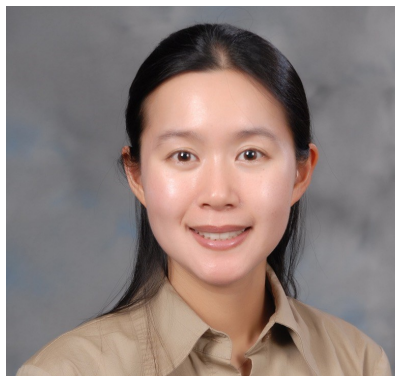


Chemical & Biomolecular Seminar Series



Katy Kao

Associate Professor
Chemical Engineering
Texas A&M University

Friday, March 31, 2017

10:00—11:00 a.m.

102 Colburn Lab

Katy Kao is an associate professor in the Department of Chemical Engineering at Texas A&M University. She joined Texas A&M University in 2008. She received a B.S. degree in Chemical Engineering from the University of California, Irvine and a Ph.D. in Chemical Engineering from the University of California, Los Angeles. She was awarded the National Research Service Award by the National Institutes of Health during her postdoctoral fellowship in the School of Medicine at Stanford University in 2007, the National Science Foundation CAREER Award in 2011, the TEES Young Select Faculty in 2012, and the Fluor Distinguished Teaching Award in 2013.

Harnessing the Adaptive Capacity of Biological Systems for Microbial Strain Development

Rational strain development requires *a priori* knowledge of the genetic determinants involved. However, due to the complexity of biological systems, the genetic determinants for most complex phenotypes are not known, posing a challenge for the rational engineering of biocatalysts. Evolutionary engineering, on the other hand, does not require *a priori* genetic or mechanistic knowledge of the desired phenotype, and is thus a power tool for strain development. However, traditional evolutionary engineering methods suffer from limitations such as lack of real-time indications of adaptive events, loss of beneficial mutations due to clonal interference as a result of asexual propagation, and the requirement of the desired phenotype to be growth-coupled. Motivated by these limitations, my lab is focused on the development of more effective and efficient evolutionary engineering strategies for both strain development and for the fundamental understandings of evolutionary processes in microbial systems. In this talk, I will present some of our efforts in this area.