

HARLEY SKORPENSKA

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WORK EXPERIENCE

SCIENTIFIC ASSOCIATE GROUP LEADER
SPALLATION NEUTRON SOURCE – ORNL

September 2012 - Present
Oak Ridge, Tennessee

- Provide leadership and strategic direction to a culturally and technically diverse team of 9 staff to meet mission objectives established by the Directorate; most critically ensure effective, reliable, and safe operation of the 8 neutron instruments staffed by the team members, and deliver full support of the Neutron Sciences User Program
- Instill an operational discipline that maintains outstanding safety performance and supports a strong safety culture which embodies the Battelle Safe Conduct of Research principles
- Monitor team member performance and work environment for barriers, seek opportunities for development of skill sets, and foster protégé-mentor relationships
- Cultivate relationships with facility users and incorporate their feedback into improvement efforts to enhance instrument operations and workflows
- Incorporate insights and experience to influence organizational decision making in the efficient allocation of personnel and minimization of operational downtime
- Implemented cross-training within the group to establish depth and backup support for Neutron Scattering experiment operations; this effort widened the perspective of team members, afforded opportunities for growth, established a community of high performers, and strengthened the reputation of the team throughout the organization
- Demonstrated a commitment to hiring diversely, resulting in a group constituency that resembles the diversity of our country
- Foster collaborative interfaces with Neutron Instrument teams and Support groups
- Hold regular group meetings to discuss challenges and opportunities shared by team members, and provide the foundation for a supportive group culture
- Asserted a lead role in the Remote Experiments project for the directorate during the COVID pandemic, cutting across organizational boundaries to ensure alignment of priorities, establishment of practical requirements, and a realistic cadence for the development and deployment of the identified solution
- Asserted a lead role in the EPICS instrument data acquisition system upgrade; the upgrade stabilized the performance of the Neutron Instrument data acquisition systems across the facility by dramatically improving code maintainability, depth of support, and system reliability
- Undertook a sample can inventory strategy for the directorate; the realization of this effort addressed recurrent supply chain issues and inventory shortages, essential to positive control of irradiated samples and high throughput operations in the context of a DOE environment
- Developed a hardware solution in conjunction with software engineers to provide a generic instrument IO mechanism; this project yielded a resident analog and digital IO interface across the instrument suite that expedites the execution of novel experiment plans, as well as specialized vendor hardware integration

SCIENTIFIC ASSOCIATE – VULCAN
SPALLATION NEUTRON SOURCE – ORNL

February 2008 – September 2012
Oak Ridge, Tennessee

- In tandem with the Instrument Engineer, managed project schedule of installation tasks carried out by contractors, vendors, and support staff to facilitate the construction of the \$18 Million Engineering Materials Diffractometer (VULCAN) at the Spallation Neutron Source (SNS)
- Performed commissioning of specialized instrument system hardware including review of specifications & drawings, acceptance testing, and on-site system integration
- Contributed to the design, fabrication, and integration of a variety of sample environments utilized at VULCAN which employ compressed gases, servo hydraulics, furnaces, cryogenics, vacuum systems, RF and high current power supplies
- Managed VULCAN lab space and served as point of contact for all instrument-related issues
- Provided 24/7 support to the general user program and instrument team to ensure robust and reliable operations of VULCAN during periods of neutron production
- Ensured adherence to Battelle Safe Conduct of Research principles and established procedures
- Collaborated with fellow instrument teams and support groups to further the mission of the facility
- Coordinated with instrument support groups to expedite repairs on critical beam line equipment and establish preventive maintenance schedules
- Maintained instrument specific software, documentation, and electronic logbook
- Assisted with SNS and ORNL sponsored events, including the annual neutron scattering school

SENIOR NEUTRON CHOPPER TECHNICIAN
SPALLATION NEUTRON SOURCE - ORNL

April 2006 – February 2008
Oak Ridge, Tennessee

- Assembled, tested, installed, integrated, commissioned, operated, and maintained T_0 , Bandwidth, and Fermi Choppers for neutron instruments, providing 24/7 troubleshooting as needed
- Interfaced with scientists and engineers to provide Chopper technical support and recommendations, as well as coordination of installation and maintenance schedules for neutron instruments
- Designed and programmed motion control system to expedite T_0 Chopper remote installation system to minimize radiation exposure to personnel

RESEARCH TECHNICIAN II
DEPARTMENT OF PHYSICS – UNIVERSITY OF HOUSTON

September 1998 – April 2006
Houston, Texas

- Served as acting lab manager in absence of supervisor
- Trained and assisted a diverse group of international graduate and undergraduate personnel in the safe production and analysis of High Temperature Superconductors (HTS)
- Sustained radiation safety compliance by way of monthly radiation surveys and strict control of radioactive materials and associated waste
- Maintained laboratory logbooks of sample production runs from preparation through characterization
- Conceptualized, procured, assembled, and automated 3-axis magnetic field mapping apparatus for HTS sample characterization

