

GEOSCIENCES

GRADUATE DIRECTOR: BRIAN PHILLIPS
DEPARTMENT CHAIR: RICHARD REEDER

❖ Grants, Fellowships, and Awards

Long, Hui. (2009) Excellence in Teaching. *The Department of Geosciences*, Stony Brook University, Stony Brook, NY.

Whitaker, Matthew L. (2009) COMPRES Student Travel Scholarship (\$500). *COMPRES*, Stony Brook University, Stony Brook, NY.

❖ Jointly Authored Publications/Research Reports/Reviews

Conselice, C. J., and **Arnold, J. A.** (2009) The Structures of Distant Galaxies - II: Diverse Galaxy Structures and Local Environments at $z = 4 - 6$; Implications for Early Galaxy Assembly. *Monthly Notices of the Royal Astronomical Society* 397(1).

Cohn, C.A., Pedigo, C.E., Hylton, S.N., Simon, S.R., Schoonen, M.A. (2009) Evaluating the use of 3'-(p-Aminophenyl) fluorescein for determining the formation of highly reactive oxygen species in particle suspensions. *Geochem Trans.* 11(10): 8.

Cohn, C.A., Fisher, S.C., Brownawell, B.J., Schoonen, M.A. (2010) Adenin oxidation by pyrite-generated hydroxyl radicals. *Geochemical Transactions* 11: 2.

Schoonen M.A., **Harrington, A.D.**, Laffers, R., and Strongin, D.R. (In Press) Role of Hydrogen Peroxide and Hydroxyl Radical in Pyrite Oxidation by Molecular Oxygen. *Geochimica et Cosmochimica Acta*.

Nekvasil, H., McCubbin, F.M., **Harrington, A.D.**, Elardo, S.M., and Lindsley, D.H. (2009) Linking the Chassigny meteorite and the Martian surface rock Backstay: Insights into igneous crustal differentiation processes on Mars. *Meteoritics and Planetary Science* 44(6): 853-869.

Cohn, C.A., Pedigo, C.E., **Hylton, S.N.**, Simon, S.R., Schoonen, M.A. (2009) Evaluating the use of 3'-(p-Aminophenyl) fluorescein for determining the formation of highly reactive oxygen species in particle suspensions. *Geochem Trans.* 11(10): 8.

Li, Wei, Feng, Jian, Kwon, Kideok, Kubicki, James D., Phillips, Brian L. (2010) Surface speciation of phosphate on boehmite (γ -AlOOH) determined from NMR spectroscopy. *Langmuir* 26(7): 4753-4761.

Lee, Young J., Stephens, Peter W., Tang, Yuanzhi, **Li, Wei**, Phillips, Brian L., Parise, John B., Reeder, Richard J. (2009) Arsenate substitution in hydroxylapatite: Structural characterization of the $\text{Ca}(\text{P}_x\text{AsO}_4)_3\text{OH}$ solid solution. *American Mineralogist* 94: 666-675.

Wen, Lianxing and **Long, Hui.** (2010) High-precision Location of North Korea's 2009 Nuclear Test. *Seismological Research Letters* 81: 26-29.

Mason, H.E., Hirner, J., Xu, W., Parise, J.B., and Phillips, B.L. (2009) Solid-State NMR spectroscopy of Pb-rich apatite. *Magnetic Resonance in Chemistry* 47: 1062-1070.

Wander, Matthew C.F., Kubicki, James D., Clark, Aurora E., Schoonen, Martin A.A. (2010) Ferrous Iron Reduction of Superoxide, A Proton-Coupled Electron-Transfer Four-Point Test. *Journal of Physical Chemistry A* 113(6): 1020-1025.

Liu, Q., Liu, W., **Whitaker, M.**, Wang, L., Li, B. (In Press) Ultrasonic study of fayalite-spinel phase transition at high pressure. *Am. Min.*

- Banerjee, D., Kim, S. J., Borkowski, L.A., **Xu, W.**, Parise, J.B. (2010) Solvothermal Synthesis and Structural Characterization of Ultralight Metal Coordination Networks. *Crystal Growth & Design*, 10(2): 709–715.
- Xu, W.**, Tosca, N.J., McLennan, S.M., Parise, J.B. (2009) Humidity-induced phase transitions of ferric sulfate minerals studied by in situ and ex situ X-ray diffraction. *American mineralogist* 94(11-12): 1629-1637.
- Mason, H.E., Hirner, J.J., **Xu, W.**, Parise, J.B., Phillips, B.L. (2009) Solid-state NMR spectroscopy of Pb-rich apatite. *Magnetic Resonance in Chemistry* 47(12): 1062-1070.
- Zhu, W.**, Baud, P., and Wong, T.-F. (2010) Micromechanics of cataclastic pore collapse in limestone. *J. Geophys. Res.* 115: B04405. doi: 10.1029/2009JB006610
- Vajdova, V., **Zhu, W.**, Chen, T. N., and Wong, T. (In Press) Micromechanics of brittle faulting and cataclastic flow in Tavel limestone. *Journal of Structural Geology*.

