Stanford



Xiaolin Zheng

Associate Dean for Faculty Affairs, Professor of Mechanical Engineering, of Energy Science Engineering, Senior Fellow at the Precourt Institute for Energy and Professor, by courtesy, of Materials Science and Engineering

Curriculum Vitae available Online

CONTACT INFORMATION

- **Administrative Contact**

  Tasha Jackson - Thermosciences Group Administrator

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Bio

BIO

Professor Zheng received her Ph.D. in Mechanical & Aerospace Engineering from Princeton University (2006), B.S. in Thermal Engineering from Tsinghua University (2000). Prior to joining Stanford in 2007, Professor Zheng did her postdoctoral work in the Department of Chemistry and Chemical Biology at Harvard University. Professor Zheng is a member of MRS, ACS and combustion institute. Professor Zheng received the TR35 Award from the MIT Technology Review (2013), one of the 100 Leading Global Thinkers by the Foreign Policy Magazine (2013), 3M Nontenured Faculty Grant Award (2013), the Presidential Early Career Award (PECASE) from the white house (2009), Young Investigator Awards from the ONR (2008), DARPA (2008), Terman Fellowship from Stanford (2007), and Bernard Lewis Fellowship from the Combustion Institute (2004).

ACADEMIC APPOINTMENTS

- Professor, Mechanical Engineering
- Professor, Energy Science & Engineering
- Senior Fellow, Precourt Institute for Energy
- Professor (By courtesy), Materials Science and Engineering
- Member, Bio-X
- Affiliate, Precourt Institute for Energy
- Member, Wu Tsai Neurosciences Institute

ADMINISTRATIVE APPOINTMENTS

- Professor, Mechanical Engineering, (2020- present)
- Associate Professor, Mechanical Engineering, (2014-2020)
- Assistant Professor, Mechanical Engineering, (2007-2014)

HONORS AND AWARDS

- Presidential Early Career Award for Scientists and Engineers, Presidential Early Career Awards (2009)
- Young Investigator Program, ONR (2008)

- Young Faculty Award, DARPA (2008)
- Terman Faculty Award, Stanford University (2007)
- Bernard Lewis Fellowship, The Combustion Institute (2004)
- Amelia Earhart Fellowship, Zonta International Foundation (2003)
- One of the Pioneers on the TR35 Global list, MIT Technology Review (2013)
- 3M Nontenured Faculty Grant Award, 3M (2013)

PROFESSIONAL EDUCATION

- BS, Tsinghua University , Thermal Engineering (2000)
- PhD, Princeton , Mechanical and Aerospace Engineering (2006)

LINKS

- Research group website: https://zhenglab.stanford.edu/

Teaching

COURSES

2026-27

- Energy Systems I: Thermodynamics: ME 370A (Aut)
- Engineering Thermodynamics: ME 30 (Win)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)

2025-26

- Energy Systems I: Thermodynamics: ME 370A (Aut)

2024-25

- Energy Systems I: Thermodynamics: ME 370A (Aut)
- Engineering Thermodynamics: ME 30 (Win)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Hydrogen Economy: ENERGY 205 (Win)

2023-24

- ESE Master's Graduate Seminar: ENERGY 351 (Aut)
- ESE PhD Graduate Seminar: ENERGY 352 (Aut)
- Energy Systems I: Thermodynamics: ME 370A (Aut)
- Fundamentals of Energy Processes: EE 293B, ENERGY 201B (Win)
- Hydrogen Economy: ENERGY 205 (Win)
- Thermofluids, Energy, and Propulsion Research Seminar: ME 390A (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Adam Barsotti, Andrew Klingberg, Samuel Lee, Sydney Richardson

Postdoctoral Faculty Sponsor

Zhenhai Wang

Doctoral Dissertation Advisor (AC)

Xuanqi Fang, Kiran Hamkins, Adam Potter, Kimia Sattary, Matthew Szedlock, Yifan Wei

Master's Program Advisor

Andy Cai, Matt Foutter, Wentao Ke, Kunlin Ma, Devansh Mishra

Doctoral Dissertation Co-Advisor (AC)

Yuxuan Li, David Machbitz, Jaeyoung Yun

Doctoral (Program)

