Hsiu-Wen Wang

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PROFESSIONAL EXPERIENCE AND EDUCATION

2014-present Research Scientist in Joint Institute for Neutron Sciences, Oak Ridge National Laboratory
2013-2014 Postdoctoral Assistant in Lujan Neutron Scattering Center, Los Alamos National Laboratory
2011-2013 Postdoctoral Assistant in Chemical Sciences Division, Oak Ridge National Laboratory
2007-2011 Ph.D. in Geological Sciences (minor in spectroscopy), Indiana University Bloomington
2005-2007 M.S. in Geological Sciences, Indiana University Bloomington
1999-2003 B.S. in Earth Sciences, National Cheng Kung University, Taiwan

AWARDS AND HONORS

2011 American Crystallographic Association; Pauling Poster Prize Winner
2010 Indiana University Bloomington; Estwing Award for Graduate Student Research
2008-10 Indiana University Bloomington; Grassmann Fellowship
2007 Clay Mineral Society; Excellence in Student Poster Award
2007 Indiana University Bloomington; Associate Instructor Teaching Award
2006 Bruker AXS excellence in X-ray diffraction scholarship
2003 Geological Society of China; Winner of Honorable Student Poster
2000-02 National Cheng Kung University; College of Science President's Award (top 5% in class)

GRANTS

2010 Mineralogy Society of America; Edward H. Kraus Crystallographic Research Grant
2008-11 Student Travel Grants awarded by the American Crystallographic Association (2011); the Women in Science Program, Indiana University (2010); the Geological Society of America (2009); the Geochemical Society (2008); and the College of Arts & Sciences, Indiana University (2008)

LIST OF RESEARCH EXPERIENCE

- **Static structure probes at varied length scales and *in-situ* experiments:** Ultra small- and small-angle scattering; Powder X-ray/neutron diffraction; Crystal and defect structure modeling; Pair distribution function analysis
- **Spectroscopic characterization of H_2O and OH dynamics at different time scales:** Infrared spectroscopy; Quasielastic neutron scattering; Inelastic neutron scattering
- **Others:** Thermogravimetric/differential scanning calorimetric analysis; Scanning electron microscope and energy dispersive spectrometry; Transmission electron microscope

PUBLICATIONS

Peer-reviewed journal publications[1]

1. Wang, H.-W., Fanelli, V.R., Reiche, H.M., Larson, E., Taylor, M.A., Xu, H., Zhu, J., Siewenie, J., and Page, K. (2014) Pressure/temperature fluid cell apparatus for the NPDF instrument: Probing atomic structure in situ. Review of Scientific Instruments (accepted).

[1] Search engines used for citation information are ISI Web of Knowledge and Google scholar (updated on Nov. 2014).

2. Zepeda-Alarcon, E., Nakotte, H., Gualtieri, A.F., King, G., Page, K., Vogel, S.C., Wang, H.-W., and Wenk, H.-R. (2014) Magnetic and nuclear structure of goethite (α-FeOOH): a neutron diffraction study. Applied Crystallography (accepted).

3. Wang, H.-W., DelloStritto, M., Kumar, N., Kolesnikov, A.I., Kent, P.R.C., Kubicki, J.D., Wesolowski, D.J., and Sofo, J.O. (2014) Vibrational density of states of strongly H-bonded interfacial water: In-sights from inelastic neutron scattering and theory. The Journal of Physical Chemistry C, 118, 10805-1083 (*Cited by 0*).

4. Wang, H.-W., Anovitz, L.M., Burg, A., Cole, D.R., Allard, L.F., Jackson, A.J., Stack, A.G., and Rother, G. (2013) Multi-scale characterization of pore evolution in a combustion metamorphic complex, Hatrurium basin, Israel: Combining (ultra) small-angle neutron scattering and image analysis. Geochimica et Cosmochimica Acta, 121, 339-362 (*Cited by 3*).

5. Anovitz, L.M., Cole, D.R. Faulder, D.D., Sheets, J. Wang, H.-W., Rother, G. Wasbrough, M., Hjelm, R., Hartl, M., Pipich, V., and Fu, Z. (2013) Analysis of Multiscale porosity at the COSO geothermal field. Proceedings, 38th workshop on Geothermal Reservoir Engineering, SGP-TR-198 (*Cited by 1*).

