

Curriculum Vitae
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EDUCATION

- 2011 **Ph.D.**, Materials Science and Engineering, Northwestern University, IL, USA
Thesis: *Atomic-Scale Studies of Oxides Supported Catalysts by X-ray and Imaging Methods*, supervised by Professor Michael J. Bedzyk
- 2006 **M.S.**, Physics, McGill University, Montreal, Canada
Thesis: *Experimental and Theoretical Investigation of the Coherent X-ray Propagation and Diffraction*, supervised by Professor Mark Sutton
- 2004 **B.S.**, Physics, Peking University, Beijing, China
Thesis: *Strain Investigation and Ion Beam Modification of ZnO Optoelectronic Materials*

PROFESSIONAL APPOINTMENTS

- 2021-now **Associate Professor**, School of Chemical, Biological, and Environmental Engineering, Oregon State University, Corvallis, Oregon, USA
- 2021-now **Technical Advisory Committee**, Oregon Department of Energy on Renewable Hydrogen, Salem, Oregon, USA
- 2016-2021 **Assistant Professor**, School of Chemical, Biological, and Environmental Engineering, Oregon State University, Corvallis, Oregon, USA
- 2017 **Callahan Faculty Scholar** in Chemical Engineering, Oregon State University, Corvallis, Oregon, USA
- 2013-2016 **Postdoctoral Fellow**, Joint Center for Energy Storage Research (JCESR), Argonne National Laboratory, with Dr. Paul Fenter
- 2011-2013 **Postdoctoral Associate**, Department of Mechanical Engineering, Massachusetts Institute of Technology, advised by Prof. Yang Shao-Horn

AWARDS AND HONORS

- 2021 Action Research Scholar, an NSF-funded program, USA
- 2017 – 2019 Scialog Fellow, Research Corporation for Science Advancement, USA
- 2018 Scialog: Advanced Energy Storage Award, USA
- 2017 Callahan Faculty Scholar, Oregon State University, USA
- 2007 – 2011 Richter Memorial Funds Scholarship, Northwestern University, USA
- 2010 11th International Conference Fellowship on Surface X-ray and Neutron Scattering, USA
- 2007, 2009 Gordon Research Conference (GRC) Fellowship, GRC in X-ray Science
- 2006 – 2007 Walter P. Murphy Fellowship, Northwestern University, USA
- 2005 – 2006 McGill Graduate Studies Fellowship, McGill University, Canada
- 2004 Outstanding Graduate with Honors, Peking University, China
- 2003 Tri-A Student, Peking University, China
- 2002 – 2003 President's Undergraduate Research Fellowship, Peking University, China

SYNERGISTIC ACTIVITIES

Professional Leadership**Chair, Pacific Northwest Chapter of American Vacuum Society, 2020-2021****Organizing Chair, 2021** annual meeting of Pacific Northwest Chapter of American Vacuum Society, a hybrid meeting at Oregon State University, Corvallis, OR, USA**Lead Organizer 2021** MRS Spring Meeting *Symposium EN10: Transformation, Reaction and Organization at Functional Interfaces for Sustainable Energy Systems and Environmental Managements*, Seattle, WA, USA**Lead Organizer 2019** MRS Spring Meeting *Symposium ES03: Electrochemical Energy Materials Under Extreme Conditions*, Phoenix, AZ, USA**Lead Organizer 2018** MRS Spring Meeting *Symposium EN20: Deposition, Transformation and Reaction at Functional Interfaces for Electrochemical Energy Systems*, Phoenix, AZ, USA**Lead Organizing Chair, Energy Storage 2017** Conference, Corvallis, OR, USA**Organizer for 5 Technical Symposia** including: **2021** Materials Challenges in Alternative & Renewable Energy (MCARE) Symposium *Materials for Solar Fuel Production and Applications*; **2020** International Chemical Congress of Pacific Basin Societies (PAC CHEM) Symposium *Single-atom-based electro-/photo-catalysis in the development of promising water-splitting and CO₂ reduction technologies*; **2019** XXVIII International Materials Research Congress (IMRC) Symposium D5 *In-situ/Operando Characterizations of Materials for Energy Applications*; **2018** 256th ACS Fall Meeting Session *Role of Water & Solvent in Heterogeneous Catalysis*; **2018** Pacific Coast Catalysis Society Meeting in Corvallis, Oregon.**Session Chair for 9 Technical Symposia** including: **2019** AIChE Annual Fall Meeting: *Fundamentals of Catalysis II: C1 Chemistry*; **2019** XXVIII International Materials Research Congress (IMRC) *Symposium D5: In-situ/Operando Characterizations of Materials for Energy Applications*; **2019** 235th ECS Meeting *Symposium I01: Hydrogen or Oxygen Evolution Catalysis for Water Electrolysis*; **2019** MRS Spring Meeting *Symposium CP03: Advances in in situ Techniques for Diagnostics and Synthetic Design of Energy Materials*; **2019** MRS Spring Meeting *Symposium ES03: Electrochemical Energy Materials Under Extreme Conditions*; **2018** MRS Spring Meeting *Symposium EN20: Deposition, Transformation and Reaction at Functional Interfaces for Electrochemical Energy Systems*; **2017** MRS Fall Meeting *Symposium TC: Design, Control and Advanced Characterization of Functional Defects in Materials*; **2016** PRiME/230th ECS Meeting *A03 Lithium-Ion Batteries*; **2016** 251st ACS Spring Meeting Session *Nanomaterials for Energy Conversion & Storage*.**Outreach****Organizer 2010**, Chicago High School, supervising a total of approximately 60 high students for outreaching in fundamental physics and chemistry, and acted as the science judge for high school posters.**Professional Service and Review Activities****Proposal Reviewer** for U.S. National Science Foundation (NSF), Department of Energy (DOE), American Chemical Society (ACS) Petroleum Research Fund, Stanford Linear Accelerator Center (SLAC) Beamtime Proposals, Advanced Photon Source (APS) Beamtime Proposals