Junwoo Jang, Jieun Kang, Emma Kerr, Choeun Kim, Gaurav Sharma

Postdoctoral Research Mentor

Sangwook Park

Publications

PUBLICATIONS

- **Circular flame experiments quantify burn rate and stretch sensitivity in Al/ PVDF solid composites** *PROCEEDINGS OF THE COMBUSTION INSTITUTE*
  Ka, D., Ning, D., Tse, S. D., Zheng, X.
  2026; 42
- **Self-propagating aluminothermic reduction for recycling key battery materials** *SEPARATION AND PURIFICATION TECHNOLOGY*
  Szedlock, M., Ka, D., Li, Y., Kiefer, M., Kong, D., Ning, D., Kau, W., Tarpeh, W., Zheng, X.
  2026; 420
- **Enhanced Ni Exsolution in High-Entropy Perovskite Oxides with Broadening of Migration-Reduction Energy Landscapes.** *Nano letters*
  Kong, D., Potter, A., Li, Y., Hamkins, K., Wang, Y., Zheng, X.
  2026
- **Ignition temperature and combustion dynamics of B-HTPB composite microparticles** *COMBUSTION AND FLAME*
  Ning, D., Ka, D., Huynh, A., Li, Y., Zheng, X.
  2026; 286
- **A statistical understanding of oxygen vacancies in distorted high-entropy perovskite oxides.** *Nature communications*
  Potter, A., Wang, Y., Hamkins, K., Kong, D., Li, Y., Qin, J., Zheng, X.
  2026
- **Electronic Role of a Buried Platinum Layer in TiO₂ for Selective Two-Electron Water Oxidation to H₂O₂** *JOURNAL OF PHYSICAL CHEMISTRY C*
  Hamkins, K., Basera, P., Zheng, X., Bajdich, M.
  2026
- **Modulating coordinate site occupancy in high-entropy spinel electrocatalysts.** *Nature communications*
  Baek, J., Hamkins, K. S., Li, Y., Garcia-Esparza, A. T., Liu, T., Kuo, C. T., Lee, J. S., Potter, A. W., Kim, S., Wang, Y., Ding, H., Li, J., Zhuo, et al
  2026
- **Ultrafast Flame Exsolution of High-Density Metal Nanoparticles on Perovskite Oxides.** *Nano letters*
  Kong, D., Li, Y., Ka, D., Ju, K., An, J., Zheng, X.
  2026
- **Textured and Hierarchically Porous Hematite Photoanode for Efficient Hydrogen Production via Photoelectrochemical Hydrazine Oxidation.** *Nano-micro letters*
  Tan, R., Jeong, Y. J., Han, H. S., Kapse, S., Shin, S. S., Zheng, X., Cho, I. S.
  2026; 18 (1): 201

