

AIT Seminar Series, April 13, 2015

**Prof. Scott E. Baker**

## *Fast forward genetics in fungi*

Dr. Baker is the Science Theme Lead for the Biosystem Dynamics and Design Science Theme, which focuses on spatial and temporal dynamics of biological pathways in microbes, fungi and plants to advance our understanding of the carbon cycle and accelerate production of biofuels and bioproducts. In this role, he coordinates and implements science and strategy. As a researcher, he has published nearly 80 peer-reviewed journal articles related to fungal biotechnology and genomics applied to production of biofuels and bioproducts. He has managed multidisciplinary research teams. Dr. Baker is an experienced PI and co-PI supporting a variety of funding agencies, specifically DOE's Office of Biological and Environmental Research.

### **Abstract:**

Fungi have a huge impact in our lives, both good and bad. As such, they have been the target for genome sequencing studies – the continued generation of fungal reference genomes is growing at an incredible pace. Next generation sequencing technologies have made it possible to “resequence” genetic mutant strains quickly and cheaply. We are using next generation sequencing to associate mutations with phenotypes that had not been previously associated with genes. The phenotypes we are assessing span fungal sexual development, enzyme secretion, central metabolism, morphology and regulation. In addition, we are developing imaging, proteomic and metabolomics methods to generate a multimodal analysis of interesting fungal phenotypes.