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Biographical Summary

Dr. Yuxin Wu is a Research Scientist at the Lawrence Berkeley National Laboratory. His research focuses on the application of geophysical methods to energy and environment related topics. His current research topics include (1) hydro- and bio- geophysical monitoring of subsurface hydro-biogeochemical processes (2) geophysical monitoring of fracture and flow related to energy production and waste storage; (3) enhanced fracture imaging using geophysical contrasting agents; and (4) the development of novel imaging approaches for plant root and root-soil interactions.

Education

- Ph.D. 2007. Environmental Geophysics, Rutgers University, New Jersey.
- M.S. 2002. Environmental Science, Peking University, China.
- B.S. 1999. Mineralogy/Petrology/Geochemistry, Peking University, China.

Professional Experience

- 06/2008 – Present, research scientist, Lawrence Berkeley National Lab, Berkeley, CA
- 01/2007 – 05/2008, postdoctoral Research Associate, Idaho National Laboratory, Idaho Falls, ID.

Honors & Awards

- 2011, Best Oral Presentation Award, WM Symposia, Phoenix, AZ
- 2005, dissertation Fellowship, Rutgers University
- 2001, Academic Excellence Award, Peking University
- 1999- 2002, Graduate Scholarship, Peking University

Synergistic Activities

- Member of American Geophysical Union, Geochemical Society and Society of Exploration geophysicists.
- Reviewer for Environmental Science & Technology, Journal of Geophysical Research-Biogeosciences and Solid Earth, Journal of Contaminant Hydrology,

- Chemosphere, Geophysical Journal International, Geophysical Research Letters, Vadose Zone Journal, Water Resources Research, Surveys in Geophysics, Journal of Applied Geophysics, Cold Region Science and Technology.
- Invited speaker, 2008 EEGS NSGS IP workshop, Las Vegas, Nevada, Nov 14, 2008
 - Chair: 2011 AGU annual meeting, NS12A. The Role of Mineral Water Interface in Understanding Geophysical Signals; 2016 AGU annual meeting, Revealing the Hidden Half: Advances in Imaging and Quantification of Plant Roots and Root-Soil Interactions; 2016 AOGS annual meeting, Geochemical and geophysical signatures of microbial activities in sediments and rocks.

Publications

1. Leroy P., Li S., Jougnot D., Revil A., Wu Y., Modeling the evolution of spectral induced polarization during calcite precipitation on glass beads, *Geophysical Journal International*, revision submitted
2. Raz Yaseef, Torn, M.S. Wu. Y, Billesbach D., Liljedahl A.K., Kneafsey, T.J., Romanovsky, V.E., Cook, D.R. and Wulfschleger S.D, Large CO₂ and CH₄ emissions from polygonal tundra during spring thaw in northern Alaska, *GRL*, accepted.
3. Varadharajan, Charuleka; Tinnacher, Ruth; Zheng, Liange; Dafflon, Baptiste; Wu, Yuxin; Reagan, Matthew; Birkholzer, Jens; Trautz, Robert; Carey, J. William, Potential for Groundwater Pollution from CO₂ Sequestration, under review for publication in AGU Books.
4. Liu L., Wang X., Lajeunesse M.J., Miao G., Piao S., Wan S. Wu Y., Wang Z., Yang S., Deng M, 2016, A cross-biome synthesis of soil respiration and its determinants under simulated precipitation changes, *Global Change Biology*, 22, 1394-1405
5. Commer M., Doetsch J., Dafflon B., Wu Y., Daley T.M. Hubbard S.S., 2016, Time-lapse 3-D electrical resistance tomography inversion for crosswell monitoring of dissolved and supercritical CO₂ flow at two field sites: Escatawpa and Cranfield, Mississippi, USA, *International Journal of Greenhouse Gas Control*, 49, 297-311
6. Dafflon B., Hubbard S.S., Ulrich, C., and Peterson J.E., Wu Y., Wainwright H., and Kneafsey T., 2015, Geophysical estimation of shallow permafrost distribution and properties in an ice-wedge polygon-dominated Arctic tundra region, *Geophysics*, 81 (1), WA247-263.
7. Zhenqing Shi, Dimin Fan, Richard L. Johnson, Paul G. Tratnyek, James T. Nurmi, Yuxin Wu, Kenneth H. Williams, 2015, Methods for Characterizing the Fate and Effects of Nano Zerovalent Iron during Groundwater Remediation, *Journal of Contaminant Hydrology*, 181, 17-35