6. Wang, H.-W., Wesolowski, D.J., Proffen, T.E., Vlcek, L., Wang, W., Allard, L.F., Kolesnikov, A.I., Feygenson, M., Anovitz, L.M., and Paul, R.L. (2013) Structure and stability of SnO_2 nanocrystals and surface-bound water species. Journal of the American Chemical Society, 135, 6885-6895 (*Cited by 6*).

7. Wang, H.-W. and Bish, D.L. (2012) Infrared spectroscopic characterization of dehydration and accompanying phase transition behaviors in NAT-topology zeolites. Physics and Chemistry of Minerals, 39, 277-293 (*Cited by 1*).

8. Bish, D.L. and Wang, H.-W. (2010) Phase transitions in natural zeolites and the importance of P_{H_2O}. Philosophical Magazine, 90, 2425-2441 (*Cited by 4*).

9. Wang, H.-W., Bish, D.L., and Ma, H. (2010) P_{H_2O}-dependent structural phase transitions in the zeolite mesolite: Real- and reciprocal-space crystal structure refinements. American Mineralogist, 95, 686-698 (*Cited by 2*).

10. Wang, H.-W. and Bish, D.L. (2010) X-ray diffraction study of the zeolite natrolite: T-P_{H_2O} phase diagram and phase transitions during dehydration/rehydration. European Journal Mineralogy, 22, 271-284 (*Cited by 4*).

11. Ma, H., Bish, D.L., Wang, H.-W., and Chipera, S.J. (2009b) Structure determination of the 2.5-hydrate $MgSO_4$ phase by simulated annealing. American Mineralogist, 94, 1071-1074 (*Cited by 11*).

12. Ma, H., Bish, D.L., Wang, H.-W., and Chipera, S.J. (2009a) Determination of the crystal structure of sanderite, $MgSO_4 \cdot 2H_2O$, by X-ray powder diffraction and the charge flipping method. American Mineralogist, 94, 622-625 (*Cited by 15*).

13. Wang, H.-W. and Bish, D.L. (2008) A P_{H_2O}-dependent structural phase transition in the zeolites natrolite. American Mineralogist, 93, 1191-1194 (*Cited by 7*).

14. Wang, H.-W. and Bish, D.L. (2006) Dehydration/rehydration-induced structural phase transition in natrolite. Bruker Advanced X-ray Solutions, Bruker AXS INC (*Cited by 0*).

INVITED TALKS

1. Structural and dynamics of interfacial water: Insights based on neutron scattering. 2014 LANSCE School on Neutron Scattering – Geosciences & Materials in Extreme Environments, Los Alamos National Laboratory, NM, USA.

2. Structure and dynamics of the surface water on SnO_2 nanocrystals. 2013 Center for Nanophase Materials Sciences/Neutron Sciences joint seminar, Oak Ridge National Laboratory, TN, USA & ACA 2013 Annual Meeting, Honolulu, HI, USA.

3. Structural and interfacial H_2O/OH species: Two case studies on their roles in host structural stability. 2013 Advanced Photon Source, Argonne National Laboratory, IL, USA.

4. The role of host-guest interactions in nanoporous solids: A study of fibrous zeolites. 2011 Lujan Neutron Scattering Center, Los Alamos National Laboratory, NM, USA & 2011 Geochemistry and Interfacial Sciences group, Chemical Sciences Division, Oak Ridge National Laboratory, TN, USA.

CONFERENCE TALKS (<3 YEARS)

1. Local structure of opal: Implication for daigenetic environments. ACA 2014 Annual Meeting, Albuquerque, NM, USA.

2. High-pressure fluid cell for NPDF instrument: Probing interface reactions for finite systems. ACS 2014 Spring National Meeting, Dallas, TX, USA.

3. Structure and stability of SnO_2 nanocrystals and surface-bound water species. 2012 Workshop in Advanced Simulation Techniques for Total Scattering Data, Santa Fe, NM, USA.

4. Multi-scale characterization of pore evolution in a combustion metamorphic complex, Hatrurium basin, Israel: Combining (ultra) small-angle neutron scattering and image analysis. ACA 2012 Annual Meeting, Boston, MA, USA.

5. Hidden phase transitions and transformation mechanisms of NAT-topology zeolites in T-P_{H_2O} space. ACA 2011 Annual Meeting, New Orleans, LA, USA.

REFERENCES

Prof. David L. Bish
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