- **Ultrabroadband Spacetime Nanoscopy of Terahertz Polaritons in a van der Waals Cavity.** *Small (Weinheim an der Bergstrasse, Germany)*
  Wehmeier, L., Xu, S., Chen, X., Yu, S. J., Lin, Y., Dai, Z., Wang, H., Yao, H., Hu, J., Homes, C. C., Janzen, E., Edgar, J. H., Zheng, et al
  2026: e05899
- **Impact of MXene (Ti3C2) addition on ignition and combustion properties of boron particles** *APPLICATIONS IN ENERGY AND COMBUSTION SCIENCE*
  Huynh, A., Jiang, Y., Kiefer, M., Kim, E., Ka, D., Demko, A., Zheng, X.
  2025; 24
- **Platinum-Supported Indium Tin Oxide Catalyst for Efficient H₂O₂ Production via Two-Electron Water Oxidation Reaction** *ACS CATALYSIS*
  Hamkins, K., Vallez, L., Zheng, X.
  2025
- **Rapid room-temperature sulfidation of commercial FeNiCo alloy for efficient oxygen evolution reaction** *ELECTROCHIMICA ACTA*
  Kong, D., Baek, J., Kim, S., Zheng, X.
  2025; 525
- **Ultrafast Photoflash Synthesis of High-Entropy Oxide Nanoparticles.** *ACS nano*
  Baek, J., Jiang, Y., Ka, D., Li, Y., Wang, Y., Kim, S., Potter, A. W., Zhuo, Z., Guo, J., Zheng, X.
  2025
- **Reply to the 'Comment on "Boosting the solar water oxidation performance of a BiVO₄ photoanode by crystallographic orientation control"' by C. Lu and X. Wang, Energy Environ. Sci., 2025, 18, DOI: 10.1039/D4EE02619E** *ENERGY & ENVIRONMENTAL SCIENCE*
  Han, H., Cho, I., Zheng, X.
  2025
- **In situ electrochemical production of solid peroxide from urine** *NATURE CATALYSIS*
  Shi, X., Jiang, Y., Zeng, B., Sun, Z., Yun, M., Lv, P., Jia, Y., Zheng, X.
  2025
- **Untangling the Efficient Boron-Initialized Hydroxyl-Terminated Polybutadiene Combustion for High Energetic Solid Propulsion Systems.** *The journal of physical chemistry. A*
  Rizzo, G. L., Biswas, S., Ka, D., Zheng, X., Kaiser, R. I.
  2024
- **Nacre-like aluminum/PVDF energetic composites with enhanced combustion and mechanical properties** *CHEMICAL ENGINEERING JOURNAL*
  Jiang, Y., Ka, D., Huynh, A., Zheng, X.
  2024; 502
- **Activation of Hidden Catalytic Sites in 2D Basal Plane via p-n Heterojunction Interface Engineering Toward Efficient Oxygen Evolution Reaction** *ADVANCED ENERGY MATERIALS*
  Kim, E., Kim, S., Kim, Y., Hamkins, K., Baek, J., Kim, M., Liu, T., Choi, Y., Lee, J., Jang, G., Lee, K., Lee, G., Zheng, et al
  2024
- **Perfluoroalkyl-Functionalized HTPB Improves the Mechanical and Combustion Performance of Boron/HTPB Composites as Solid Fuel** *ACS APPLIED POLYMER MATERIALS*
  Robinson, A. M., Ka, D., Zheng, X., Xia, Y.
  2024; 6 (20): 12654-12660
- **Mechanical and combustion properties of fluoroalkylsilane surface-functionalized boron/HTPB composite** *COMBUSTION AND FLAME*
  Ka, D., Baek, J., Jiang, Y., Huynh, A., Gross, G., Kong, D., Xia, Y., Zheng, X.
  2024; 268
- **Rapid Surface Reconstruction of In2S3 Photoanode via Flame Treatment for Enhanced Photoelectrochemical Performance.** *Advanced materials (Deerfield Beach, Fla.)*
  Jeong, Y. J., Tan, R., Nam, S. S., Lee, J. H., Kim, S. K., Lee, T. G., Shin, S. S., Zheng, X., Cho, I. S.
  2024: e2403164

- **Tunable Phonon Polariton Hybridization in a van der Waals Hetero-Bicrystal.** *Advanced materials (Deerfield Beach, Fla.)*
  Wehmeier, L., Yu, S. J., Chen, X., Mayer, R. A., Xiong, L., Yao, H., Jiang, Y., Hu, J., Janzen, E., Edgar, J. H., Zheng, X., Heinz, T. F., Basov, et al
  2024: e2401349
- **Upcycling plastic wastes into value-added products via electrocatalysis and photoelectrocatalysis** *JOURNAL OF ENERGY CHEMISTRY*
  Kim, S., Kong, D., Zheng, X., Park, J.
  2024; 91: 522-541
- **Thermoelectric performance of high aspect ratio double-sided silicon nanowire arrays** *JOURNAL OF APPLIED PHYSICS*
  Ning, R., Zeng, Y., Rapp, V., Zhang, B., Yang, L., Prasher, R., Zheng, X.
  2024; 135 (9)
- **Bulk-Heterojunction Electrocatalysts in Confined Geometry Boosting Stable, Acid/Alkaline-Universal Water Electrolysis** *ADVANCED ENERGY MATERIALS*
  Jang, G., Kim, S., Choi, J., Park, J., An, S., Baek, J., Li, Y., Liu, T., Kim, E., Lee, J., Wang, H., Kim, M., Cho, et al
  2024
- **Enhanced energy delivery of direct-write fabricated reactive materials with energetic graphene oxide** *COMBUSTION AND FLAME*
  Wang, H., Jiang, Y., Wang, Y., Baek, J., Zheng, X., Zachariah, M. R.
  2024; 260
- **Tailoring the mechanical and combustion performance of B/HTPB composite solid fuel with covalent interfaces** *COMPOSITES SCIENCE AND TECHNOLOGY*
  Jiang, Y., Leem, J., Robinson, A. M., Wu, S., Huynh, A. H., Ka, D., Zhao, R., Xia, Y., Zheng, X.
  2024; 245
- **Hyperbolic Polaritonic Rulers Based on van der Waals α-MoO3 Waveguides and Resonators.** *ACS nano*
  Yu, S. J., Yao, H., Hu, G., Jiang, Y., Zheng, X., Fan, S., Heinz, T. F., Fan, J. A.
  2023
- **Synergistic effects of mixing and strain in high entropy spinel oxides for oxygen evolution reaction.** *Nature communications*
  Baek, J., Hossain, M. D., Mukherjee, P., Lee, J., Winther, K. T., Leem, J., Jiang, Y., Chueh, W. C., Bajdich, M., Zheng, X.
  2023; 14 (1): 5936
- **Exfoliated Magnesium Diboride (MgB2) Nanosheets as Solid Fuels.** *Nano letters*
  Jiang, Y., Ka, D., Huynh, A. H., Baek, J., Ning, R., Yu, S. J., Zheng, X.
  2023
- **Recent advances in defect-engineered molybdenum sulfides for catalytic applications.** *Materials horizons*
  Zhao, Y., Zheng, X., Gao, P., Li, H.
  2023
- **Enhanced H2O2 Upcycling into Hydroxyl Radicals with GO/Ni:FeOOH-Coated Silicon Nanowire Photocatalysts for Wastewater Treatment.** *Nano letters*
  Ning, R., Kim, S., Sun, E., Jiang, Y., Baek, J., Li, Y., Robinson, A., Vallez, L., Zheng, X.
  2023
- **Organic Upgrading through Photoelectrochemical Reactions: Toward Higher Profits.** *Small methods*
  Liu, T. K., Jang, G. Y., Kim, S., Zhang, K., Zheng, X., Park, J. H.
  2023: e2300315
- **Data-Driven Approach to Tailoring Mechanical Properties of a Soft Material** *ADVANCED FUNCTIONAL MATERIALS*
  Leem, J., Jiang, Y., Robinson, A., Xia, Y., Zheng, X.
  2023
- **Machine Learning Assisted Analysis of Electrochemical H2O2 Production** *ACS APPLIED ENERGY MATERIALS*
  Leem, J., Vallez, L., Gill, T., Zheng, X.
  2023; 6 (7): 3953-3959
- **Do we need perfect mixing between fuel and oxidizer to maximize the energy release rate of energetic nanocomposites?** *APPLIED PHYSICS LETTERS*

Wang, H., Jiang, Y., Wang, Y., Kline, D. J., Zheng, X., Zachariah, M. R.
2023; 122 (1)

