



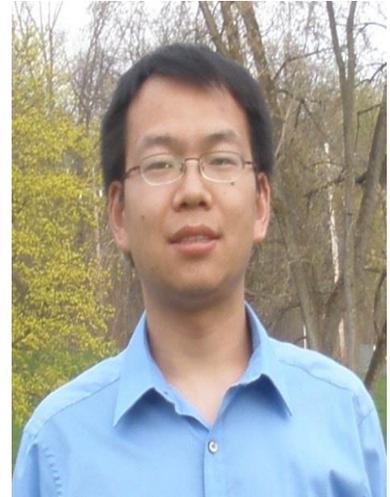
# You are cordially invited to a seminar presented by a **Translational Plant Sciences** cluster hire Candidate

**Dr. Peng Xu**

**Chemical Engineering**

**Postdoctoral Associate**

**Massachusetts Institute of Technology**



**“Controlling and optimizing cell metabolism  
for efficient production of pharmaceuticals,  
fuels and green chemicals”**

**DATE:** *Thursday, February 18, 2016*

**LOCATION:** *Winston Chung Hall 205/206*

**TIME:** *2:00 p.m.*

Metabolic engineering is the targeted modification of cell metabolism for production of useful compounds. Most of the previous metabolic engineering effort heavily relies on engineering novel biocatalytic route and directing carbon flow from primary metabolic pathways to the target compound. Recent advances on synthetic biology have allowed us to go beyond the mass flow and precisely control the information flow to design tailor-made cell factories with improved titer, yield and productivity. In this talk, I will present synthetic biology strategies to reprogram cell metabolism in terms of the amount, the timing and location of the protein catalyst as well as how we can efficiently redistribute cellular resources to the desired pathway. The presented techniques will support the construction of complex metabolic pathways with predefined regulatory architecture, teach us how to apply combinatorial statistical approach to accelerate strain engineering endeavor, engineer dynamic sensor-regulator systems to achieve just-in-time gene expression, as well as control the subcellular location of enzyme reaction to improve the catalytic efficiency and specificity. All together, the developed strategies represent promising biological solutions to upgrade low value carbons to high value commodity chemicals, pharmaceuticals and green chemicals in a sustainable and environmentally-friendly manner.

**Departments of:**

**Botany and Plant Sciences**

**Chemical and Environmental Engineering**

**University of California, Riverside**