

# MIT Chemical Engineering Spring 2017 Seminar Series

*presents the 2017*



**Alan S. Michaels Distinguished Lectureship  
in Medical and Biological Engineering**

# Re-design of Metabolism for Carbon Management



**James C. Liao**

**President**

**Academia Sinica, Taiwan**

**Friday, April 21st, 2017**

**Room 32-123**

**3:00pm**

**2:30pm Reception**

*[cheme.mit.edu/michaels](http://cheme.mit.edu/michaels)*

## **About Professor Liao**

Professor Liao started his academic career at Texas A&M University in 1990 and moved to University of California, Los Angeles from 1997 to 2016. He has served as President of Academia Sinica in Taiwan since June 2016.

His research has focused on metabolism, including its biochemistry, regulation and redesign. He uses metabolic engineering, synthetic biology, and systems biology to construct microorganisms to produce next generation biofuels and to study the obesity problem in human. Dr. Liao and his team also develop mathematical tools for investigating metabolism and guiding engineering design. Currently, their main projects include engineering proteins and biochemical pathways for CO<sub>2</sub> fixation and production of fuels and chemicals. The ultimate goal is to use biochemical methods to replace petroleum processing and to treat metabolic diseases.

## **About the Michaels Lectureship**

The lectureship was established in 1995 to stimulate the collaboration of the medical profession, life sciences industries, and chemical engineering researchers.

The most exciting and promising developments in medicine and the life sciences - those leading to improved therapies for the treatment or mitigation of intractable diseases, and strategies for prevention of debilitating or life-threatening genetic deficiencies - are largely emerging from discoveries in molecular biology and biochemistry, in concert with those in the sister-sciences of immunology, pharmacology, and genetics. These developments involve, in a very direct way, the basic tools that are the hallmark of the chemical engineer's profession: molecular thermodynamics, chemical reaction kinetics, homogeneous and the heterogeneous catalysis, fluid mechanics, and mass- and energy-transport processes. Few other engineering disciplines are as well qualified to deal with the microscopic and molecular phenomena affecting living systems.