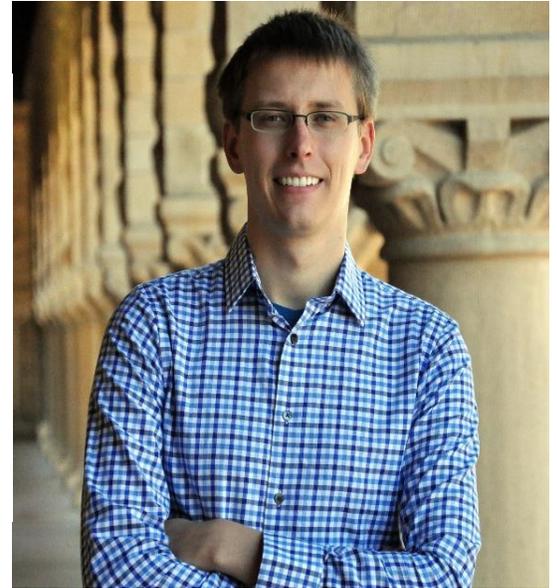




# You are cordially invited to a seminar presented by a **Translational Plant Sciences cluster hire Candidate**

**Dr. Robert Jinkerson**  
**Carnegie Institution Stanford**

**“Metabolic engineering, systems biology,  
and functional genomics for increasing  
biofuel production in microalgae”**



**DATE:** Friday, March 4, 2016  
**LOCATION:** 205/206 Winston Chung Hall  
**TIME:** 9:30am

Microalgae have been of interest for use as a biofuel feedstock because they can produce large quantities of lipids or starch, contain little recalcitrant biomass, and do not impact the food supply. Lipid and starch metabolism is central to algal/plant biology, human nutrition, and biofuel production; however, details on how these pathways are regulated, how carbon is partitioned between starch and lipid biosynthesis, and what are the best approaches to optimize these metabolic pathways for bioenergy production remain unknown. My research has focused on addressing these questions by understanding algal starch and lipid metabolism on a systems level and by engineering the metabolism of these organisms to produce the bioproducts that we desire. This talk will focus on my efforts to understand how algae partition carbon between starch and lipid biosynthesis, and how I have developed and characterized algal strains that have altered this carbon partitioning resulting in increased lipid or starch production. Additionally, I will talk about my recent work on a genome saturating, functional genomics strategy to identify all single gene mutations that alter cellular lipid metabolism in the green alga, *Chlamydomonas*, by using a barcoded, insertional mutant library of 200,000 mutants. Results from this screen are providing important insights into the regulatory networks and biochemical pathways of lipid metabolism in green algae and plants, and is informing metabolic engineering strategies to maximize biofuel production in these organisms.

**Departments of:**  
**Botany and Plant Sciences**  
**Chemical and Environmental Engineering**  
University of California, Riverside