Tianyu Li

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Work Experience

Prior to 08/2017:

No employment history

08/2017—06/2018:

Graduate teaching assistant, University of Maryland, College Park

06/2018—12/2022:

Graduate research assistant, University of Maryland, College Park

01/2023—:

Postdoc Fellow in Materials Science, University of California, Santa Barbara

Advised by Prof. Ram Seshadri and Prof. Raphaele Clement

Education

08/2010-06/2017:

Senior high school, High School Affiliated to Yunnan Normal University (Kunming, China)

09/2013—07/2017:

B.S. in Chemistry, Nankai University (Tianjin, China)

10/2016—05/2017:

Exchange Undergraduate Research Assistant Internship, Yale University

Under supervision of Prof. Judy Cha

08/2017—11/2022:

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

University of Maryland, College Park

Under supervision of Prof. Efrain E. Rodriguez

Scientific and/or Technical Expertise:

- Scientific Writing and Speaking
- Teaching
- Material Chemistry, Inorganic Chemistry, Surface Chemistry, Solid Sate 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, Fullproof, 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:

1. Li, T.; Jayathilake, R. S.; Taylor, D. D.; Rodriguez, E. E. Structural Studies of the Perovskite Series La1-XSrxCoO3- δ during Chemical Looping with Methane. *Chem. Commun.* **2019**, *55* (34), 4929–4932.
2. 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 $YbMn_xFe_{2-x}O_4$. *Mater. Adv.* **2022**, *3* (2), 1087–1100.
3. Li, T.; Liou, SC,; Hong, S.; Zhang, Q.; Rodriguez, E. Investigation of the transition from LnFeMnO4 to LnFeMnO4.5 (Ln=Y, Lu, Yb). *Under preparation.*
4. Li, T.; Tsyshevsky, R.; Algrim, L.; McEntee, M.; Durke, E.; Eichhorn, B.; Karwacki, C.; Zachariah, M.; Kuklja, M.; Rodriguez, E. Understanding Dimethyl Methylphosphonate Adsorption and Decomposition on Mesoporous CeO2. ACS Appl. Mater. Interfaces. **2022** 13 (45), 54597–54609.
5. 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.
6. Li, T.; R.; Algrim, L.; McEntee, M.; Tsyshevsky, R.; Leonard, M.; Durke, E.; Karwacki, C.; Kuklja, M.; Zachariah, M .; Rodriguez, E. Aliovalent-Doping Effects on the Surface Activity of Mesoporous CeO2 towards Nerve Agent Simulant DMMP Decomposition. *Under Review, J. Phys. Chem. C*
7. Li, T.; Tsyshevsky, R.; Leonard, M. B.; McEntee, M.; Durke, E.; Karwacki, C.; Kuklja, M.; Rodriguez, E. Investigation of High Reactivity of Mesoporous CeO2 towards Dissociation of Chemical Warfare Agent GB. *Under preparation.*

8. Li, T.; Rodriguez, E. E. Mesoporous Perovskite Titanates via Hydrothermal Conversion. *Chem. Commun.* **2022**, *58* (6), 783–786.
9. Li, T.; Rodriguez, E. E. Simultaneous Multi-scale Structural Characterizations of Mesoporous CeO_2 With in-situ USAXS/WAXS. *submitted*.
10. Leonard, M. B.; Li, T.; Kramer, M. J.; McDonnell, S. M.; Vedernikov, A. N.; Rodriguez, E. E. Spectroscopic Studies of Methyl Paraoxon Decomposition over Mesoporous Ce-Doped Titanias for Toxic Chemical Filtration. *J. Hazard. Mater.* **2022**, *438*, 129536.
11. Algrim, L.; Gibbons, W. T.; Leonard, M.; Li, T.; Rodriguez, E. E.; Eichhorn, B. W.; Zachariah, M. R. Adsorption Kinetics within Mesoporous SBA16 of DMMP and Methanol to Probe Mass Transfer Limits. *Submitted*.

Other Research and Academical 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).