



## Jinheng Xu

Ph.D. Student in Chemistry, admitted Autumn 2023

### Publications

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#### PUBLICATIONS

- **Bromophenol blue degradation by contact-electro-catalysis** *JOURNAL OF ELECTROANALYTICAL CHEMISTRY*  
Li, S., Qian, H., Xu, J., Wang, Z., Zare, R. N., Wei, D.  
2026; 1007
- **Dark Reactions in Microdroplets Explain Widespread Artifacts in Metabolomic Profiling.** *ACS measurement science au*  
Song, X., Xu, J., Sun, C., Lyu, L., Kui, H., Zhang, R., Abliz, Z., Zare, R. N.  
2026; 6 (2): 311-323
- **Water Droplet Microlightning Enables Catalyst-Free Alkane Dehydrogenation under Ambient Conditions** *ACS SUSTAINABLE CHEMISTRY & ENGINEERING*  
He, Y., Xu, J., Lyu, L., Xia, Y., Zare, R. N., Meng, Y.  
2026
- **Biomolecular condensates mediate C-N bond formation** *NATURE CHEMICAL BIOLOGY*  
Song, X., Ma, Y., Chen, M. W., Yu, W., Yan, X., Xu, J., Lyu, L., Hyman, A. A., Dai, Y., Zare, R. N.  
2026
- **Chemical Reactivity of Confined Water under Surface Acoustic Wave Modulation.** *Langmuir : the ACS journal of surfaces and colloids*  
Hao, S., Xu, J., Li, J., Xia, Y.  
2026
- **Dark Reactions in Microdroplets Explain Widespread Artifacts in Metabolomic Profiling** *ACS MEASUREMENT SCIENCE AU*  
Song, X., Xu, J., Sun, C., Lyu, L., Kui, H., Zhang, R., Abliz, Z., Zare, R. N.  
2026
- **Comment on "An Alternative Explanation for Ions Put Forth as Evidence for Abundant Hydroxyl Radicals Formed Due to the Intrinsic Electric Field at the Surface of Water Droplets".** *Analytical chemistry*  
Xu, J., Song, X., Lyu, L., Zhang, X., Zare, R. N.  
2025
- **Intrinsic Electric Field Triggers Phenol Oxidative Degradation at Microbubble Interfaces.** *Journal of the American Chemical Society*  
Xu, J., Song, X., Lu, Y., Lyu, L., Basheer, C., Zare, R. N.  
2025
- **Generation of reactive oxygen species in water droplets levitated in air.** *Chemical science*  
Xia, Y., Li, X., Chen, F., Xu, J., Gao, X., Chen, B., Zhang, X., Zare, R. N.  
2025
- **The air-water interfacial nitrogen cycle produces irrigatable-level ammonium nitrate.** *Chemical science*  
Song, X., Basheer, C., Xu, J., Zare, R. N.  
2025

- **Catalyst-Free Microbubble System for Removing Nitrous Oxide from Air** *ENVIRONMENTAL SCIENCE & TECHNOLOGY LETTERS*  
Xu, J., Xia, Y., Zare, R. N.  
2025
- **Catalyst-Free Production of Urea from Nitrate and Carbon Dioxide in Water Microdroplets.** *Environmental science & technology*  
Bose, S., Xu, J., Lee, K., Zare, R. N.  
2025
- **Clarifying the Identity of the m/z 36 Ion in Water Microdroplet Mass Spectra.** *The journal of physical chemistry. A*  
Song, X., Lyu, L., Xu, J., Xing, D., Zhang, X., Zare, R. N.  
2025
- **Structural and Electronic Properties of Anionic (ThO<sub>2</sub>)<sub>n</sub>- (n = 2-4) Clusters.** *Inorganic chemistry*  
Yuan, M., Tufekci, B. A., Xu, J., Foreman, K., Heaven, M. C., Batista, E. R., Bowen, K. H., Yang, P.  
2025; 64 (10): 4953-4963
- **Spraying of water microdroplets forms luminescence and causes chemical reactions in surrounding gas.** *Science advances*  
Meng, Y., Xia, Y., Xu, J., Zare, R. N.  
2025; 11 (11): eadt8979
- **Methane Bubbled Through Seawater Can be Converted to Methanol With High Efficiency.** *Advanced science (Weinheim, Baden-Wurttemberg, Germany)*  
Song, X., Basheer, C., Xu, J., Adam, M. M., Zare, R. N.  
2025: e2412246
- **Activation of H<sub>2</sub>O by ThO<sub>2</sub>- Experimental and Computational Studies.** *The journal of physical chemistry. A*  
Tufekci, B. A., Chiba, T., Xu, J., Cheng, L., Bowen, K. H.  
2025; 129 (1): 76-81
- **Onsite ammonia synthesis from water vapor and nitrogen in the air.** *Science advances*  
Song, X., Basheer, C., Xu, J., Zare, R. N.  
2024; 10 (50): eads4443
- **Methane C(sp<sup>3</sup>)-H bond activation by water microbubbles.** *Chemical science*  
Li, J., Xu, J., Song, Q., Zhang, X., Xia, Y., Zare, R. N.  
2024
- **Visualization of the Charging of Water Droplets Sprayed into Air.** *The journal of physical chemistry. A*  
Xia, Y., Xu, J., Li, J., Chen, B., Dai, Y., Zare, R. N.  
2024
- **Spontaneous Reduction by One Electron on Water Microdroplets Facilitates Direct Carboxylation with CO<sub>2</sub>.** *Journal of the American Chemical Society*  
Chen, H., Wang, R., Xu, J., Yuan, X., Zhang, D., Zhu, Z., Marshall, M., Bowen, K., Zhang, X.  
2023; 145 (4): 2647-2652