



## Xing Xing, Ph.D.

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### Professional Profile

Dr. Xing specializes in materials science and engineering. His focus is on next generation electrochemical energy storage and conversion technologies including Li-ion batteries, Li-sulfur batteries and solid-state batteries.

Dr. Xing is versed in a variety of classical materials science characterization techniques which include X-ray photoelectron spectroscopy (XPS), Fourier transform infrared spectroscopy (FTIR), scanning electron microscopy (SEM), focused ion beam (FIB), Raman spectroscopy, Ultraviolet-visible spectroscopy (UV-Vis), X-ray powder diffraction (XRD), thermogravimetric analysis spectroscopy (TGA).

Additionally, Dr. Xing gained extensive hands-on experience on electrochemical characterizations including galvanostatic cycling with potential limitation (G CPL), cyclic voltammetry (CV), electrochemical impedance spectroscopy (EIS). His deep knowledge of electrochemical, mechanical and microstructural characterization of materials allows him to evaluate/determine failure mechanism in materials and devices.

Prior to joining Exponent, Dr. Xing worked as a Graduate Research Assistant at University of California San Diego, where he received a Ph.D. in Materials Science and Engineering. His research focused on designing, fabricating and evaluating all-solid-state battery devices through the help of chemical, electrochemical and mechanical characterizations. In addition, Dr. Xing has extensive experience with the sulfur-contained cathode performance optimization.

### Academic Credentials & Professional Honors

Ph.D., Materials Science and Engineering, University of California, San Diego, 2020

M.S., Chemical Engineering, University of California, San Diego, 2015

B.S., Applied Chemistry, Tianjin University, China, 2013

### Licenses and Certifications

ASQ Certified Reliability Engineer

Certified ISO 9001:2000 Lead Auditor

## Languages

English

Mandarin Chinese

## Patents

US Patent, Publication # 20200176822: Self-forming Solid State Batteries and Self-healing Solid Electrolyte, June 2020 (Ping Liu, Byoung-Sun Lee).

## Publications

Li Y, Wang X, Zhou H, Xing X, Banerjee A, Holoubek J, Liu H, Meng YS, Liu P. Thin Solid Electrolyte Layers Enabled by Nanoscopic Polymer Binding. *ACS Energy Letters* 2020; 5: 955-961.

Xing X, Li Y, Wang S, Liu H, Wu Z, Yu S, Holoubek J, Zhou H, Liu P. Graphite-based Lithium-free 3D Hybrid Anodes for High Energy Density All-solid-state Batteries. *ACS Energy Letters* 2021; 6: 1831-1838.

Xing X, Li Y, Wang X, Petrova V, Liu H, Liu P. Cathode electrolyte interface enabling stable Li–S batteries. *Energy Storage Materials* 2019; 21: 474-480.

Lim HD, Lim HK, Xing X, Lee BS, Liu H, Coaty C, Kim H, Liu P. Solid electrolyte layers by solution deposition. *Advanced Materials Interfaces* 2018, 5, 1701328.

Lim HD, Yue X, Xing X, Petrova V, Gonzalez M, Liu H, Liu P. Designing solution chemistries for the low-temperature synthesis of sulfide-based solid electrolytes. *Journal of Materials Chemistry A* 2018, 6: 7370-7374.

Lee BS, Cui S, Xing X, Liu H, Yue X, Petrova V, Lim HD, Chen R, Liu P. Dendrite suppression membranes for rechargeable zinc batteries. *ACS applied materials & interfaces* 2018; 10: 38928-38935.

Lee BS, Wu Z, Petrova V, Xing X, Lim HD, Liu H, Liu P. Analysis of rate-limiting factors in thick electrodes for electric vehicle applications. *Journal of the Electrochemical Society* 2018; 165 (3) A525-A533.

Liu H, Yue X, Xing X, Yan Q, Huang J, Petrova V, Zhou H, Liu P. A scalable 3D lithium metal anode. *Energy Storage Materials* 2018; 16: 505-511.

Liu H, Zhou H, Lee BS, Xing X, Gonzales M, Liu P. Suppressing lithium dendrite growth with a single-component coating. *ACS applied materials & interfaces* 2017; 9: 30635-30642.

Kim YJ, Xing X, Choi DY, Hwang CH, Choi C, Kim G, Jin S, Hwang KJ, Park J. Study of the photocatalytic properties of bio-mimicked hollow SnO<sub>2</sub> microstructures synthesized with *Ceiba pentandra* (L.) Gaertn.(kapok) as a natural template. *New Journal of Chemistry* 2015; 39 (10): 7754-7758.