Journal Reference for American Chemical Society: *Chemical Reviews, Chemistry of Materials, The Journal of Physical Chemistry Letters, ACS Applied Energy Materials, ACS Applied Materials & Interfaces, ACS Catalysis, ACS Energy Letters*
American Physical Society: *Physical Review Letters, Physical Review Applied, Physical Review B*
American Institute of Physics: *Applied Physics Letter, Journal of Applied Physics, Review of Scientific Instruments*
Nature Publishing Group: *Nature Materials, Nature Catalysis, Nature Communications, Scientific Reports*
Wiley-VCH: *Advanced Materials, Advanced Energy Materials, Advanced Functional Materials, Advanced Materials Interface, Angewandte Chemie International Edition, ChemElectroChem*
RSC Journals: *Chemical Society Review, Energy & Environmental Science, Journal of Materials Chemistry A, Physical Chemistry Chemical Physics, RSC Advances, Journal of Analytical Atomic Spectrometry, New Journal of Chemistry, CrystEngComm*

Department and University Service

2016 – now Graduate Admission Committee, CBEE, Oregon State University, OR, USA
 2021 – now Faculty Status Committee, CBEE, Oregon State University, OR, USA
 2016 – now Undergraduate, MS, and PhD thesis committee, and Graduate Council Representative (GCR), Oregon State University, OR, USA
 2016 – now Faculty mentors for undergraduate seniors, Oregon State University, OR, USA
 2017 – 2018 Faculty Status Committee, School of Chemical, Biological, and Environmental Engineering (CBEE), Oregon State University, OR, USA

PATENTS

1. Application: “strontium iridium oxide-based catalysts for water electrolysis” Provisional filed in December 2021.

PUBLICATIONS (*: corresponding author; †: equal contribution)

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2021

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116. M. Wang, Q. Wa, X. Bai, Z. He, W. S. Samarakoon, Q. Ma, Y. Du, Y. Chen, H. Zhou*, Y. Liu*, X. Wang*, and **Z. Feng***, “The Restructuring-Induced CoO_x Catalyst for Electrochemical Water Splitting”, *JACS Au*, 2021. DOI: 10.1021/jacsau.1c00346.
115. Jinfa Chang, Guanzhi Wang, Maoyu Wang, Qi Wang, Boyang Li, Hua Zhou, Yuanmin Zhu, Wei Zhang, Mahmoud Omer, Nina Orlovskaya, Qing Ma, Meng Gu*, **Zhenxing Feng***, Guofeng Wang*, Yang Yang*, “Improving Pd-N-C fuel cell electrocatalysts through fluorination-driven rearrangements of local

- coordination environment”, *Nature Energy*, 2021. DOI: 10.1038/s41560-021-00940-4.
114. Yubo Chen, Yuanmiao Sun, Maoyu Wang, Jingxian Wang, Haiyan Li, Shibo Xi, Chao Wei, George E. Sterbinsky, John W. Freeland, Adrian C. Fisher, Joel W. Ager III, **Zhenxing Feng***, and Zhichuan J. Xu*, “Lattice-site-dependent metal leaching in perovskites towards a honeycomb-like water oxidation catalyst”, *Science Advances*, 2021. DOI: 10.1126/sciadv.abk1788.
113. S. Qiu, M. Lucero, X. Wu, Q. Wang, M. Wang, Y. Wang, W. S. Samarakoon, M. R. Bolding, Z. Yang, Y. Huang, Z. J. Xu, M. Gu, and **Z. Feng***, “Revealing the fast and durable Na⁺ insertion reactions in a layered Na₃Fe₃(PO₄)₄ anode for aqueous Na-ion batteries”, *ACS Materials Au*, 2021. DOI: 10.1021/acsmaterialsau.1c00035, highlighted as the Journal Front Cover.
112. Sean K. Sandstrom, Heng Jiang, Marcos Lucero, Yunkai Xu, Trenton C. Gallagher, Mengyuan Cao, **Zhenxing Feng*** and Xiulei Ji*, “Reversible electrochemical conversion from selenium to cuprous selenide”, *Chemical Communications*, 57, 10703-10706, 2021.
111. Le Wang, Prajwal Adiga, Jiali Zhao, Widitha S. Samarakoon, Kelsey A. Stoerzinger, Steven R. Spurgeon, Bethany E. Matthews, Mark E. Bowden, Peter V. Sushko, Tiffany C. Kaspar, George E. Sterbinsky, Steve M. Heald, Han Wang, Linda W. Wangoh, Jinpeng Wu, Er-Jia Guo, Haijie Qian, Jiaou Wang, Tamas Varga, Suntharampillai Thevuthasan, **Zhenxing Feng**, Wanli Yang, Yingge Du, Scott A. Chambers, “Understanding the Electronic Structure Evolution of Epitaxial LaNi_{1-x}Fe_xO₃ Thin Films for Water Oxidation”, *Nano Letters*, 21, 8324-8331, 2021.
110. M. Wang, **Z. Feng***, “Interfacial Processes in Electrochemical Energy Systems”, *Chemical Communications*, 57, 10453-10468, 2021. Highlighted as the Journal Front Cover.
109. Z. Li, Q. Wang, X. Bai, M. Wang, Z. Yang, Y. Du, G. E. Sterbinsky, D. Wu, Z. Yang, M. Gu*, Y. Liu*, **Z. Feng***, and Y. Yang*, “Doping-modulated Strain Control of Bifunctional Electrocatalysis for Rechargeable Zinc-air Batteries”, *Energy & Environmental Science*, 14, 5035-5043, 2021.
108. Q. Wang, Z. Zhang, C. Cai, M. Wang, Z. L. Zhao, M. Li, X. Huang, S. Han, H. Zhou, **Z. Feng**, L. Li, J. Li, H. Xu, J. S. Francisco, and M. Gu, “Single Iridium Atom Doped Ni₂P Catalyst for Optimal Oxygen Evolution”, *Journal of the American Chemical Society*, 143, 13605–13615, 2021.
107. M. Wang, **Z. Feng***, “Pitfalls in X-ray Absorption Spectroscopy Analysis and Interpretation: A Practical Guide for General Users”, *Current Opinion in Electrochemistry*, 30, 100803, 2021.
106. X. Yang, M. Wang, M. Zachman, D. A. Cullen, Y. He, S. Liu, H. Zhou, H.-Y. Zang*, **Z. Feng***, and G. Wu*, “Binary Atomically Dispersed Metal Site Catalysts with Core-Shell Nanostructures for O₂ and CO₂ Reduction Reactions”, *Small Science*, 1, 2100046, 2021.
105. M. Lucero, Q. Shen, **Z. Feng***, “In-Situ Characterizations of Solid-Solid Interfaces in Solid-State Batteries Using Synchrotron X-ray Techniques”, *Carbon Energy*, 3, 762-783, 2021.
104. Z. Lyu, S. Ding, M. Wang, X. Pan, **Z. Feng**, H. Tian, C. Zhu, D. Du, Y. Lin, “Iron-Imprinted Single-Atomic Site Catalyst-Based Nanoprobe for Detection of Hydrogen Peroxide in Living Cells”, *Nano-Micro Letters*, 13, 146, 2021.
103. L. Guo, S. Hwang, B. Li, F. Yang, M. Wang, M. Chen, X. Yang, S. G. Karakalos, D. A. Cullen, **Z. Feng***, G. Wang*, G. Wu*, and H. Xu*, “Promoting Atomically

- Dispersed MnN₄ Sites via Sulfur Doping for Oxygen Reduction: Unveiling Intrinsic Activity and Degradation in Fuel Cells”, *ACS Nano*, 15, 6886-6899, 2021.
102. H. Tian, Z. Li, G. Feng, Z. Yang, D. Fox, M. Wang, H. Zhou, L. Zhai, A. Kushima, Y. Du, **Z. Feng***, X. Shan*, Y. Yang*, “Stable, High-performance, Dendrite-free, Seawater-based Aqueous Batteries”, *Nature Communications*, 12, 237, 2021.
101. G. Wan, J. W. Freeland, J. Kloppenburg, G. Petretto, J. N. Nelson, D.-Y. Kuo, C.-J. Sun, J. Wen, J. T. Diulus, G. S. Herman, Y. Dong, R. Kou, J. Sun, S. Chen, K. Shen, D. Schlom, G.-M. Rignanese, G. Hautier, D. D. Fong, **Z. Feng***, H. Zhou*, J. Suntivich*, “Amorphization mechanism of SrIrO₃ electrocatalyst: How oxygen redox initiates Ionic diffusion and structural reorganization”, *Science Advances*, 7, eabc7323, 2021.
100. **Z. Feng***, “In-Situ Synchrotron X-Ray Characterizations of Battery Materials”, Invited Book Chapter for *Encyclopedia of Energy Storage*, 2021.
99. C. Cai, M. Wang, S. Han, Q. Wang, Q. Zhang, Y. Zhu, X. Yang, D. Wu, X. Zu*, G. E. Sterbinsky, **Z. Feng***, and M. Gu*, “Ultrahigh Oxygen Evolution Reaction Activity Achieved Using Ir Single Atoms on Amorphous CoO_x Nanosheets”, *ACS Catalysis*, 11, 123–130, 2021.
98. J. Guo, M. Wang, L. Xu, X. Li, A. Iqbal, G. E. Sterbinsky, H. Yang, M. Xie, J. Zai*, **Z. Feng***, T. Cheng*, X. Qian. “Bioinspired Activation of N₂ on Asymmetrical Coordinated Fe grafted 1T MoS₂ at Room Temperature”, *Chinese Journal of Chemistry*, 39, 1898-1904, 2021.
97. N. M. Adli, W. Shan, S. Hwang, W. Samarakoon, S. Karakalos, Y. Li, D. A. Cullen, D. Su, **Z. Feng***, G. Wang*, G. Wu*, “Engineering Atomically Dispersed FeN₄ Active Sites for CO₂ Electroreduction”, *Angewandte Chemie International Edition*, 60, 1022-1032, 2021.
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95. F. Pan, Z. Li, Z. Yang, Q. Ma, M. Wang, H. Wang, M. Olszta, G. Wang, **Z. Feng**, Y. Du, and Y. Yang, "Porous FeCo Glassy Alloy as Bifunctional Support for High-Performance Zn-Air Battery", *Advanced Energy Materials*, 11, 2002024, 2021.
94. C. M. Culbertson, A. Manjón-Sanz, M. Lucero, **Z. Feng**, M. R. Dolgos, “The Local Structure of La_{0.5}Ba(Zr_{0.2}Ti_{0.8})O₃-0.5(Ba_{0.7}Ca_{0.3})TiO₃ from Neutron Total Scattering Measurements and Multi-Edge X-ray Absorption Analysis”, *Materials Research Bulletin*, 135, 111124, 2021.
- 2020**
93. L. Wang, Z. Yang, M. E. Bowden, J. W. Freeland, P. V. Sushko, S. R. Spurgeon, B. Matthews, W. S. Samarakoon, H. Zhou, **Z. Feng**, M. H. Engelhard, Y. Du, and S. A. Chambers, “Hole-Trapping-Induced Stabilization of Ni⁴⁺ in SrNiO₃/LaFeO₃ Superlattices”, *Advanced Materials*, 32, 2005003, 2020.
92. Z. Lyu, S. Ding, N. Zhang, Y. Zhou, N. Cheng, M. Wang, M. Xu, **Z. Feng**, X. Niu, Y. Cheng, C. Zhang, D. Du, and Y. Lin, “Single-Atom Nanozymes Linked Immunosorbent Assay for Sensitive Detection of Aβ 1-40: A Biomarker of Alzheimer’s Disease”, *Research*, volume 2020, 4724505, 2020.
91. S. Liu, M. Wang, X. Yang, Q. Shi, Q. Zhi, M. Lucero, Q. Ma, K. L. More, D. A. Cullen*, **Z. Feng***, G. Wu*, “Chemical Vapor Deposition for Atomically

- Dispersed and Nitrogen Coordinated Single Metal Site Catalysts”, *Angewandte Chemie International Edition*, 59, 21698-21705, 2020.
90. Q. Shi, Y. He, X. Bai, M. Wang, D. A. Cullen, M. Lucero, X. Zhao, K. L. More, H. Zhou, **Z. Feng***, Y. Liu*, and G. Wu*, “Methanol Tolerance of Atomically Dispersed Single Metal Site Catalysts: Mechanistic Understanding and High-performance Direct Methanol Fuel Cells”, *Energy & Environmental Science*, 13, 3544-3555, 2020.
89. X. Zhang, Y. Wang, M. Gu, M. Wang, Z. Zhang, W. Pan, Z. Jiang, H. Zheng, M. Lucero, H. Wang, G. E. Sterbinsky, Q. Ma, Y.-G. Wang*, **Z. Feng***, J. Li, H. Dai, Y. Liang*, “Molecular engineering of dispersed nickel phthalocyanines on carbon nanotubes for selective CO₂ reduction”, *Nature Energy*, 5, 684–692, 2020.
88. Z. Li, W. Niu, Z. Yang, A. Kara, Q. Wang, M. Wang, M. Gu*, **Z. Feng***, Y. Du* and Y. Yang*, “Boosting Alkaline Hydrogen Evolution: Dominating Role of Interior Modification in Surface Electrocatalysis”, *Energy & Environmental Science*, 13, 3110-3118, 2020.
87. X. Zhao, X. Yang, M. Wang, S. Hwang, S. Karakalos, M. Chen, Z. Qiao, L. Wang, B. Liu, Q. Ma, D. A. Cullen, D. Su, H. Yang*, H.-Y. Zang*, **Z. Feng***, and G. Wu*, “Self-Assembled Single-Iron Site Catalysts with Tailored Dual-size Architecture and Hierarchical Porosity for Proton Exchange Membrane Fuel Cells”, *Applied Catalysis B: Environmental*, 279, 119400, 2020.
86. Y. Zhu, Z. He, Y. Choi, H. Chen, X. Li, B. Zhao, Y. Yu, H. Zhang, K. A. Stoerzinger, **Z. Feng**, Y. Chen, and M. Liu, “Tuning proton-coupled electron transfer by crystal orientation for efficient water oxidization on double perovskite oxide electrocatalysts”, *Nature Communications*, 11, 4299, 2020.
85. Q. Wang, X. Huang, Z. L. Zhao, M. Wang, B. Xiang, J. Li, **Z. Feng***, H. Xu*, Meng Gu, “Ultrahigh-loading of Ir single atoms on NiO matrix to dramatically enhance oxygen evolution reaction”, *Journal of the American Chemical Society*, 142, 7425-7433, 2020.
84. Y. Wang, D. Sun, M. Wang, Z. Feng, and A. S. Hall, “Oxygen Reduction Electrocatalysis on Ordered Intermetallic Pd–Bi Electrodes Is Enhanced by a Low Coverage of Spectator Species”, *Journal of Physical Chemistry C*, 124, 5220-5224, 2020.
83. L. Ju, G. Wang, K. Liang, M. Wang, G. E. Sterbinsky, **Z. Feng***, and Y. Yang*, “Significantly Improved Cyclability of Conversion-Type Transition Metal Oxyfluoride Cathodes by Homologous Passivation Layer Reconstruction”, *Advanced Energy Materials*, 10, 190333, 2020.
82. Y. Zhong, F. Lin, M. Wang, Y. Zhang, Q. Ma, J. Lin, Z. Feng, and H. Wang, “Metal Organic Framework Derivative Improving Lithium Metal Anode Cycling”, *Advanced Functional Materials*, 30, 1907579, 2020.
81. S. Mukherjee, W. Shan, W. Samarakoon, S. Karakalos, D. A. Cullen, K. More, M. Wang, **Z. Feng***, G. Wang*, and G. Wu*, “Atomically dispersed single Ni site catalysts for nitrogen reduction toward electrochemical ammonia synthesis using N₂ and H₂O”, *Small Methods*, 4, 1900821, 2020.
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78. Y. Cheng, X. Wang, S. P. Huang, W. Samarakoon, S. Xi, Y. Ji, H. Zhang, F. Zhang, Y. Du, **Z. Feng**, S. Adams, Q. Wang, “A Redox Targeting-based Vanadium Redox-flow Battery”, *ACS Energy Letters*, 4, 3028-3035, 2019.
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76. A. Chang, Y. He, M. A. T. Arango, M. Wang, Y. Ren, **Z. Feng**, C.-H. Chang, and K. A. Sierros, “On the unusual amber coloration of nanoporous sol-gel processed Al-doped silica glass: An experimental study”, *Scientific Reports*, 9, 12474, 2019.
75. S. Qiu, X. Wu, M. Wang, M. Lucero, Y. Wang, J. Wang, Z. Yang, W. Xu, Q. Wang, M. Gu, J. Wen, Y. Huang, Z. J. Xu, **Z. Feng***, “NASICON-type Na₃Fe₂(PO₄)₃ as a low-cost and high-rate anode material for aqueous sodium-ion batteries”, *Nano Energy*, 64, 103941, 2019.
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73. J. Deng, C. Preissner, J. Klug, S. Mashrafi, C. Roehrig, Y. Jiang, Y. Yao, M. Wojcik, M. Wyman, D. Vine, K. Yue, S. Chen, T. Mooney, M. Wang, **Z. Feng**, D. Jin, Z. Cai, B. Lai, and S. Vogt, “The Velociprobe: an ultrafast hard X-ray nanoprobe for high-resolution ptychographic imaging”, *Review of Scientific Instruments*, 90, 083701, 2019.
72. Z. Qiao, S. Hwang, X. Li, C. Wang, W. Samarakoon, S. Karakalos, D. Li, M. Chen, Y. He, M. Wang, Z. Liu, G. Wang, H. Zhou, **Z. Feng***, D. Su*, J. S. Spendelow* and G. Wu*, “3D Porous Graphitic Nanocarbon for Enhancing Performance and Durability of Pt Catalysts: Balance between Graphitization and Hierarchical Porosity”, *Energy & Environmental Science*, 12, 2830-2841, 2019.
71. K. Kozma, M. Wang, P. I. Molina, N. Martin, **Z. Feng**, and M. Nyman, “The role of titanium-oxo clusters in sulfate production of TiO₂”, *Dalton Transactions*, 48, 11086-11093, 2019.
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69. Y. Wang, M. Wang, Z. Zhang, Q. Wang, Z. Jiang, M. Lucero, X. Zhang, X. Li, M. Gu*, **Z. Feng***, Y. Liang*, “Phthalocyanine Precursors to Construct Atomically Dispersed Iron Electrocatalysts”, *ACS Catalysis*, 9, 6252-6261, 2019.
68. Q. Gong, P. Ding, M. Xu, X. Zhu, M. Wang, J. Deng, Q. Ma, N. Han, Y. Zhu, J. Lu*, **Z. Feng***, Y. Li*, W. Zhou*, and Y. Li*, “Structural defects on converted bismuth oxide nanotubes enable highly active electrocatalysis of carbon dioxide reduction”, *Nature Communications*, 10, 2807, 2019.

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66. J. Hwang, **Z. Feng***, N. Charles, X. R. Wang, D. Lee, K. A. Stoerzinger, S. Muy, R. R. Rao, D. Lee, R. Jacobs, D. Morgan, Y. Shao-Horn*, “Tuning perovskite oxides by strain: Electronic structure, properties, and functions in (electro)catalysis and ferroelectricity”, *Materials Today*, accepted, 2019.
65. A. Sturluson, M. T. Huynh, A. R. Kaija, C. Laird, S. Yoon, F. Hou, **Z. Feng**, C. E. Wilmer, Y. J. Colon, Y. G. Chung, D. W. Siderius, and C. M. Simon, “The role of molecular modeling & simulation in the discovery and deployment of metal-organic frameworks for gas storage and separation”, *Molecular Simulation Review*, 45, 1082-1121, 2019.
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62. K. Liang, S. Pakhira, Z. Yang, A. Nijamudheen, L. Ju, M. Wang, C. I. Aguirre-Velez, G. E. Sterbinsky, Y. Du, **Z. Feng***, J. L. Mendoza-Cortes*, Y. Yang*, “S-Doped MoP Nanoporous Layer Towards High-Efficiency Hydrogen Evolution in pH-Universal Electrolyte”, *ACS Catalysis*, 9, 651-659, 2019.
- 2018**
61. J. Li, M. Chen, D. A. Cullen, S. Hwang, M. Wang, B. Li, K. Liu, S. Karakalos, M. Lucero, H. Zhang, C. Lei, H. Xu, G. E. Sterbinsky, **Z. Feng**, D. Su, K. L. More, G. Wang, Z. Wang, and G. Wu, “Atomically dispersed manganese catalysts for oxygen reduction in proton-exchange membrane fuel cells”, *Nature Catalysis*, 1, 935-945, 2018.
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supported monolayer catalyst: $\text{WO}_x/\alpha\text{-Fe}_2\text{O}_3(0001)$ ”, *Journal of American Chemical Society* 131, 18200-18201, 2009.

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2. C.Y. Hu, Z.X. Qin, **Z. Feng**, Z.Z. Chen, H. Yang, Z.J. Yang, T.J. Yu, X.D. Hu, S.D. Yao, G.Y. Zhang “Investigation on Mechanism of Oxidized Au/Ni/p-GaN Ohmic Contact”, *Chinese Journal of Semiconductors*, vol. 26, No. 6, 1154-1158, 2005.
1. **Z. Feng**, S. Yao, L. Hou, and R. Jin, “Depth dependent elastic strain in ZnO epilayer: combined Rutherford backscattering / channeling and X-ray diffraction”, *Nuclear Instruments and Methods in Physics Research Section B*, 229, 246-252, 2005.

PRESENTATIONS

Invited Talks — Conferences (18 total)

- | | |
|------|---|
| 2021 | “Interfacial Reactions in Electrochemical Energy Systems: <i>In-Situ</i> Studies Using Synchrotron X-ray Techniques”, Oregon Center for Electrochemistry Inaugural Conference , Eugene, OR, USA (September 25, 2021) |
| 2020 | “Fast Charging Ceramic Anodes for Aqueous Sodium-Ion Batteries”, EMA 2020 , Orlando, FL, USA (January 23, 2020) |
| 2019 | “Probing Interfacial Reactions in Energy Storage and Conversion Devices Using Synchrotron X-ray Techniques”, MS&T 2019 , Portland, OR, USA (October 2, 2019) |
| 2019 | “From <i>In-Situ</i> to <i>Operando</i> Studies of Catalysts Under Realistic Conditions”, Pacific Northwest Chapter of AVS , Pullman, WA, USA (September 5, 2019) |
| 2019 | “ <i>In-Situ</i> X-ray Absorption Spectroscopy Studies of Catalysts for Water Splitting”, XXVIII IMRC , Cancun, Mexico (August 21, 2019) |
| 2019 | “High-Rate Aqueous Sodium-Ion Battery”, 2nd Silk Road International Symposium , Lanzhou, China (July 9, 2019) |
| 2019 | “Probing Interfacial Reactions in Energy Storage and Conversion Devices: <i>In-Situ</i> Studies”, Nano Korea 2019 , Kintex, Korea (July 3, 2019) |
| 2019 | “ <i>In Situ</i> X-ray Absorption Spectroscopy Studies of Catalysts for Water Splitting”, 235th ECS Meeting , Dallas, TX, USA (May 27, 2019) |
| 2019 | “Organic Electrolytes in Promoting the Performance of Lithium-Ion and Sulfur-Based Batteries—X-ray Spectroscopy Studies”, 2019 MRS Spring Meeting , Phoenix, AZ, USA (March 26, 2019) |
| 2019 | “ <i>In Situ</i> X-ray Absorption Spectroscopy Studies of Catalysts in Electrochemical Reactions”, 2019 MRS Spring Meeting , Phoenix, AZ, USA (March 24, 2019) |

- 2018 “Mechanistic Studies of Fe Based LDH and Phosphosulfides for OER and HER Using in Situ operando synchrotron X-Ray Spectroscopy and Scattering”, **2018 AIChE Annual Fall Meeting**, Pittsburg, PA, USA (October 31, 2018)
- 2018 “Insights into IrO_x-Based Oxides as Highly Efficient Oxygen Evolution Reaction Catalysts in Acidic Electrolytes”, **256th ACS Fall Meeting**, Boston, MA, USA (August 20, 2018)
- 2018 “Probing Interfacial Reactions in Energy Storage Devices”, **Asia-Pacific Conference on Energy Storage and Conversion**, Singapore (July 20, 2018)
- 2018 “Probing Interfacial Reactions in Energy Storage Devices Using Synchrotron X-ray Techniques”, **Molecular Chemistry in Electrochemical Energy Storage, Telluride Science Research Center Workshop**, Telluride, CO, USA (July 09, 2018)
- 2017 “From Mechanistic Studies to Commercial Applications on Energy Storage”, **Energy Storage 2017 Conference**, Corvallis, OR, USA (November 11, 2017)
- 2016 “*In Situ* Synchrotron X-ray Studies of Nanomaterials for Energy Conversion and Storage Applications”, **251st ACS Spring Meeting**, San Diego, CA, USA (March 14, 2016)
- 2015 “Thin Film Multivalent Battery Cathodes”, **JCESR 2nd Annual Affiliate Workshop**, Chicago Innovation Exchange Skydeck, Chicago, IL, USA (May 4, 2015)
- 2015 “Thin Film Multivalent Battery Cathodes”, **2015 JCESR Full Program Meeting**, Hyatt Hotel, Lisle, IL, USA (April 12, 2015)

Invited Talks — Institutions (33 total)

- 2021 “Interfacial Reactions in Electrochemical Energy Systems: In-Situ Studies Using Synchrotron X-ray Techniques”, **West Virginia University**, Morgantown, WV, USA (September 24, 2021)
- 2021 “Interfacial Reactions in Electrochemical Energy Systems: *In-Situ* Studies Using Synchrotron X-ray Techniques”, **Nanyang Technological University**, Singapore (June 25, 2021)
- 2021 “Interfacial Reactions in Electrochemical Energy Systems: *In-Situ* Studies Using Synchrotron X-ray Techniques”, **University of Florida**, Gainesville, FL, USA (February 8, 2021)
- 2021 “*In-Situ* Studies of Interfacial Reactions in Electrochemical Energy Systems Using Synchrotron X-ray Techniques”, **University of Houston**, Houston, TX, USA (January 19, 2021)
- 2020 “Synchrotron X-ray Diffraction on Thin Films: Fundamentals and Applications”, **Pacific Northwest National Laboratory**, Richland, WA, USA (November 5, 2020)
- 2020 “Interfacial Reactions in Electrochemical Energy Devices: *In-Situ* Studies Using Synchrotron X-ray Techniques”, **University of South Carolina**, Columbia, SC, USA (March 22, 2020)
- 2019 “Interfacial Reactions in Electrochemical Energy Devices: Operando Studies Using Synchrotron X-ray Scattering and Spectroscopy”, **University of Central Florida**, Orlando, FL, USA (November 11, 2019)
- 2019 “*Operando* Studies of Interfacial Reactions in Energy Storage and Conversion Devices”, **National Renewable Energy Laboratory**, Denver, CO, USA (July 17, 2019)
- 2019 “Probing Interfacial Reactions Energy Storage and Conversion Devices: *Operando* Studies”, **KAIST**, Korea (July 3, 2019)

