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## