene, paraquat, and acridine. Internat. Clay Conference of AIPEA. Strasbourg, France.
- S. Xu, J.B. Harsh, W. L. Pan, J. Boyle. 1990. Solid phase control of aluminum activity in an artificial growth medium containing hydroxy-Al montmorillonite. Second International Symposium on Plant-Soil Interactions at Low pH. (Invited oral presentation by JBH).

- W.L. Pan, R.A. Black, J.B. Harsh, J.H. Bassman, and J.S. Boyle. 1991. Morphology, root conductivity, and mineral accumulation of Northwest tree species in response to acid deposition in artificial soil. Second International Symposium on Plant-Soil Interactions at Low pH.
- C. Su, J.B. Harsh, and P.M. Bertsch. 1990. Points of zero net charge of synthetic allophane and imogolite. *Agron. Abst.* p. 239.
- S. Xu and J.B. Harsh. 1990. Alkali cation selectivity and layer charge of 2:1 clay minerals. *Agron. Abst.* p. 241.
- J.B. Harsh, C. Su, S.J. Traina, and P.M. Bertsch. 1991. Correspondence between bulk and surface properties of noncrystalline aluminosilicates. 201st American Chemical Society National Meeting, Atlanta. (Invited)
- J.B. Harsh and Shihe Xu. 1991. The relationship between layer charge and cation selectivity on 2:1 clays. French Clay Group Annual Meeting. Paris, France. March 19, 1992.
- J.B. Harsh and Shihe Xu. 1991. The hard/soft acid/base model of ion selectivity. Belgian Clay Group Annual Meeting. Louvain-la-Neuve, Belgium. May 22, 1992.
- J.B. Harsh, R. Prost, V. Laperche, and J. Srodon. 1992. Far infrared spectra of illite-smectites and illitic materials. *Agron. Abstracts*, American Society America, Madison, Wisconsin, 372.
- C. Su and J.B. Harsh. 1992. Thermodynamic stability of imogolite, boehmite, and gibbsite. *Agron. Abstr.* p. 380.
- Kuo, S. and J.B. Harsh. 1993. Physical chemical factors governing metal sorption by soils. Second International Conf. Biogeochem. Trace Elements. Taipei, Taiwan. Sept. 1993. (Invited)
- E.A. Rochette, J.B. Harsh, and H.H. Hill. 1993. Extractability of 2,4-D from soils and model soil components using modified supercritical carbon dioxide. *Agron. Abstr.* Cincinnati, Ohio.
- J.B. Harsh and J. Boyle. 1994. Amendment screening for increasing infiltration rates in Warden and Ritzville silt loams. Washington State Potato Conference. Feb. 1994. Moses Lake, WA.
- E.A. Rochette, J.B. Harsh, and H.H. Hill. 1993. SFE of 2,4-D acid from soil components using inorganic acid modifier. Third Soil Sediment Contaminant Analysis Workshop. Aug. 1993. Winnipeg.
- E.A. Rochette, J.B. Harsh, and H.H. Hill. 1994. The effects of soil characteristics on the extraction of 2,4-D from soils with modified supercritical fluid extraction. *Agron. Abstracts*, Seattle WA. p. 255.
- J.B. Harsh, C. Su, and J.S. Boyle. 1994. Surface charge characteristics of allophane and imogolite. *Agron. Abstracts*. Seattle, WA p. 404.
- C. Su and J.B. Harsh. 1994. Solubility of synthetic and natural imogolites. *Agron. Abstracts*. Seattle WA p. 407.
- J.B. Harsh, J.S. Boyle, M.K. Powell, and G.C. De. 1995. Migration and plant uptake of metals in soil overlying waste rock at an inactive uranium mine. Third International Conference on the Biogeochemistry of trace elements. Paris, France.

- M.K. Powell, J.B. Harsh, and J.S. Boyle. 1995. Response of *Agropyron spicatum* to three uranium mine proteores underlying soil in greengouse pots. Proceedings of the Pacific Division, AAAS and WSSSA. Vancouver, B.C. p. 14.
- J.B. Harsh*, J.D. Chorover, and E. Nizeyimana. 1997. Allophane and imogolite in soils: their role in environmental processes. Agron. Abstracts, Soil Sci. Soc. Amer. National Meeting, Anaheim CA.
- J.B. Harsh*, A.J. Busacca, H. Elsenbeer, J.S. Boyle, L. Wagoner and R.J. Southard. 1997. Clay Mineralogy of Reforested Soils on Ticino Mountain, Switzerland. Agron. Abstracts, Soil Sci. Soc. Amer. National Meeting, Anaheim CA.
- Elsenbeer, H., R. Southard, M. Beck, J. Harsh and A. Busacca. 1997. Soil responses to land-use and land-cover change. Eos Trans. AGU Suppl., 78 (46), F226.
- J.B. Harsh*, H. Elsenbeer, A.J. Busacca, And J.S. Boyle. Surface Charge Characteristics of Reforested Soils in the Swiss Alps. SSSA National Meeting 1998 p. 193.
- C.A. Sherony* And J.B. Harsh. Immobilizing Uranium using Fe(0) – A greenhouse study. SSSA National Meeting 1998 p. 201.
- Prost, R., M. Diaz, J.B. Harsh, A. Inoue, J. Srodon, V. Sucha, and R. Badreddine. 1999. Far infrared spectra of K^+ in interstratified minerals. Conference of the European Clay Groups Association. Krakow, Poland.
- H.M. Dion, J.B. Harsh, and H.H. Hill. 1999. Polar herbicide sorption on high clay subsoils. SSSA National Meeting 1999, p. 204.
- H.M. Dion; J.B. Harsh; H.H. Hill, Jr 2000. Determination of partition coefficients for highly polar herbicides on clay minerals. Presented at the ASA-SSSA-CSSA Annual Meeting. Minneapolis, MN. November 5-9, 2000.
- H.M. Dion; L.K. Ackerman, H.H. Hill, Jr. 2000. Initial study of electrospray ionization-ion mobility spectrometry for the detection of metal cations." Presented at the 9th International Conference on Ion Mobility Spectrometry. Halifax, Nova Scotia, CANADA. August 13-17, 2000.
- H.M. Dion; J.B. Harsh; H.H. Hill, Jr. 2000. Subcritical fluid chromatography for the determination of partition coefficients in clay mineral systems. Presented at the 2000 Clay Minerals Society Annual Meeting. Loyola University, Chicago, IL. June 24-29, 2000.
- H.M. Dion; J.B. Harsh; H.H. Hill, Jr. 2000. Competitive sorption between glyphosate and inorganic phosphate in low organic matter systems. Presented at the Fifth International Conference on Methods and Applications of Radioanalytical Chemistry. Kailua-Kona, HI. April 9-14, 2000.
- Hanson, Laura A.; Harsh, J. B.; Flury, Markus; Minard, K., Strawn, Daniel G. 2001. ¹H-NMR to track colloid transport through packed soil columns. Western Regional Soil Science Conference, Moscow ID June, 2001.
- Mashal, K. Y., H. Zhao, J. B. Harsh and Markus Flury. 2001. Colloid formation at the Hanford site contaminated with tank waste. Western Society of Soil Science annual meeting, Moscow, ID. June, 2001.
- Hanson, Laura A.; Harsh, James B.; Flury, Markus; Minard, Kevin; Strawn, Daniel G. 2001. Tracking the movement of copper-saturated colloidal silica through packed soil columns using ¹H-NMR.

Abstracts of Papers, 222nd ACS National Meeting, Chicago, IL, United States, August 26-30, 2001.

Mashal, K. Y., Hongting Zhao, J. B. Harsh and M. Flury. 2001. Colloid formation at the Hanford site contaminated with tank waste. 222nd ACS National Meeting, Abstract V. 222(pt.1), pp. U494-494, August, 2001.

Zhao, Hongting, K. Y. Mashal, J. B. Harsh and Markus Flury. 2001. Alteration of mineralogical and surface properties of Hanford sediments contaminated with tank waste. 222nd ACS National Meeting, Abstract V. 222(pt.1), pp. U493-494, August, 2001.

Hanson, Laura, J. Harsh, W. Nedry-Peterson, C. Palmer, and M. Hamilton. 2001. Chemical and physical characterization of soils from the INEEL site. 1st Annual Subsurface Science Symposium, Idaho Falls ID, September, 2001.

Harsh, J. K.Y., Mashal, Y. Deng, J. Boyle, L. Hanson, and M. Flury. 2002. Ion exchange reactions on sediments altered by caustic waste. 2nd Annual Subsurface Science Symposium, Boise ID, October, 2002.

Hanson, L., J.B. Harsh, C. Palmer, M. Hamilton, and M. Flury. 2002. Potential for phytoextraction of Cs from contaminated soil. 2nd Annual Subsurface Science Symposium, Boise ID, October, 13-16, 2002.

Welfinger, G. and J. Harsh. 2002. Extractable lead from soils after fertilizer application. Abstracts of Papers, 223rd ACS National Meeting, Orlando, FL, United States, April 7-11, 2002.

Zhao, Hongting, J. B. Harsh, and M. Flury. Alteration of surface and cesium retention properties of reference clay minerals in synthetic hanford tank wastes. 39th Annual Meeting of The Clay Minerals Society. June 8-13, 2002. Boulder, Colorado.

Hanson, Laura A.; Harsh, James B.; Palmer, Carl D.; Hamilton, Melinda A. 2002. Potential for phytoextraction of cesium from contaminated soils. Abstracts of Papers, 224th ACS National Meeting, Boston, MA, United States, August 18-22, 2002.

Place M. K., B. M. Peyton, J. N. Petersen, and J. B. Harsh. 2002. Hanford Soil Remediation: Influences of Microbial Processes on Subsurface Cesium Transport. Proceedings of the 2002 International Symposium on Subsurface Microbiology, Copenhagen, Denmark, September 2002.

Welfinger, G., J. Harsh, S. Kuo, and W.L. Pan. 2003. Extractability of Cd from soils following fertilizer application. ACS National Meeting, New Orleans, LA, March 23-27, 2003.

Deng, Y., M. Flury, J. B. Harsh, and J. S. Young. Cancrinite and Sodalite Formation in the Presence of Cs, K, Mg, Ca, or Sr in Hanford Tank Waste Simulants. Clay and Clay Minerals Annual Meeting Richland, WA, June 19-24, 2004.

Deng, Y., N. N. Wai, M. Flury, J. B. Harsh, and J. S. Young. Stability of incorporated Cs in feldspathoids, zeolites and allophane formed in Hanford tank waste simulants. Clay and Clay Minerals Annual Meeting Richland, WA, June 19-24, 2004.

Brown, T. R. Koenig, D. Huggins, R. Rossi and J. Harsh. 2004. Spatial Variability of pH in a Direct Seed Cropping System: Implications and Management Strategies. Poster presented at the