- Migrated and updated obsolete data analysis software from a 68k Macintosh OS 7 platform to a G4 Macintosh OS 10 platform, consisting of FORTRAN code and LabVIEW software
 - Performed maintenance, repair, and upgrades on all laboratory equipment
 - Upgraded workhorse 1 Tesla electromagnet power supply and associated cooling system with spare parts yielding a 100% increase in duty cycle and 20% more field
 - Conducted XRD measurements and data analysis of unique HTS compounds
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EDUCATION

MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING

2017

UNIVERSITY OF TENNESSEE

Knoxville, Tennessee

BACHELOR OF SCIENCE IN ELECTRICAL TECHNOLOGY

2004

UNIVERSITY OF HOUSTON

Houston, Texas

TRAINING & SKILLS

- ORNL EOD Leader Path
- FARO metrology instruments
- MTS Servo-Hydraulic Load Frame
- Bio-Logic Potentiostat systems
- LabVIEW Associate Developer
- Linux, MacIntosh, and Windows operating systems

MEMBERSHIPS & AWARDS

- 2021 ORNL Awards Night – Technical Support for Operations
 - Neutron Scattering Society of America 2020
 - International Society for Sample Environment 2018
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PUBLICATIONS

F. Ossler, L. J. Santodonato, J. M. Warren, C. E.A. Finney, J. Bilheux, R. A. Mills, H. D. Skorpenske, H. Z. Bilheux, "In situ monitoring of hydrogen loss during pyrolysis of wood by neutron imaging." Proceedings of the Combustion Institute, Volume 37, Issue 2, 1273-1280 (2019).

<https://doi.org/10.1016/j.proci.2018.07.051>

S. E. Nagler, A. D. Stoica, G. M. Stoica, K. An, H. D. Skorpenske, O. Rios, D. B. Hendin, N. W. Bower, "Time-of-Flight Neutron Diffraction (TOF-ND) Analyses of the Composition and Minting of Ancient Judaeon "Biblical" Coins." Journal of Analytical Methods in Chemistry 2019, 6164058 (2019).

<https://doi.org/10.1155/2019/6164058>

Wu, Wei; Stoica, Alexandru D.; Yu, Dunji; Frost, Matthew J.; Skorpenske, Harley D.; An, Ke. "Bending Behavior of a Wrought Magnesium Alloy Investigated by the In-Situ Pinhole Neutron Diffraction Method." *Crystals* 8, no. 9: 348 (2018).

<https://doi.org/10.3390/cryst8090348>

Granroth, G. E., An, K., Smith, H. L., Whitfield, P., Neufeind, J. C., Lee, J., Zhou, W., Sedov, V. N., Peterson, P. F., Parizzi, A., Skorpenske, H., Hartman, S. M., Huq, A. & Abernathy, D. L. "Event-based processing of neutron scattering data at the Spallation Neutron Source." *Journal of Applied Crystallography* 51, 616-629 (2018).

<http://dx.doi.org/10.1107/S1600576718004727>

Wu, Wei; Stoica, Alexandru D.; Berry, Kevin D.; Frost, Matthew J.; Skorpenske, Harley D.; An, Ke. "PIND: High spatial resolution by pinhole neutron diffraction." *Applied Physics Letters* 253501, Vol 112, Issue 25 (2018).

<https://doi.org/10.1063/1.5026066>

An, Ke; Armitage, Douglas P.; Yu, Zhenzhen; Dickson, Richard W.; Mills, Rebecca A.; Feng, Zhili; Skorpenske, Harley D. "RHEGAL: Resistive heating gas enclosure loadframe for in situ neutron scattering." *Review of Scientific Instruments* 092901, Vol 89, Issue 9 (2018).

<http://dx.doi.org/10.1063/1.5033566>

G. Song, J. Y. Lin, J. Bilheux, Q. Xie, L. Santodonato, J. J. Molaison, H. D. Skorpenske, A. M. dos Santos, C. A. Tulk, K. An, A. D. Stoica, M. M. Kirka, R. R. Dehoff, A. S. Tremsin, J. Bunn, L. M. Sochalski-Kolbus, H. Z. Bilheux, "Characterization of Crystallographic Structures Using Bragg-Edge Neutron Imaging at the Spallation Neutron Source." *Journal of Imaging* 3(4), 65 (2017).

<http://dx.doi.org/10.3390/jimaging3040065>

J. Niedziela, R. A. Mills, M. J. Loguillo, H. D. Skorpenske, D. Armitage, H. L. Smith, J. Y. Lin, M. S. Lucas, M. B. Stone, D. L. Abernathy, "Design and operating characteristic of a vacuum furnace for time-of-flight inelastic neutron scattering measurements." *Review of Scientific Instruments* 88(10), 105116 (2017).

