

CONTACT Personal Homepage  
INFORMATION E-mail  
Google Scholar

PROFESSIONAL  
FOCUS Highly interdisciplinary thinker with strong interpersonal skills and a passion for teaching and student-led research. Current research in synthesis and characterization of wide-range of quantum materials such as frustrated magnetism, topological order, and correlated electron systems. Interested in developing solid-state chemistry/physics coursework and research program to encourage cross-discipline student engagement.

EDUCATION **University of Maryland**, College Park, MD Aug. 2015 - March 2020

- Ph.D. in Chemical Physics, GPA: **3.69/4**  
*Magnetism and superconductivity in topotactically modified transition metal chalcogenides*

**Washington College**, Chestertown, MD Aug. 2011 - May 2015

- B.S in Chemistry and B.A in Mathematics, GPA: **3.63/4**  
*Group theory and vibrational spectroscopy with simple and symmetrical astrochemical applications.*
- *Cum laude* with Honors in Mathematics and Minor in Physics

PROFESSIONAL EXPERIENCE **Department of Chemistry - The Johns Hopkins University** February 2022 - current

- Postdoctoral Research Scholar
- Advisor: Dr. Tyrel M. McQueen

**Department of Physics - United States Naval Academy** March 2020 - February 2022

- Assistant Research Professor
- Advisor: Dr. Michelle E. Jamer

**Department of Chemistry - University of Maryland** Aug. 2015 - March 2020

- Graduate Research Assistant and Teaching Assistant
- Advisors: Dr. Efrain E. Rodriguez

**Quantum Materials Center - University of Maryland** Aug. 2015 - March 2020

- Graduate Research Assistant and Teaching Assistant
- Advisors: Dr. Johnpierre Paglione

**Geophysical Laboratory - Carnegie Institution of Washington** June 2014 - August 2014

- Summer Scholars Intern
- Advisor: Dr. Muhetaer Aihaiti

PUBLICATIONS

1. **Wilfong, B.**, Fedorko, A., Baigutlin, D. R., Miroshkina, O. N., Zhou, X., Stephen, G. M., Friedman, A. L., Sharma, V., Bishop, O., Barua, R., Bennett, S. P., Young Chung, D., Kanattzidis, M. G., Buchelnikov, V. D., Sokolovskiy, V. V., Barbiellini, B., Bansil, A., Heiman, D., & Jamer, M. E. Helical spin ordering in room-temperature metallic antiferromagnet  $\text{Fe}_3\text{Ga}_4$ . *Journal of Alloys and Compounds*, 2022, 917, 165532.
2. **Wilfong, B.**, Sharma, V., Naphy, J., Bishop, O., Bennett, S. P., Prestigiacomo, J., Barua, R., & Jamer, M. E. Altering the magnetic ordering of  $\text{Fe}_3\text{Ga}_4$  via thermal annealing and hydrostatic pressure. *Journal of Alloys and Compounds*, 2022, 894, 162421.
3. Li, T., Jayathilake, R., Balisetty, L., Zhang, Y., **Wilfong, B.**, Diethrich, T. J., & Rodriguez, E. E. Crystal field-induced lattice expansion upon reversible oxygen uptake/release in  $\text{YbMn}_x\text{Fe}_{2-x}\text{O}_4$ . *Materials Advances*, 2022, 3, (2), 1087-1100.

