

DISTINGUISHED SPEAKER SERIES

Chemical Engineering Approaches for Catalytic Reduction of CO₂

By Prof Chen Jingguang

Converting CO₂ to value-added chemicals and fuels is one of the most practical routes for reducing CO₂ emissions while fossil fuels continue to dominate the energy sector in the near future. In this talk we will present several routes in catalytic CO₂ conversion: (1) CO₂ hydrogenation by thermocatalysis, (2) CO₂ reduction by electrocatalysis, and (3) simultaneous upgrading of CO₂ and shale gas. We will use these examples to highlight the importance of combining kinetic studies, *in situ* characterization and density functional theory calculations for the mechanistic understanding of CO₂ conversion. We will also demonstrate proof-of-principle results of several promising catalytic reactions using tandem processes to convert CO₂ and light alkanes to syngas, olefins, aromatics and oxygenates.



Friday, 21 April 2023



9 to 10am (Singapore Time)



Via Zoom:

<https://nus-sg.zoom.us/j/84131954705?pwd=OFI NZ3NURGpPQ1I5bHBML0JlK1FhUT09>

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Jingguang Chen is the Thayer Lindsley Professor of Chemical Engineering at Columbia University, with a joint appointment at Brookhaven National Laboratory. He is the co-author of 23 United States patents and 475 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, the Director of the Synchrotron Catalysis Consortium, 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.