<https://doi.org/10.1063/1.5007089>

O. Benafan, A. Garg, R. D. Noebe, H. D. Skorpenske, K. An, N. Schell, "Deformation characteristics of the intermetallic alloy 60NiTi." *Intermetallics* 82, 40-52 (2017).

<http://dx.doi.org/10.1016/j.intermet.2016.11.003>

Benafan, O. and Padula, S. A. and Skorpenske, H. D. and An, K. and Vaidyanathan, R., "Design and implementation of a multiaxial loading capability during heating on an engineering neutron diffractometer" *Review of Scientific Instruments*, 85, 103901 (2014).

<http://dx.doi.org/10.1063/1.4896042>

H. Sueyoshi, N. Ishikawa, H. Inoue, K. Hiraoka, T. Kasuya, K. An, H. Skorpenske, "Analysis of Retained Austenite and Residual Stress Distribution in Ni-Cr Type High Strength Steel Weld by Neutron Diffraction" *Materials Science Forum*, Vols. 783-786, pp. 2115-2119, (2014).

<http://dx.doi.org/10.4028/www.scientific.net/MSF.783-786.2115>

Lee S, Skorpenske H, Stoica AD, An K, Wang X, Noyan IC., "Measurement of Interface Thermal Resistance With Neutron Diffraction." *ASME Journal of Heat Transfer*. (2013); 136(3):031302-031302-12.

<http://dx.doi.org/10.1115/1.4025500>

R.C. Bowman Jr., E.A. Payzant, P.R. Wilson, D.P. Pearson, A. Ledovskikh, D. Danilov, P.H.L. Notten, K. An, H.D. Skorpenske, D.L. Wood, "Characterization and analyses of degradation and recovery of LaNi_{4.78}Sn_{0.22} hydrides following thermal aging" *Journal of Alloys and Compounds*, Volume 580, Supplement 1 (2013), Pages S207-S210.

<http://dx.doi.org/10.1016/j.jallcom.2013.03.129>

Wang, Xun-Li; An, Ke; Cai, Lu; Feng, Zhili; Nagler, Stephen; Daniel, Claus; Rhodes, Kevin; Stoica, Alexandru; Skorpenske, Harley; Liang, Chengdu; Zhang, Wei; Kim, Joon; Qi, Yue; Harris, Stephen. "Visualizing the chemistry and structure dynamics in lithium-ion batteries by in-situ neutron diffraction." *Scientific Reports* 2, 747, (2012).

<http://dx.doi.org/10.1038%2fsrep00747>

Ma, Dong; Stoica, Alexandru; An, Ke; Yang, Ling; Bei, Hongbin; Mills, Rebecca A.; Skorpenske, Harley; Wang, Xun-Li. "Texture Evolution and Phase Transformation in Titanium Investigated by In-Situ Neutron Diffraction." *Metallurgical and Materials Transactions A* 42A, no. 6, 1444, (2011).

<http://dx.doi.org/10.1007%2fs11661-011-0667-2>

An, Ke; Skorpenske, Harley; Stoica, Alexandru; Wang, Xun-Li; Cakmak, Ercan. "First in-situ lattice strains measurements under load at VULCAN." *Metallurgical and Materials Transactions A* 42, no. 1, 95—99, (2011).

<http://dx.doi.org/10.1007%2fs11661-010-0495-9>

Wang, Xun-Li; Holden, T. M.; Stoica, Alexandru; An, Ke; Skorpenske, Harley David; Rennich, George Q.; Iverson, Erik B.; Jones, Amy Black. "First Results from the VULCAN Diffractometer at the SNS." *Materials Science Forum* 652, 105—110, (2010).

<http://dx.doi.org/10.4028%2fwww.scientific.net%2fMSF.652.105>

An, Ke; Clausen, Bjørn; Stoica, Alexandru; Armstrong, Beth; Skorpenske, Harley; Wang, Xun-Li. "In-situ neutron diffraction study of phase stress evolutions in a Ni-based porous anode under uniaxial load." *Applied Physics A* 99, no. 3, 579—584, (2010).

<http://dx.doi.org/10.1007%2fs00339-010-5629-9>

Sawh, Ravi-Persad; Weinstein, Roy; Gandini, Alberto; Skorpenske, Harley; Parks, Drew. "A pinning puzzle: two similar, non-superconducting chemical deposits in YBCO—one pins, the other does not." *Superconducting Science and Technology* 22 095007, (2009).

<http://dx.doi.org/10.1088/0953-2048/22/9/095007>

Sawh, Ravi-Persad; Weinstein, Roy; Obot, Victor; Parks, Drew; Gandini, Alberto; Skorpenske, Harley. "Self-assembling nano-diameter needlelike pinning centers in YBCO, utilizing a foreign element dopant." *Journal of Physics: Conference Series* 43 239-242, (2006).

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