- 2018 “Probing Interfacial Reactions in Energy Storage Devices Using Synchrotron X-ray Techniques”, **Southern University of Science and Technology**, Shenzhen, China (July 30, 2018)
- 2018 “How Interfaces Change in Energy Devices? Cases of *In Situ Operando* Studies”, **Peking University**, Beijing, China (March 17, 2018)
- 2017 “*In situ* Studies of Electrochemical Materials for Energy Conversion and Storage Applications”, **Nanyang Technology University**, Singapore (August 22, 2017)
- 2017 “*In situ* Studies of Electrochemical Interfaces for Energy Conversion and Storage Applications”, **Idaho National Laboratory**, Idaho Falls, ID, USA (August 16, 2017)
- 2016 “Mechanistic Studies of Electrochemical Interfaces for Rational Design of Energy Materials”, **Florida State University**, Tallahassee, FL, USA (November 10, 2016)
- 2016 “Mechanistic Studies of Electrochemical Interfaces for Rational Design of Energy Materials”, **Shanghai Jiaotong University**, Shanghai, China (August 8, 2016)
- 2016 “Mechanistic Studies of Electrochemical Interfaces for Rational Design of Energy Materials”, **University of Science and Technology Beijing**, Beijing, China (August 4, 2016)
- 2015 “Mechanistic Studies of (Electro)Chemical Reactions: From Model Systems to Real Materials”, **Massachusetts Institute of Technology**, MA, USA (September 16, 2015)
- 2015 “Thin Film Multivalent Battery Cathodes”, surface/interface group, **Argonne National Laboratory**, IL, USA (June 16, 2015)
- 2015 “*In Situ* Studies of Energy Materials Using X-ray Spectroscopy and Scattering”, **Oak Ridge National Laboratory**, TN, USA (April 9, 2015)
- 2015 “The Design of Cathode Materials for Multivalent Batteries”, **Southern Illinois University**, Carbondale, IL, USA, April 1, 2015
- 2014 “Interfacial Processes of Energy Conversion Devices at Atomic Scale”, **Beijing University of Chemical Technology**, Beijing, China (December 30, 2014)
- 2014 “Atomic-Scale Interfacial Processes of Energy Conversion and Storage Devices”, **Beijing University of Chemical Technology**, Beijing, China (January 9, 2014)
- 2014 “Atomic-Scale Interfacial Processes of Energy Conversion and Storage Devices”, College of Chemical Engineering, **China University of Petroleum**, Beijing, China (January 3, 2014)
- 2013 “Atomic-Scale Interfacial Processes of Energy Conversion and Storage Devices”, Institute for Clean Energy & Advanced Materials (ICEAM), Faculty of Materials and Energy, **Southwest University**, Chongqing, China (December 24, 2013)
- 2013 “Mechanistic Studies of (Electro)Chemical Interfaces for Energy Conversion and Storage Applications”, **synchrotron SOLEIL**, Saint-Aubin, France (September 2, 2013)
- 2013 “Mechanistic Studies of Electrochemical Interfaces for Energy Conversion and Storage Applications”, joint seminar of Cornell High Energy Synchrotron Source (CHESS) and Energy Materials Center at Cornell (EMC²), **Cornell University**, Ithaca, NY, USA (July 29, 2013)
- 2013 “Atomic-Scale Studies of Energy Materials by Synchrotron X-ray Methods”, Department of Condensed Matter Physics and Materials Science, **Brookhaven National Laboratory**, NY, USA, May 28, 2013

- 2013 “Catalysts Transform while Molecules React: In Situ Atomic Scale Studies of Catalyst Dynamics and Molecule Reactions on Surfaces”, **Harvard University**, MA, USA (February 7, 2013)
- 2012 “*In Situ* Studies of Energy Materials Using Synchrotron Techniques”, CHESS seminar, **Cornell University**, Ithaca, NY, USA (June 11, 2012)
- 2011 “X-ray Atomic-Scale Study of the Model Catalysis Systems: Pt/STO and Others”, surface/interface group, **Argonne National Laboratory**, IL, USA (February 15, 2011)
- 2009 “*In Situ* Observation of the Surface Cations Dynamics during Redox Cycles”, **Argonne National Laboratory**, IL, USA (September 15, 2009)
- 2009 “*In-Situ* Study Redox-Induced Catalysts Changes on Oxides Support”, APS User Science Seminar, **Argonne National Laboratory**, IL, USA (August 28, 2009)
- 2009 “*In situ* Atomic-Scale Imaging of Redox-Induced Changes in Oxide Supported Monolayer Catalysts”, annual meeting of the Center for Catalysis and Surface Science, **Northwestern University**, IL, USA (August 25, 2009)

Contributed Talks (14 total)

- 2019 “Surface Modifications on LiCoO₂-Based Cathodes for High-Energy-Density LIBs with Long Cycle Life”, **235th ECS Meeting**, Dallas, TX, USA (May 30, 2019)
- 2018 “The Role of Dopant Concentration and Electrolyte pH on the Performance of LaCo_xFe_{1-x}O₃ Catalysts”, **256th ACS Fall Meeting**, Boston, MA, USA (August 19, 2018)
- 2018 “*In Situ* Study of Catalyst Reconstruction During Electrochemical CO₂ Reduction”, **233th ECS Spring Meeting**, Seattle, WA, USA, (May 13, 2018)
- 2018 “Surface Modifications on LiCoO₂-Based Cathodes for High-Energy-Density LIBs with Long Cycle Life”, **MRS Spring Meeting**, Phoenix, AZ, USA, (April 4, 2018)
- 2017 “Mechanistic Studies of FeS|P Electrocatalysts Using Synchrotron X-ray Spectroscopy and Scattering”, **MRS Fall Meeting**, Boston, MA, USA, (November 27, 2017)
- 2016 “Insights from Near-Surface Atomic Structures and Composition for Catalytic Activity and Stability of Oxides in Electrochemical Reactions”, **PRiME 2016/230th ECS Meeting**, Honolulu, HI, USA (October 7, 2016)
- 2015 “*In Situ* Atomic-Scale Study of Monolayer VO_x Catalysts during Chemical Reactions”, **MRS Fall Meeting**, Boston, MA, USA (December 2, 2015)
- 2015 “Thin Film Multivalent Battery Cathodes”, **MRS Fall Meeting**, Boston, MA, USA (December 3, 2015)
- 2013 “*In Situ* Atomic-Scale Studies of Enhanced Oxygen Reduction Reaction Activity in Solid Oxide Fuel Cell Cathode Materials”, **MRS Spring Meeting**, San Francisco, CA, USA (April 2, 2013)
- 2011 “3D Atomic Imaging of Pt Nanocrystals Supported on SrTiO₃ (001)”, **APS March Meeting**, Dallas, TX, USA (March 23, 2011)
- 2011 “*In Situ* Synchrotron Studies of a Model Catalyst: WO_x/α-Fe₂O₃”, **APS March Meeting**, Dallas, TX, USA (March 21, 2011)
- 2009 “X-ray Atomic Imaging of Supported Mixed Catalyst VO_x-WO_x/α-TiO₂ (110) During a Redox Cycle”, **MRS Fall Meeting**, Boston, MA, USA (December 1, 2009)