4. Zheng, H., **Wilfong, B.**, Hickox-Young, D., Rondinelli, J. M., Zavali, P., & Rodriguez, E. E. Polar ferromagnetic metal by intercalation of metal-amine complexes. *Chemistry of Materials*, 2021, 33, (13), 4936-4947.
5. **Wilfong, B.**, Liyanage, W. N. L. C., Naphy, J., Gilbert, D., Bennett, S. P. & Jamer, M. E. Using methodical compositional tuning to optimize  $\text{Co}_{1-x}\text{Tb}_x$  structural and magnetic properties. *Applied Physics Letters*, 2021, 118, (21), 212405.
6. **Wilfong, B.**, Zhou, X., & Rodriguez, E. E. Hydrothermal Synthesis and Crystal Growth. In *Fundamentals of Quantum Materials: A Practical Guide to Synthesis and Exploration*, 99-136.
7. Campbell, D. J., Collini, J., Slawinska, J., Autieri, C., Wang, L., Wang, K., **Wilfong, B.**, Eo, Y.S., Neves, P., Graf, D., Rodriguez, E. E., Butch, N. P., Buongiorno Nardelli, M., & Paglione, J. Topologically driven linear magnetoresistance in helimagnetic FeP. *npj Quantum Materials*, 2021, 6, (1), 1-7.
8. Jamer, M. E., **Wilfong, B.**, Buchelnikov, V. D., Sokolovskiy, V. V., Miroshkina, O. N., Zagrebina, M. A., Baigutlin, D. R., Naphy, J., Assaf, B. A., Lewis, L. H., & Pulkkinen, A. Superconducting and Antiferromagnetic Properties of Dual-phase  $\text{V}_3\text{Ga}$ . *Applied Physics Letters*, 2020, 117, (6), 062401.
9. **Wilfong, B.**, Zhou, X., Zheng, H., Babra, N., Brown, C.M., Lynn, J.W., Taddei, K.M., Paglione, J., & Rodriguez, E. E., Long-range magnetic order in hydroxide layer-doped  $(\text{Li}_{1-x-y}\text{Fe}_x\text{Mn}_y\text{OD})$ . *Physical Review Materials*, 2020, 4, (3), 034803.
10. Zhou, X., Wang, L., Fan, X., **Wilfong, B.**, Liou, S.C., Wang, Y., Zheng, H., Feng, Z., Wang, C., & Rodriguez, E. E., Isotope Effect between  $\text{H}_2\text{O}$  and  $\text{D}_2\text{O}$  in Hydrothermal Synthesis. *Chemistry of Materials*, 2020, 32, (2), 769.
11. Virtue A., Zhou, X., **Wilfong, B.**, Lynn, J. W., Taddei, K., Zavali, P., Wang, L., & Rodriguez, E. E. Magnetic order effects on the electronic structure of  $\text{KMnS}_2$  ( $M = \text{Cu, Li}$ ) with the  $\text{ThCr}_2\text{Si}_2$ -type structure. *Physical Review Materials*, 2019, 3, (4), 044411.
12. **Wilfong, B.**, Zhou, X., Vivanco, H., Campbell, D. J., Wang, K., Graf, D., Paglione, J., & Rodriguez, E. E. Frustrated magnetism in the tetragonal  $\text{CoSe}$  analog of superconducting  $\text{FeSe}$ . *Physical Review B*, 2018, 97 (10), 104408.
13. Zhou, X., **Wilfong, B.**, Liou, S. C., Hodovanets, H., Brown, C. M., & Rodriguez, E. E. Proton and ammonia intercalation into layered iron chalcogenides. *Chemical Communications*, 2018, 54, (50), 6895-6898.
14. Zhou, X., Eckberg, C., **Wilfong, B.**, Liou, S. C., Vivanco, H., Paglione, J., & Rodriguez, E. E. Superconductivity and magnetism in iron sulfides intercalated by metal hydroxides. *Chemical Science*, 2017, 8, (5), 3781-3788.
15. Larson, A. M., **Wilfong, B.**, Moetakef, P., Brown, C. M., Zavali, P., & Rodriguez, E. E. Metal-insulator transition tuned by magnetic field in  $\text{Bi}_{1.7}\text{V}_8\text{O}_{16}$  hollandite. *Journal of Materials Chemistry C*, 2017, 5, (20), 4967-4976.
16. Zhou, X., **Wilfong, B.**, Vivanco, H., Paglione, J., Brown, C. M., & Rodriguez, E. E. Metastable layered cobalt chalcogenides from topochemical deintercalation. *Journal of the American Chemical Society*, 2016, 138, (50), 16432-16442.
17. **Wilfong, B.**, Ahart, M., Gramsch, S. A., Stock, C., Li, X., Luo, H., & Hemley, R. J. High  $P - T$  Raman study of transitions in relaxor multiferroic  $\text{Pb}(\text{Fe}_{0.5}\text{Nb}_{0.5})\text{O}_3$ . *Journal of Raman Spectroscopy*, 2016, 47, (2), 227-232.

#### PRESENTATIONS

1. *Hydrothermal Synthesis: Basics and Applications to Quantum Materials*  
**Wilfong, B.** - Invited Speaker - [Fundamentals of Quantum Materials](#)  
Fundamentals of Quantum Materials - Winter School, University of Maryland - June 2022
2. *Evolution of magnetic order under high fields and external pressure in metallic  $\text{Fe}_3\text{Ga}_4$*   
**Wilfong, B.**, Sharma, V., Fedorko, A., Bishop, O., Zhou, X., Stephen, G. M., Friedman, A. L., Heiman, D., Barua. R., & Jamer, M. E.  
15th Joint Intermag-MMM Conference, New Orleans, LA, January 2022.
3. *Hydrothermal Synthesis: Basics and Applications to Quantum Materials*  
**Wilfong, B.** - Invited Speaker - [Fundamentals of Quantum Materials](#)  
Fundamentals of Quantum Materials - Winter School, University of Maryland - January 2020

4. *Hydrothermal design of magnetic heterolayer iron-based superconductors*  
**Wilfong, B.**, Zhou, X., Zheng, H., Babra, N., Rodriguez, E. E. & Paglione, J.  
 American Physical Society - March Meeting, Boston, MA, March 2019.
5. *Coexistence of Magnetism and Superconductivity by Chemical Design of Transition Metal Doped LiOHFeSe*  
**Wilfong, B.**, Zhou, X., & Rodriguez, E. E.  
 American Conference for Neutron Scattering - MRS, College Park, MD, June 2018.
6. *Metastable layered metal chalcogenides: From superconductivity to ferromagnetism*  
**Wilfong, B.**, Zhou, X., Vivanco, H., & Rodriguez, E. E.  
 American Chemical Society - National Meeting, San Francisco, CA, March 2017.
7. *in-situ Raman spectroscopic investigation of relaxor multiferroic  $Pb(Fe_{0.5}Nb_{0.5})O_3$  under high pressure and temperature conditions.*  
**Wilfong, B.**, Ahart, M., Gramsch, S. A., Li, X., Luo, H., Stock, C., & Hemley, R. J.  
 American Physical Society - March Meeting, San Antonio, TX, March 2015.

TEACHING  
EXPERIENCE

**United States Naval Academy**

- SP211 - General Physics I Summer 2020
  - Taught SP211 fully remote as a 8 week class to 20 students - combined asynchronous lectures and synchronous problem solving sessions

**University of Maryland**

- CHM146 - General Chemistry for Majors Spring 2017
  - Led discussions, problem solving sessions and office hours for 50 students, included all assignment/exam grading.
- CHM484 - Physical Chemistry II Lab Fall 2016
  - Led and instructed students in spectroscopic lab 30 students, included lab-related lectures/discussion and lab report grading.
- CHM483 - Physical Chemistry I Lab Spring 2016
  - Led and instructed students in analytical lab 30 students, included lab-related lectures/discussion and lab report grading.
- CHM132 - General Chemistry I Lab Fall 2015
  - Led and instructed students in chemistry lab 75 students, included lab-related lectures/discussion and lab report grading.