

15th International Green Energy Conference

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Name	Like Li	
Affiliation	Mississippi State University USA	
<h2 style="color: red;">Invited Keynote Lecture</h2>		
Presentation Title	Decarbonizing Electric Grid and Industrial Heat through Thermochemical Energy Storage	
Abstract (Approximately 200 words)	<p>Zero-carbon renewable energy sources such as solar and wind are essential for decarbonizing electricity and industrial heat generation. Thermochemical energy storage (TCES) through reactive material cycling is particularly attractive due to its higher storage density and operating temperatures (can be above 1000°C) compared to sensible and latent heat-based energy storage systems. With abundant renewables as heat input and zero carbon production, TCES has the potential to develop into a transformative technology that offers a combined solution to the depletion of fossil fuels and anthropogenic climate change, thus significantly contributing to the transition to a net-zero carbon economy by 2050. This talk will present an overview of the TCES concept and the major components and processes involved, followed by two particular research projects, with the first one on the development of a solid-state thermochemical fuel for long-duration storage, and the second on an integrated TCES system design and on-sun demonstration as a promising technology candidate for the Generation 3 and beyond (Gen3++) concentrating solar power (CSP) plants. This talk will highlight some of our recent progress on TCES material and reactor development that can be deployed to decarbonize the grid and industrial process heat sectors.</p>	
Biographical Sketch (Approximately 200 words)	<p>Dr. Like Li is an Assistant Professor in the Mechanical Engineering Department at Mississippi State University. He obtained his PhD degree in Mechanical Engineering from the University of Florida in 2013. The research portfolio in his group spans fundamental thermo-fluid sciences with a focus on coupled transport phenomena modeling and particulate flow characterization in multiscale materials/structures/reactors, and engineering applications particularly in solar energy storage through thermochemical reactors design, development and demonstration. Dr. Li's group has several active research projects with funding from the U.S. NSF, DOE Solar Energy Technologies Office (SETO-19, -20, -21 and -22 programs including the most recent \$3.89M project with Dr. Li as the PI under the SETO-22 program), NASA, and Army Research Laboratory.</p>	