❖ **Abstracts, Conferences/Colloquia, Presentations, Symposiums, Workshops**

- Arnold, J. A.**, Glotch, T. D., Bandfield, J. L., Greenhagen, B. T., Lucey, P. G., Wyatt, M. Paige, D. (2010) Local-scale Spectral Variability of the South Pole-Aitken Basin. *Lunar and Planetary Science Conference*. Houston, TX. (poster)
- Arnold, J. A.**, Glotch, T. D., Bandfield, J. L., Greenhagen, B. T., Lucey, P. G., Wyatt, M. Paige, D. (2010) Mafic Mineralogy of Large Impact Basins. *NASA Lunar Science Forum*. Moffett Field, CA. (abstract)
- Che, C.**, Glotch, T. D. (2009) Analysis of Laboratory Mixtures of Sulfates and Clays Using VNIR Reflectance and Mid-IR Emissivity Spectral Data. *American Geophysical Union Fall Meeting*. San Francisco, CA.
- Che, C.**, Glotch, T. D. (2010) The Effect of High Temperatures on the Emission and VNIR Reflectance Spectra of Phyllosilicates and Zeolites. *41th Lunar and Planetary Science Conference*. The Woodlands, TX.
- Che, C.**, Glotch, T. D. (2010) Spectroscopic Analysis of the Dehydration and/or Dehydroxylation of Phyllosilicates and Zeolites. *THEMIS Science Team Meeting*. The island of Hawaii, HI.
- Harrington, A.D.**, Hylton S., and Schoonen, M.A.A. (2010) Pyrite driven ROS formation in simulated lung fluid: Implications for coal workers' pneumoconiosis. *American Chemical Society 239th National Meeting*. San Francisco, CA.
- Schoonen M.A.A., **Harrington, A.D.**, and Stongin D.R. (2010) Role of hydrogen peroxide and hydroxyl radical in the oxidation of pyrite by molecular oxygen. *American Chemical Society 239th National Meeting*. San Francisco, CA.
- Hylton, Shavonne**. (2009) An Acellular and *In Vitro* Assessment of Environmentally-Induced Reactive Oxygen Species using 3'-(p-Aminophenyl) Fluorescein and Lung Epithelial Cells. *Geochemical Society of America*. Portland, OR.
- Harrington, A.D., **Hylton S.**, and Schoonen, M.A.A. (2010) Pyrite driven ROS formation in simulated lung fluid: Implications for coal workers' pneumoconiosis. *American Chemical Society 239th National Meeting*. San Francisco, CA.
- Jensen, H.B.** and Glotch, T.D. (2009) Characterizing Putative Chloride Salt Deposits on Mars using THEMIS, TES, and CRISM Data. *American Geophysical Union Fall Meeting*. San Francisco, CA.
- Jensen, H.B.** and Glotch, TD. (2010) Near Infrared Spectral Analysis of Mixtures of Halite and Labradorite for Application to Putative Chloride Salt Deposits Observed by CRISM. *41st Lunar and Planetary Science Conference*. The Woodlands, TX.

- Jensen, H.B.** and Glotch, TD. (2010) Investigating the spectral character of putative chloride salt deposits on Mars using THEMIS and CRISM data. *THEMIS Science Team meeting*. Kailua, HI.
- Li, Wei,** Xu, Wenqian, Phillips, Brian L. (2010) Spectroscopic studies of the effect of calcium on phosphate uptake by boehmite. *239th ACS National Meeting*. San Francisco, CA. (poster)
- Li, Wei,** Tang, Yuanzhi, Reeder, Richard J., Phillips, Brian L. (2009) X-ray absorption spectroscopic and nuclear magnetic resonance studies of phosphate and arsenate sorption on gamma-Al₂O₃ surface. *International Conference on the Environmental Implications and Applications of Nanotechnology*. Amherst, MA. (poster)
- Long, Hui.** (2009) Using EarthScope data to study the mantle structure beneath Central America. *2009 AGU fall meeting*. San Francisco, CA.
- Thompson, M. L.,** Weidner, D., Oganov, A. R. (2009) *Ab initio* MD determination of subducting basalt: first steps. *AGU Fall Meeting*. San Francisco, CA. (abstract)
- Whitaker, M.L.,** Liu, Q., Liu, W., Wang, L., and Li, B. (2009) A Journey Toward the Center of the Earth. *COMPRES 2009 Annual Meeting*. Bretton Woods, NH. (abstract/poster/invited talk)
- Whitaker, Matthew L.,** Liu, W., Weidner, D. J., Li, B. (2009) A Journey Toward the Center of the Earth – Iron/Light-Element Alloys at Extreme Conditions and Their Implications for the Earth's Core. *AGU Fall Meeting*. San Francisco, CA.
- Smirnov, A., DeCesare, M., **Woerner, W.,** and Schoonen, M.A.A. (2010) The role of Mo, V, (Fe, S) substrates in abiotic nitrogen fixation. *Astrobiology Science Conference 2010*. League City, TX. (poster)
- Xu, W.,** Parise, J. B. (2009) (H₃O)Fe(SO₄)₂, a new phase formed by dehydrating rhomboclase. *40th Lunar and Planetary Sciences Conference*. Houston, TX. (abstract)
- Zhu, W.,** Baud, P., and Wong, T.-F. (2009) Micromechanical modeling of cataclastic pore collapse in limestones. *AGU Fall Meeting*. San Francisco, CA. *8th Euro Conference of Rock Physics and Geomechanics*. Ascona, Switzerland.
- Vajdova, V., **Zhu, W.,** Chen, T.N., and Wong, T.-F. (2009) Brittle Faulting and Cataclastic Flow in Tavel Limestone. *AGU Fall Meeting*. San Francisco, CA.

❖ Post-Doctorates Obtained and Professional Appointments

- Hahn, Brian C.** (2009) Postdoctoral Research Associate. Dept. Earth and Planetary Sciences, *University of Tennessee*, Knoxville, TN.
- Mason, Harris E.** (2009) Postdoctoral Fellow. Physical and Life Sciences Directorate, *Lawrence Livermore National Laboratory*, Livermore, CA.
- Whitaker, Matthew L.** (Sept 2009 - April 2010) Postdoctoral Associate. Geodynamics Research Center, *Ehime University*, Ehime, Japan.
- Whitaker, Matthew L.** (2010) Assistant Professor. Geodynamics Research Center, *Ehime University*, Ehime, Japan.