8. Haruko M. Wainwright, Baptiste Dafflon, Lydia J. Smith, Melanie S. Hahn, John B. Curtis, Yuxin Wu, Craig Ulrich, John E. Peterson, Margaret S. Torn and Susan S. Hubbard, 2015, Identifying multiscale zonation and assessing the relative importance of polygon geomorphology on carbon fluxes in an Arctic Tundra Ecosystem, *Journal of Geophysical Research – Biogeosciences*, DOI: 10.1002/2014JG002799.
9. Newman, B.D., Throckmorton, H.M., Graham, D.E., Gu, B., Hubbard, S.S., Liang, L., Wu, Y., Heikoop, J.M., Herndon, E.M., Phelps, T.J., Wilson, C.J., Wulfschleger, S.D., 2015, Microtopographic and depth controls on active layer chemistry in Arctic polygonal ground, *Geophysical Research Letters*, 42, 1808-1817.
10. Trautz, R.C. Pugh, J.D. Zheng, L., Spycher, N.F., Nico, P.S., Varadharajan, C., Dafflon, B., Wu, Y., Newell, D.L., Esposito, R.A., Hubbard, S.S., Birkholzer, J.T., Tinnacher, R.M., Bianchi, M., Evaluation of dissolved CO₂-induced metals mobilization in groundwater using a controlled release experiment. *Energy Procedia*, 2013
11. Wu, Y., Surasani, V.K., Li, L., Hubbard, S.S., 2013, Geophysical monitoring and reactive transport simulations of bioclogging processes induced by *Leuconostoc mesenteroides*, *Geophysics*, Vol. 79, No. 1. doi: 10.1190/GEO2013-0121.1
12. Surasani, V.K., Li, L., Ajo-Franklin, J., Hubbard, C.G., Hubbard, S.S., Wu, Y., Selective bioclogging and permeability alteration by *L. mesenteroides*: Bioclogging and Permeability Alteration by *L. mesenteroides* in a Sandstone Reservoir: A Reactive Transport Modeling Study, *Energy and Fuels*, doi: 10.1021/ef401446f, 2013
13. Revil, A., Wu, Y., Karaoulis, M., Hubbard, S.S., Watson, D.B., Eppheimer, J.D., Geochemical and geophysical responses during the infiltration of fresh water into the contaminated saprolite of the Oakridge Integrated Field Research Challenge site, doi: 10.1002/wrcr.20380, 2013, *Water Resources Research*
14. Trautz, R.C., Pugh, J.D., Varadharajan, C., Zheng, L., Bianchi, M., Nico, Peter, Spycher, N., Newell, D.L., Esposito, R., Wu, Y., Dafflon, B., Hubbard, S.S., Birkholzer, Jens., Effect of dissolved CO₂ on a shallow groundwater system: A controlled release field experiment, dx.doi.org/10.1021/es301280t | *Environ. Sci. Technol.* 2013, 47, 298–305, 2013.
15. Revil, A., Skold, M., Hubbard, S.S., Wu, Y., Watson, D., Karaoulis, M., Petrophysical properties of saprolites from the Oak Ridge Integrated Field Research Challenge site, Tennessee, *GEOPHYSICS*, VOL. 78, NO. 1 (JANUARY-FEBRUARY 2013); P. D21–D40, 17 FIGS., 7 TABLES., 10.1190/GEO2012-0176.1.
16. Dafflon, B., Wu, Y., Hubbard, S.S., Birkholzer, J., Thomas, D., Pugh, J., Peterson, J., Trautz, B., Monitoring CO₂ transition and associated geochemical transformations in a shallow groundwater system using complex electrical methods, *Environmental Science and Technology*, doi: 10.1021/es301260e, 2012.
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22. Wu, Y., J.B. Ajo-Franklin, N. Spycher, S.S. Hubbard, G. Zhang, K.H. Williams, J. Taylor, Y. Fujita, and R. Smith (2011), Geophysical monitoring and reactive transport modeling of ureolytically-driven calcium carbonate precipitation. *Geochemical Transactions*, 12 (7); DOI: 10.1186/1467-4866-12-7. LBNL-5149E
23. Wu, Y., Hubbard, S., Williams, K. and Ajo-Franklin, 2010, On the complex conductivity signatures of calcite precipitation, *J. Geophys. Res-Biogeosciences.*, doi:10.1029/2009JG001129.
24. Wu, Y., Versteeg, R., Slater, L. and LaBrecque, D., 2009, Calcite precipitation dominates the electrical signatures of zero valent iron columns under simulated field conditions, *journal of contaminant hydrology*, Volume 106: 131-143.
25. Wu, Y., Slater, L., Versteeg, R. and LaBrecque, D., 2008, A comparison of the low frequency electrical signatures of iron oxide versus calcite precipitation in granular zero valent iron columns, *Journal of Contaminant Hydrology*, volume 95 (3-4): 154-167.
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