- 2009 “*In situ* Atomic-Scale Imaging of an Oxide Supported Catalyst during a Redox Change: $\text{WO}_x/\alpha\text{-Fe}_2\text{O}_3$ (0001)”, **AVS 56th International Symposium & Exhibition**, San Jose, CA, USA (November 13, 2009)
- 2008 “Atomic-Scale Study of Redox Reaction of Vanadia on Rutile (110)”, **AVS 55th International Symposium & Exhibition**, post-deadline session, Boston, MA, USA (October 23, 2008)

ACADEMIC MENTORING

High School	William Guo (2021-, Lincoln High School)
Undergraduate	Nicholas DeGrood (2021-, OSU), Stuart Helikson (2021-, OSU), Meilani Bolding (2019-, OSU), Brian Muhich (2019-2022, OSU), Davis Armitage (2020-2022, OSU), Tristan Kryle (2021, OSU), Tucker Holstun (2017-2021, OSU), Román Vega (2020, OSU), Peiwen Liu (2019-2020, OSU), Megan Williams (2017-2020, OSU), Manasi Vyasa (2017-2019, OSU), David So (2018, OSU), Ryan Rogers (2017-2018, OSU), Morgan Messer (2017, OSU), Michael Barden (2017, OSU), Joseph Pedersen (2016-2017, OSU)
Graduate	Mason Lyons (2021-, OSU), Chun-Wai Chang (2021-, OSU), Dongqi Yang (2021-2023, OSU), Marcos Lucero (2017-2022, OSU), Widitha Samarakoon (2017-2022, OSU), Kuan-Hsun Chou (2021-2022, OSU), Maoyu Wang (2016-2021, OSU), Youngjoon Hong (2020-2021, OSU), Yan Wang (2016-2019, OSU),
Visitors	Zelang Jian (2017, OSU), Shen Qiu (2018-2019, OSU)
Thesis Committee	J. Trey Diulus, 07/2019 – Herman (PhD, CBEE, OSU); Evan Haning, 05/2019 – Chang (Undergraduate, CBEE, OSU); Ziyang Liu, 12/2018 – Chang (MS, CBEE, OSU); Zeng Chen, 11/2018 – Chang (MS, CBEE, OSU); Peilun Zhang, 11/2018 – Jovanovic (MS, CBEE, OSU); Hao Sun, 06/2018 – Chang (MS, CBEE, OSU); Andrew Miller, 06/2018 – Hong (MS, BEE, OSU); Lynza Sprowl, 05/2018 – Árnadóttir (PhD, CBEE, OSU); Jasper Limon, 03/2018 – AnYeung (Undergraduate, CBEE, OSU); Shujie Li, 12/2017 – Chang (PhD, CBEE, OSU); Ho Nam Chan, 06/2017 (MEng, CBEE, OSU); Ana Arteaga, 05/2017 – Nyman (PhD, Chemistry, OSU); Jonathan Lopez, 05/2017 – Herman (Undergraduate, CBEE, OSU); Gustavo Albuquerque, 03/2017 – Herman (PhD, CBEE, OSU); Guanfei Wu, 12/2016 (MEng, CBEE, OSU)
GCR	Daniel Brown, 06/2018 – Magana (MS, EECS, OSU); Zhifei Li, 06/2018 – Ji (PhD, Chemistry, OSU); Ismael Rodríguez Pérez, 06/2018 – Ji (PhD, Chemistry, OSU); Abhishek Agrawal, 06/2017 – Natarajan (PhD, EECS, OSU); Qian Gao, 05/2017 – Wang (MS, EECS, OSU); Yuting Xi, 04/2017 – Wang (MS, EECS, OSU)

COURSES PRESENTED

2021	Thin Film Materials Processing , Oregon State University
Spring	CHE 444/544: Total enrollment of 12 students; Instructor Rating: 6.00/6.00
2021	From Lab to Industries: Electrochemical Energy Systems , OSU
Spring	ENRG 299H: Total enrollment of 8 students; Instructor Rating: 5.00/6.00
2021	Electrochemical Energy Systems , Oregon State University
Winter	CHE 452/552: Total enrollment of 13 students; Instructor Rating: 5.00/6.00
2020	Thermodynamics , Oregon State University
Fall	CHE 311: Total enrollment of 185 students; Instructor Rating: --/6.00

2020	Electrochemical Energy Systems , Oregon State University
Spring	CHE 452/552: Total enrollment of 10 students; Instructor Rating: --/6.00
2020	Thin Film Materials Processing , Oregon State University
Winter	CHE 444/544: Total enrollment of 19 students; Instructor Rating: 5.40/6.00
2019	Thermodynamics , Oregon State University
Fall	CHE 311: Total enrollment of 218 students; Instructor Rating: 4.60/6.00
2019	Electrochemical Energy Systems , Oregon State University
Spring	CHE 452/552: Total enrollment of 6 students; Instructor Rating: --/6.00
2019	Thin Film Materials Processing , Oregon State University
Winter	CHE 444/544: Total enrollment of 36 students; Instructor Rating: 4.40/6.00
2018	Thermodynamics , Oregon State University
Fall	CHE 311: Total enrollment of 191 students; Instructor Rating: 4.70/6.00
2018	Electrochemical Energy Systems , Oregon State University
Spring	CHE 499/599: Total enrollment of 10 students; Instructor Rating: 5.60/6.00
2018	Thin Film Materials Processing , Oregon State University
Winter	CHE 444/544: Total enrollment of 42 students; Instructor Rating: 4.30/6.00
2017	Electrochemical Energy Systems , Oregon State University
Spring	CHE 499/599: Total enrollment of 20 students; Instructor Rating: 5.50/6.00
2017	Thin Film Materials Processing , Oregon State University
Winter	CHE 444/544: Total enrollment of 44 students; Instructor Rating: 4.40/6.00

PROFESIONAL MEMBERSHIPS

- Materials Research Society (MRS)
- Electrochemical Society (ECS)
- The American Institute of Chemical Engineers (AIChE)
- American Vacuum Society (AVS)
- American Ceramic Society (ACerS)