- **Hydrogen-substituted graphdiyne-assisted ultrafast sparking synthesis of metastable nanomaterials.** *Nature nanotechnology*
  Zheng, X., Gao, X., Vila, R. A., Jiang, Y., Wang, J., Xu, R., Zhang, R., Xiao, X., Zhang, P., Greenburg, L. C., Yang, Y., Xin, H. L., Zheng, et al
  2022
- **Author Correction: Discovery of LaAlO3 as an efficient catalyst for two-electron water electrolysis towards hydrogen peroxide.** *Nature communications*
  Baek, J., Jin, Q., Johnson, N. S., Jiang, Y., Ning, R., Mehta, A., Siahrostami, S., Zheng, X.
  2022; 13 (1): 7685
- **Discovery of LaAlO3 as an efficient catalyst for two-electron water electrolysis towards hydrogen peroxide.** *Nature communications*
  Baek, J., Jin, Q., Johnson, N. S., Jiang, Y., Ning, R., Mehta, A., Siahrostami, S., Zheng, X.
  2022; 13 (1): 7256
- **Crystal Reconstruction of Mo:BiVO4: Improved Charge Transport for Efficient Solar Water Splitting** *ADVANCED FUNCTIONAL MATERIALS*
  Jeong, Y., Seo, D., Baek, J., Kang, M., Kim, B., Kim, S., Zheng, X., Cho, I.
  2022
- **Perfluoroalkyl-Functionalized Graphene Oxide as a Multifunctional Additive for Promoting the Energetic Performance of Aluminum.** *ACS nano*
  Jiang, Y., Wang, H., Baek, J., Ka, D., Huynh, A. H., Wang, Y., Zachariah, M. R., Zheng, X.
  2022
- **Ignition and combustion of Perfluoroalkyl-functionalized aluminum nanoparticles and nanothermite** *COMBUSTION AND FLAME*
  Jiang, Y., Wang, Y., Baek, J., Wang, H., Gottfried, J. L., Wu, C., Shi, X., Zachariah, M. R., Zheng, X.
  2022; 242
- **Effect of doping TiO₂ with Mn for electrocatalytic oxidation in acid and alkaline electrolytes** *ENERGY ADVANCES*
  Vallez, L., Jimenez-Villegas, S., Garcia-Esparza, A. T., Jiang, Y., Park, S., Wu, Q., Gill, T., Sokaras, D., Siahrostami, S., Zheng, X.
  2022; 1 (6): 357-366
- **Efficient and Stable Acidic Water Oxidation Enabled by Low-Concentration, High-Valence Iridium Sites** *ACS ENERGY LETTERS*
  Shi, X., Peng, H., Hersbach, T. J. P., Jiang, Y., Zeng, Y., Baek, J., Winther, K. T., Sokaras, D., Zheng, X., Bajdich, M.
  2022
- **Effect of Fluoroalkylsilane Surface Functionalization on Boron Combustion.** *ACS applied materials & interfaces*
  Baek, J., Jiang, Y., Demko, A. R., Jimenez-Thomas, A. R., Vallez, L., Ka, D., Xia, Y., Zheng, X.
  2022
- **Local Structure of Sulfur Vacancies on the Basal Plane of Monolayer MoS2.** *ACS nano*
  Garcia-Esparza, A. T., Park, S., Abroshan, H., Paredes Mellone, O. A., Vinson, J., Abraham, B., Kim, T. R., Nordlund, D., Gallo, A., Alonso-Mori, R., Zheng, X., Sokaras, D.
  2022
- **Ultrahigh-Quality Infrared Polaritonic Resonators Based on Bottom-Up-Synthesized van der Waals Nanoribbons.** *ACS nano*
  Yu, S., Jiang, Y., Roberts, J. A., Huber, M. A., Yao, H., Shi, X., Bechtel, H. A., Gilbert Corder, S. N., Heinz, T. F., Zheng, X., Fan, J. A.
  1800
- **Ultrahigh-quality van der Waals hyperbolic polariton resonators**
  Yu, S., Jiang, Y., Roberts, J. A., Huber, M. A., Yao, H., Shi, X., Bechtel, H. A., Corder, S. N. G., Heinz, T. F., Zheng, X., Fan, J. A.
  edited by Chang-Hasnain, C. J., Fan, J. A., Zhou, W.
  SPIE-INT SOC OPTICAL ENGINEERING.2022
- **Enhancing Electrochemical Water Oxidation toward H2O2 via Carbonaceous Electrolyte Engineering** *ACS APPLIED ENERGY MATERIALS*
  Gill, T., Vallez, L., Zheng, X.
  2021; 4 (11): 12429-12435
- **Probing boron thermite energy release at rapid heating rates** *COMBUSTION AND FLAME*
  Gottfried, J. L., Wainwright, E. R., Huang, S., Jiang, Y., Zheng, X.

2021; 231

- **The Role of Bicarbonate-Based Electrolytes in H2O2 Production through Two-Electron Water Oxidation** *ACS ENERGY LETTERS*
  Gill, T., Vallez, L., Zheng, X.
  2021; 6 (8): 2854-2862
- **High thermoelectric figure of merit of porous Si nanowires from 300 to 700K.** *Nature communications*
  Yang, L., Huh, D., Ning, R., Rapp, V., Zeng, Y., Liu, Y., Ju, S., Tao, Y., Jiang, Y., Beak, J., Leem, J., Kaur, S., Lee, et al
  2021; 12 (1): 3926
- **Enhancing Mechanical and Combustion Performance of Boron/Polymer Composites via Boron Particle Functionalization.** *ACS applied materials & interfaces*
  Jiang, Y., Dincer Yilmaz, N. E., Barker, K. P., Baek, J., Xia, Y., Zheng, X.
  2021
- **Operando Study of Thermal Oxidation of Monolayer MoS2.** *Advanced science (Weinheim, Baden-Wurttemberg, Germany)*
  Park, S., Garcia-Esparza, A. T., Abroshan, H., Abraham, B., Vinson, J., Gallo, A., Nordlund, D., Park, J., Kim, T. R., Vallez, L., Alonso-Mori, R., Sokaras, D., Zheng, et al
  2021; 8 (9): 2002768
- **Operando Study of Thermal Oxidation of Monolayer MoS2** *ADVANCED SCIENCE*
  Park, S., Garcia-Esparza, A. T., Abroshan, H., Abraham, B., Vinson, J., Gallo, A., Nordlund, D., Park, J., Kim, T., Vallez, L., Alonso-Mori, R., Sokaras, D., Zheng, et al
  2021
- **Electrochemical Synthesis of H2O2 by Two-Electron Water Oxidation Reaction** *CHEM*
  Shi, X., Back, S., Gill, T., Siahrostami, S., Zheng, X.
  2021; 7 (1): 38–63
- **Facilitating laser ignition and combustion of boron with a mixture of graphene oxide and graphite fluoride** *APPLICATIONS IN ENERGY AND COMBUSTION SCIENCE*
  Jiang, Y., Demko, A. R., Baek, J., Shi, X., Vallez, L., Ning, R., Zheng, X.
  2020; 1
- **Ultrahigh Doping of Graphene Using Flame-Deposited MoO3** *IEEE ELECTRON DEVICE LETTERS*
  Vaziri, S., Chen, V., Cai, L., Jiang, Y., Chen, M. E., Grady, R. W., Zheng, X., Pop, E.
  2020; 41 (10): 1592–95
- **Enhancing combustion performance of nano-Al/PVDF composites with beta-PVDF** *COMBUSTION AND FLAME*
  Huang, S., Hong, S., Su, Y., Jiang, Y., Fukushima, S., Gill, T., Yilmaz, N., Tiwari, S., Nomura, K., Kalia, R. K., Nakano, A., Shimojo, F., Vashishta, et al
  2020; 219: 467–77
- **Comparing Methods for Quantifying Electrochemically Accumulated H2O2** *CHEMISTRY OF MATERIALS*
  Gill, T., Zheng, X.
  2020; 32 (15): 6285–94
- **Effect of Adventitious Carbon on Pit Formation of Monolayer MoS2.** *Advanced materials (Deerfield Beach, Fla.)*
  Park, S., Siahrostami, S., Park, J., Mostaghimi, A. H., Kim, T. R., Vallez, L., Gill, T. M., Park, W., Goodson, K. E., Sinclair, R., Zheng, X.
  2020: e2003020
- **On-demand production of hydrogen by reacting porous silicon nanowires with water** *NANO RESEARCH*
  Ning, R., Jiang, Y., Zeng, Y., Gong, H., Zhao, J., Weisse, J., Shi, X., Gill, T. M., Zheng, X.
  2020
- **Synergistically Chemical and Thermal Coupling between Graphene Oxide and Graphene Fluoride for Enhancing Aluminum Combustion.** *ACS applied materials & interfaces*
  Jiang, Y. n., Deng, S. n., Hong, S. n., Tiwari, S. n., Chen, H. n., Nomura, K. I., Kalia, R. K., Nakano, A. n., Vashishta, P. n., Zachariah, M. R., Zheng, X. n.
  2020
- **Experimental effective metal oxides to enhance boron combustion** *COMBUSTION AND FLAME*

