

Long Yang

Assistant Professor

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EDUCATION

PhD in Materials Science and Engineering , Columbia University, New York, USA	2017 - 2021
MSc in Materials Science and Engineering , Columbia University, New York, USA	2015 - 2016
BSc in Optical Info Science and Engineering , Fudan University, Shanghai, China	2011 - 2015

APPOINTMENTS

Assistant Professor , Materials Science and Engineering, Tongji University, China	2022 - Present
Co-Advised Research Assistant , Neutron Diffraction Group, Oak Ridge National Lab, USA	2017 - 2020

HONORS & AWARDS

- Shanghai Leading Talents Program, 2021 (Overseas)
- WangDao Scholar, 2015 (Program hosted by Nobel Laureate Tsung-Dao Lee)
- Fudan University Scholarship, 2013-2015 (Multiple times)
- China National Scholarship, 2012 (Top undergrad honor in China)

ACTIVITIES

Journal Reviewers:

- ACS Applied Nano Materials

Community Scientific Software Efforts:

- PDF in the Cloud: cloud-based diffraction data analysis platform at <https://pdfitc.org>.
- PDFgui: local structure modeling program for pair distribution function data (Developer for the 2.0 new version).
- Diffraction Data Pipeline: auto time-of-flight neutron diffraction data reduction, calibration, and fitting of Rietveld and PDF refinements for NOMAD beamline at Spallation Neutron Source (SNS), Oak Ridge National Lab.

CONFERENCES

1. *Structure-mining: An Automated Tool to Find Candidate Structures from Neutron and X-ray PDF Data*, PDF-2020 workshop, Remote, UK, China & USA, Dec 2020 (Invited talk)
2. *Structure-mining: An Automated Tool to Find Candidate Structures from Neutron and X-ray Diffraction Data*, 10th American Conference on Neutron Scattering (ACNS 2020), Remote, USA, July 2020 (Oral presentation)
3. *Towards Machine Learning on Experimental Nanostructure Data*, Columbia University Data Science Day 2020, New York, USA, Mar 2020 (Oral presentation, recorded at <https://youtu.be/8xwWrUKhN4>)
4. *Introduction of DiffPy-CMI: What It Can Do Beyond PDFgui*, 2nd US School on Total Scattering Analysis, Oak Ridge, USA, Aug 2018 (Invited talk)
5. *Role of Local Structural Distortions on Mo and V Nitrides with The Pair Distribution Function Analysis*, Quantum Complex Matter 2018 (QCM 2018), Laboratori Nazionali di Frascati, Rome, Italy, June 2018 (Poster)

PUBLICATIONS

Google Scholar: <https://scholar.google.com/citations?user=H2mOKp8AAAAJ>
H-index=8, Citations=357 (Dated at April 27, 2022)

