

# CENTER FOR CATALYTIC SCIENCE & TECHNOLOGY



## JINGGUANG CHEN

**COLUMBIA UNIVERSITY**

**BROOKHAVEN NATIONAL LAB**

**MONDAY, APRIL 1, 2024**

**366 CLB | 10:00 A.M.**

Jinguang Chen is the Thayer Lindsley Professor of Chemical Engineering at Columbia University, with a joint appointment at Brookhaven National Laboratory. After spending several years as a staff scientist at Exxon Corporate Research Laboratories, he started his academic career at the University of Delaware and rose to the rank of the Claire LeClaire Professor of chemical engineering and the Director of the Center for Catalytic Science and Technology. He is the co-author of 500 journal publications, and he is recognized as a Web of Science Highly Cited Researcher. He is currently the President of the North American Catalysis Society and an Associate Editor of ACS Catalysis. He received the George Olah Award on Hydrocarbon Chemistry from the American Chemical Society and the R.H. Wilhelm Award on Chemical Reaction Engineering from the American Institute of Chemical Engineers.

## TANDEM ELECTROCATALYSIS-THERMOCATALYSIS FOR CO<sub>2</sub> CONVERSION

CO<sub>2</sub> valorization is a potential pathway for mitigating greenhouse gas emissions from the chemical sector and reducing the reliance of chemical manufacturing on fossil fuel feedstocks. In this talk we will discuss tandem catalytic strategies involving electrochemical and thermochemical reactors for CO<sub>2</sub> conversion that have potential advantages over processes using a single reactor alone. We will discuss coupling electrocatalytic-thermocatalytic reactors to convert CO<sub>2</sub> to the hydroformylation products of propanol and propanal. We will then present results of converting CO<sub>2</sub> to solid carbon nanofibers using the tandem strategy. We will also provide our perspective on opportunities in using tandem schemes involving electrocatalysis, thermocatalysis, biocatalysis and plasma-catalysis for CO<sub>2</sub> conversion.

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