**Faculty Profile: Chuan-Fu Lin**

Assistant Professor

Department: Mechanical Engineering

School: School of Engineering

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Phone: 202-319-5662

Education: Ph.D., Materials Science and Engineering, University of Maryland, 2012

**Research Interests and Expertise:**

**Materials Synthesis and Processing:** Battery Materials, Thin-Film Materials, Atomic (Molecular) Layer Deposition (ALD/MLD), Hybrid Flexible Materials, Energy Materials, Functional Materials Development, Semiconductor Materials

**Sustainability and Energy:** Energy Storage, Solid-State Batteries, Li-ion Battery and Beyond, Li-S Batteries, Magnesium Batteries, Electrochemistry, Energy Conversion

**Nanotechnology:** Nanocomposite Synthesis, Directed Self-Assembly, Device fabrication

**Biography:**

Chuan-Fu Lin joined the faculty of the School of Engineering’s Department of Mechanical Engineering as an Assistant Professor in August 2019. Before he joined CUA, he was a research faculty member at the University of Maryland, College Park since 2017.  One of Dr. Lin’s research directions is to develop next-generation energy storage systems through materials innovations and integrations to deliver lower-cost, and eco-friendly energy storage technology for electronics, electric vehicles, and micro-grids. Besides, he also investigates materials properties (mechanical, electrical, electrochemical) of newly synthesized materials.  Dr. Lin is leading the research lab of the “Materials Innovation Laboratory for Energy and Advanced Manufacturing”, to work on developing novel materials for the broad fields of engineering, emphasizing on the energy and manufacturing challenges.   Dr. Lin has been collaborated with several major battery manufacturers, and with other research groups nationally and internationally. And his research has been supported by Department of Energy, and National Science Foundation.

**Five Selected Papers:**

1. Wang H, Gregorczyk , Lee S, Rubloff G, Lin C. Li-Containing Organic Thin Film—Structure

of Lithium Propane Dioxide via Molecular Layer Deposition. The Journal of Physical Chemistry

C. 2020 February 27; 124(12):6830.

2. Lin CF, Qi Y, Gregorczyk K, Lee SB, Rubloff GW. Nanoscale Protection Layers To Mitigate

Degradation in High-Energy Electrochemical Energy Storage Systems. Acc Chem Res. 2018

Jan 16;51(1):97-106.

3. Kozen A, Lin C, Zhao O, Lee S, Rubloff G, Noked M. Stabilization of Lithium Metal Anodes

by Hybrid Artificial Solid Electrolyte Interphase. Chemistry of Materials. 2017 July 06;

29(15):6298.

4. Lin CF, Noked M, Kozen AC, Liu C, Zhao O, Gregorczyk K, Hu L, Lee SB, Rubloff GW. Solid

Electrolyte Lithium Phosphous Oxynitride as a Protective Nanocladding Layer for 3D High-

Capacity Conversion Electrodes. ACS Nano. 2016 Feb 23;10(2):2693-701.

5. Lin C, Fan X, Pearse A, Liou S, Gregorczyk K, Leskes M, Wang C, Lee S, Rubloff G, Noked

M. Highly reversible conversion-type FeOF composite electrode with extended lithium insertion

by ALD LiPON protection. Chemistry of Materials. 2017 October; 29(20):8780.

**Other Significant Products, Whether or Not Related to the Proposed Project, Professional Activities (please also include STEM education/diversity/outreach activities)**

1. Associate Editor, Frontiers in Energy Research
2. Reviewers for Nature Communication, Advanced Materials, Advanced Energy Materials .. ,etc.