Journal Articles and Books

- [1] Z. Thatcher, C.-H. Liu, L. Yang, B. C. McBride, G. Thinh Tran, A. Wustrow, M. A. Karlsen, J. R. Neilson, D. B. Ravnsbæk, and S. J. L. Billinge. nmfMapping: A cloud-based web application for non-negative matrix factorization of powder diffraction and pair distribution function datasets, *Acta Crystallographica Section A: Foundations and Advances*, 78(3), May 2022. doi: 10.1107/S2053273322002522.
- [2] Simon J. L. Billinge, Sandra H. Skjærvø, Maxwell W. Terban, Songsheng Tao, Long Yang, Yevgeny Rakita, and Benjamin A. Frandsen. Local structure determination using total scattering data. In *Reference Module in Chemistry, Molecular Sciences and Chemical Engineering*. Elsevier, January 2021.
- [3] Long Yang, Elizabeth A. Culbertson, Nancy K. Thomas, Hung T. Vuong, Emil T. S. Kjær, Kirsten M. Ø Jensen, Matthew G. Tucker, and Simon J. L. Billinge. A cloud platform for atomic pair distribution function analysis: PDFitc, *Acta Crystallographica Section A: Foundations and Advances*, 77(1):2–6, January 2021. doi: 10.1107/S2053273320013066.
- [4] Long Yang, Robert J. Koch, Hong Zheng, John F. Mitchell, Weiguo Yin, Matthew G. Tucker, Simon J. L. Billinge, and Emil S. Bozin. Two-orbital degeneracy lifted local precursor to a metal-insulator transition in MgTi_2O_4 , *Physical Review B*, 102(23):235128, December 2020. doi: 10.1103/PhysRevB.102.235128.
- [5] Muhammad Boota, Chi Chen, Long Yang, Alexander I. Kolesnikov, Naresh C. Osti, William Porzio, Luisa Barba, and Jianjun Jiang. Probing Molecular Interactions at MXene–Organic Heterointerfaces, *Chemistry of Materials*, 32(18):7884–7894, September 2020. doi: 10.1021/acs.chemmater.0c02662.
- [6] L. Yang, P. Juhás, M. W. Terban, M. G. Tucker, and S. J. L. Billinge. Structure-mining: Screening structure models by automated fitting to the atomic pair distribution function over large numbers of models, *Acta Crystallographica Section A: Foundations and Advances*, 76(3):395–409, May 2020. doi: 10.1107/S2053273320002028.
- [7] Xu Xiao, Hao Wang, Weizhai Bao, Patrick Urbankowski, Long Yang, Yao Yang, Kathleen Maleski, Linfan Cui, Simon J. L. Billinge, Guoxiu Wang, and Yury Gogotsi. Two-Dimensional Arrays of Transition Metal Nitride Nanocrystals, *Advanced Materials*, 31(33):1902393, June 2019. doi: 10.1002/adma.201902393.
- [8] Alexander P. Aydt, Boyu Qie, Andrew Pinkard, Long Yang, Qian Cheng, Simon J. L. Billinge, Yuan Yang, and Xavier Roy. Microporous Battery Electrodes from Molecular Cluster Precursors, *ACS Applied Materials & Interfaces*, 11(12):11292–11297, March 2019. doi: 10.1021/acsami.8b18149.
- [9] Wei Cao, Long Yang, Stéphane Auffret, and William E. Bailey. Nearly isotropic spin-pumping related Gilbert damping in $\text{Pt}/\text{Ni}_{81}\text{Fe}_{19}/\text{Pt}$, *Physical Review B*, 99(9):094406, March 2019. doi: 10.1103/PhysRevB.99.094406.
- [10] Xu Xiao, Patrick Urbankowski, Kanit Hantanasirisakul, Yao Yang, Stephen Sasaki, Long Yang, Chi Chen, Hao Wang, Ling Miao, Sarah H. Tolbert, Simon J. L. Billinge, Héctor D. Abruña, Steven J. May, and Yury Gogotsi. Scalable Synthesis of Ultrathin Mn_3N_2 Exhibiting Room-Temperature Antiferromagnetism, *Advanced Functional Materials*, 29(17):1809001, March 2019. doi: 10.1002/adfm.201809001.
- [11] Julien Lombardi, Long Yang, Frederick A. Pearsall, Nasim Farahmand, Zheng Gai, Simon J. L. Billinge, and Stephen O’Brien. Stoichiometric Control over Ferroic Behavior in $\text{Ba}(\text{Ti}_{1-x}\text{Fe}_x)\text{O}_3$ Nanocrystals, *Chemistry of Materials*, 31(4):1318–1335, February 2019. doi: 10.1021/acs.chemmater.8b04447.
- [12] Patrick Urbankowski, Babak Anasori, Kanit Hantanasirisakul, Long Yang, Lihua Zhang, Bernard Haines, Steven J. May, Simon J. L. Billinge, and Yury Gogotsi. 2D molybdenum and vanadium nitrides synthesized by ammoniation of 2D transition metal carbides (MXenes), *Nanoscale*, 9(45):17722–17730, November 2017. doi: 10.1039/C7NR06721F.