- annual meetings of the American Society of Agronomy and Soil Science Society of America, November 1-4, Seattle, WA.
- Wai, N. N., M. Flury, and J.B. Harsh. Cesium diffusion in feldspathoids and zeolites. Soil Science Society Annual Meeting Seattle, WA, Nov 1-4, 2004.
- Shira, J. M., S. Czigany, B. Williams, M. Flury, M. Tuller, and J.B Harsh. Sampling silica and ferrihydrite colloids with fiberglass wicks under unsaturated conditions. Presentation at the ASA/SSSA Meeting in Salt Lake City, 2005.
- Deng, Y., Harsh, J.B., Flury, M. Precipitation of Eu³⁺ on surfaces of smectite, kaolinite, chlorite, illite, goethite, and calcite, Clay Minerals Society Annual Meeting, Vermont, June 2005.
- Zetiner, Z., M. Flury, J.B. Harsh, and M. Mashal. Colloid formation and transport during a simulated Hanford tank leak. The 15th Annual Goldschmidt Conference, Moscow, ID, May 20-25, 2005.
- Brown, T.T., R.T. Koenig, D.R. Huggins, J.B. Harsh and R.E. Rossi. Assessing and managing stratified soil acidify in inland northwest direct seed cropping systems. Pp 213-218 in B. Stevens (Ed) Proceedings of the Western Nutrient Management Conference, March 3-4, Salt Lake City, UT. 2005.
- Deng, Youjun, James B. Harsh, and Markus Flury. Site selection of cesium in cancrinites formed in high-alkaline solutions. Abstracts of Papers, 235th ACS National Meeting, New Orleans, LA, United States, April 6-10, 2008.
- Gebremariam, S., Beutel, M.W., Yonge, D.R., Flury, M., & Harsh, J.B. (2010). Two-Site Sorption of Chlorpyrifos in Aquatic Sediments and Soils at Environmentally Relevant Concentrations. PNWIS Annual Conference, Missoula. MT.
- Cloy, J., Flury, M., Harsh, J.B., & Boyle, J. (2010). Interactions between Hanford Colloids and Humic Substances. INternational Humic Substances Society Meeting, Canary Island, Spain.
- Gebremariam, S., Beutel, M.W., Yonge, D.R., Flury, M., & Harsh, J.B. (2010). Retention and Migration of Chlorpyrifos in Aquatic Sediments and Soils. American Geophysical Union Fall Meeting, San Francisco, CA.
- Flury, M., Harsh, J.B., Zhang, F., Gee, G., Lichtner, P., & Mattson, E. (2010). Long-Term Colloid Mobilization and Colloid-Facilitated Transport of Radionuclides in the Vadose Zone. DOE ERSP Annual Meeting, Washington DC.
- Liu, Z., Flury, M., Zhang, F., & Harsh, J.B. (2010). Colloid Transport in Field Lysimeter at Hanford. CEREO Water Conference, Spokane.
- Latimer, J., Harsh, J.B., & Boyle, J.S. (2010). Weathering of Silver Hill Illite by Li-Oxalate at pH 8. *International Meeting of the Soil Science Society of America* International Meeting of the Soil Science Society of America, Long Beach, California.
- Harsh, J.B., Pierce, E., Dickson, J., Peyton, B., Wellman, D., & Bargar, J. (2011). Potential for Alumino-silicate Minerals to Control the Availability of Technetium in 200 Area Sediments. *DOE ERSP*

Annual PI Meeting Abstracts.

Knappenberger, T., Flury, M., Mattson, E., Harsh, J.B., Zhang, F., Gee, G., & Lichtner, P. (2011). Using a Geocentrifuge to Study Colloid Transport in Unsaturated Porous Media. *Annual Meeting Soil Science Society America Abstracts* Soil Science Society of America Annual Meeting, San Antonio, TX.

Flury, M., Harsh, J.B., Zhang, F., Gee, G., & Lichtner, P. (2011). Long-Term Colloid Mobilization and Colloid-Facilitated Transport of Radionuclides in the Vadose Zone. *DOE ERSP Annual PI Meeting Abstracts*.

Pierce, E., Harsh, J.B., & Dickson, J. (2011). The structure and lability of Re(VII)-sodalite. *Goldschmidt Annual Meeting Abstracts* Goldschmidt, Prague, Czech Republic.

Shi, Z., Keller, C.K., Grant, M., Harsh, J.B., Balogh-Brunstad, Z., & Thomashow, L.S. (2011). Plant-driven mineral weathering: Hydrochemical effects of nutrient limitation and rhizosphere microbiology. *AGU Abstracts* AGU 2011 Fall Meeting, San Francisco.

<http://www.agu.org/meetings/fm11/waisfm11.html>.