Huang, S., Deng, S., Jiang, Y., Zheng, X.
2019; 205: 278–85

- **Modified Micro-Emulsion Synthesis of Highly Dispersed Al/PVDF Composites with Enhanced Combustion Properties** *ADVANCED ENGINEERING MATERIALS*
  Huang, S., Pan, M., Deng, S., Jiang, Y., Zhao, J., Levy-Wendt, B., Tang, S. K. Y., Zheng, X.
  2019; 21 (5)
- **ZnO As an Active and Selective Catalyst for Electrochemical Water Oxidation to Hydrogen Peroxide** *ACS CATALYSIS*
  Kelly, S. R., Shi, X., Back, S., Vallez, L., Park, S., Siahrostami, S., Zheng, X., Norskov, J. K.
  2019; 9 (5): 4593–99
- **Enhancing Electrocatalytic Water Splitting by Strain Engineering** *ADVANCED MATERIALS*
  You, B., Tang, M. T., Tsai, C., Abild-Pedersen, F., Zheng, X., Li, H.
  2019; 31 (17)
- **A Zn: BiVO4/ Mo: BiVO4 homojunction as an efficient photoanode for photoelectrochemical water splitting** *JOURNAL OF MATERIALS CHEMISTRY A*
  Lee, J., Baek, J., Gill, T., Shi, X., Lee, S., Cho, I., Jung, H., Zheng, X.
  2019; 7 (15): 9019–24
- **Boosting the solar water oxidation performance of a BiVO4 photoanode by crystallographic orientation control (vol 11, pg 1299, 2018)** *ENERGY & ENVIRONMENTAL SCIENCE*
  Han, H., Shin, S., Kim, D., Park, I., Kim, J., Huang, P., Lee, J., Cho, I., Zheng, X.
  2019; 12 (4): 1427
- **Rapid Flame-Annealed CuFe2O4 as Efficient Photocathode for Photoelectrochemical Hydrogen Production** *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*
  Park, S., Baek, J., Zhang, L., Lee, J., Stone, K. H., Cho, I., Guo, J., Jung, H., Zheng, X.
  2019; 7 (6): 5867–74
- **Epitaxial growth of WO3 nanoneedles achieved using a facile flame surface treatment process engineering of hole transport and water oxidation reactivity (vol 6, pg 19542, 2018)** *JOURNAL OF MATERIALS CHEMISTRY A*
  Shi, X., Cai, L., Choi, I., Ma, M., Zhang, K., Zhao, J., Kim, J., Kim, J., Zheng, X., Park, J.
  2019; 7 (10): 5832
- **Selective and Efficient Gd-Doped BiVO4 Photoanode for Two-Electron Water Oxidation to H2O2** *ACS ENERGY LETTERS*
  Baek, J., Gill, T., Abroshan, H., Park, S., Shi, X., Norskoy, J., Jung, H., Siahrostami, S., Zheng, X.
  2019; 4 (3): 720–28
- **Enhancing Electrocatalytic Water Splitting by Strain Engineering.** *Advanced materials (Deerfield Beach, Fla.)*
  You, B., Tang, M. T., Tsai, C., Abild-Pedersen, F., Zheng, X., Li, H.
  2019: e1807001
- **CaSnO3: An Electrocatalyst for Two-Electron Water Oxidation Reaction to Form H2O2** *ACS ENERGY LETTERS*
  Park, S., Abroshan, H., Shi, X., Jung, H., Siahrostami, S., Zheng, X.
  2019; 4 (1): 352–57
- **Enhancing Catalytic Activity of MoS2 Basal Plane S-Vacancy by Co Cluster Addition** *ACS ENERGY LETTERS*
  Park, S., Park, J., Abroshan, H., Zhang, L., Kim, J., Zhang, J., Guo, J., Siahrostami, S., Zheng, X.
  2018; 3 (11): 2685–93
- **Epitaxial growth of WO3 nanoneedles achieved using a facile flame surface treatment process engineering of hole transport and water oxidation reactivity** *JOURNAL OF MATERIALS CHEMISTRY A*
  Shi, X., Cai, L., Choi, I., Ma, M., Zhang, K., Zhao, J., Kim, J., Kim, J., Zheng, X., Park, J.
  2018; 6 (40): 19542–46
- **Resolving Hysteresis in Perovskite Solar Cells with Rapid Flame-Processed Cobalt-Doped TiO2** *ADVANCED ENERGY MATERIALS*
  Kim, J., Chai, S., Ji, Y., Levy-Wendt, B., Kim, S., Yi, Y., Heinz, T. F., Norskov, J. K., Park, J., Zheng, X.
  2018; 8 (29)

- **Tuning the morphological, ignition and combustion properties of micron-Al/CuO thermites through different synthesis approaches** *COMBUSTION AND FLAME*
  Deng, S., Jiang, Y., Huang, S., Shi, X., Zhao, J., Zheng, X.
  2018; 195: 303–10
- **Activating basal plane of MoS2 for hydrogen evolution reaction through sulfur vacancy, doping and strain**
  Zheng, X.
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