

Tianyu Li

240-413-6055 | tianyli@umd.edu | <https://www.linkedin.com/in/tianyu-li-164545165/>

Education

09/2013—07/2017:

B.S. in Chemistry, Nankai University

10/2016—05/2017:

Exchange Undergraduate Research Assistant Internship, Yale University

Under supervision of Prof. Judy Cha

08/2017—current (expected to graduate in 10/2022):

Ph. D. Candidate in Chemistry, Graduate Research Assistant, Teaching Assistant

Under supervision of Prof. Efrain E. Rodriguez

Scientific and/or Technical Expertise:

- Scientific Writing and Speaking
- Teaching
- Material Chemistry, Inorganic Chemistry, Surface Chemistry, Solid State Chemistry
- Material Science, Solid State Physics
- Chemical Synthesis: High Temperature Solid State Synthesis of Inorganic powder and single crystal materials (Atmosphere & Vacuums); Liquid Phase Organic & Inorganic Synthesis.
- Diffraction Techniques and Crystal Structure Refinement and Solving: Lab XRD, Synchrotron XRD, Neutron Diffraction.
- Use of GSASII, Fullprof, TOPAS and JANA for diffraction refinement
- Hydrogen Evolution Electrochemical Catalysis Measurement.
- Perform SEM & TEM Characterizations and Image Processing.
- Spectroscopy Measurement and Analysis: Raman Spectroscopy, IR&DRIFTS, XPS, Solid State NMR.
- Magnetic property measurement and Analysis
- Nanostructure and Porosity characterization: Small Angle X-Ray Scattering and data fitting, Nitrogen Adsorption.
- Python for Data Processing and Fitting, Python for Simple Machine/Statistical Learning.

Publications:

(*First author publication)

- (1) 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 $\text{YbMn}_x\text{Fe}_{2-x}\text{O}_4$. *Mater. Adv.* **2022**, 3 (2), 1087–1100. <https://doi.org/10.1039/d1ma00822f>.
- (2) Li, T*.; Jayathilake, R. S.; Taylor, D. D.; Rodriguez, E. E. Structural Studies of the Perovskite Series $\text{La}_{1-x}\text{Sr}_x\text{CoO}_{3-\delta}$ during Chemical Looping with Methane. *Chem. Commun.* **2019**, 55 (34), 4929–4932. <https://doi.org/10.1039/c8cc09573f>.
- (3) Li, T*.; Rodriguez, E. E. Mesoporous Perovskite Titanates. *Chem. Commun.* **2022**, 58 (6), 783–786. <https://doi.org/10.1039/d1cc05343d>.
- (4) Li, T*.; Tsyshevsky, R.; McEntee, M.; Durke, E. M.; Karwacki, C.; Rodriguez, E. E.; Kuklja, M. M. Titania Nanomaterials for Sarin Decomposition: Understanding Fundamentals. *ACS Appl. Nano Mater.* **2022**, 5 (5), 6659–6670. <https://doi.org/10.1021/acsnm.2c00693>.
- (5) Li, T*.; Tsyshevsky, R.; Algrim, L.; McEntee, M.; Durke, E. M.; Eichhorn, B.; Karwacki, C.; Zachariah, M. R.; Kuklja, M. M.; Rodriguez, E. E. Understanding Dimethyl Methylphosphonate Adsorption and Decomposition on Mesoporous CeO_2 . *ACS Appl. Mater. Interfaces* **2021**, 13 (45), 54597–54609. <https://doi.org/10.1021/acsmi.1c16668>.
- (6) T. Li*, L. Algrim, M. McEntee, R. Tsyshevsky, M. Leonard, E. M. Durke, C. Karwacki, M. M. Kuklja, M. R. Zachariah and E. E. Rodriguez, “Influence of Alio-Doping on the Surface Activity of Mesoporous CeO_2 towards DMMP Decomposition”. *Under review*.
- (7) Q. Qin, G. Zhang, Z. Chai, J. Zhang, Y. Cui, **T. Li** and W. Zheng, *Nano Energy*, 2017, **41**, 780–787.
- (8) L. Algrim, W. T. Gibbons, M. Leonard, **T. Li**, E. E. Rodriguez, B. W. Eichhorn, and M. R. Zachariah, “Adsorption Kinetics within Mesoporous SBA16 of DMMP and Methanol to Probe Mass Transfer Limits”. *Submitted*.
- (9) Leonard, M.; **Li, T.**; Kramer, M.; McDonnell, S. M.; Vedernikov, A. N.; Rodriguez, E. E., “Synthesis of Ordered Mesoporous Cerium Doped Titanium Oxide for Toxic Chemical Filtration”, *Journal of Hazardous Materials*. *Accepted*.

Other Research and Academic Experience

- As a general user on beamline granted on user proposals in Advanced Photon Source, Argonne National Lab, Making use of 11 Beamline and 17 Beamline. 06/2018 – Current.
- As a general user on beamtime granted on user proposals in Oak Ridge National Laboratory, making use of NOMAD and POWGEN Beamline. 10/2019 – Current.
- Contributed talks and Poster Presenter in 2022 ACNS Conference
- Contributed talks in 2022 ACS Spring Conference
- Contributed talks in 2021 ACS Fall Conference

- Contributed talks in 2021 North America Solid State Chemistry Conference
- Poster Presenter in 2021 ACS Spring Conference.
- Poster Presenter in 2019 ACS Spring Conference.
- Poster Presenter in 2019 DTRA Science Review.
- Chemical Analyst (Internship) in Quality and Quantity Inspection Center in An' ning, Kunming steel and iron corporation Limited, China. 06/20/2016 - 08/20/2016.

Honors and Awards:

- **Gongneng Awards**, 2013-2014 academic years by School of Chemistry, Nankai University.
- **Outstanding Volunteer**, 2013-2014 academic years by School of Chemistry, Nankai University.
- **Gongneng Awards**, 2014-2015 academic years by School of Chemistry, Nankai University.
- **Dean's Fellowship**, 2018 summer by Department of Chemistry and Biochemistry, University of Maryland, College Park.
- **Goldhaber Travel Grant**, 2019 spring by Graduate School, University of Maryland.
- **G.Forrest Woods Fellowship**, 2021 summer by Department of Chemistry and Biochemistry, University of Maryland, College Park.
- **Goldhaber Travel Grant**, 2022 spring by Graduate School, University of Maryland
- **Ann G. Wylie Dissertation Fellowship**, 2022 by Graduate School, University of Maryland (**One of highest honors of Graduate School in UMD**).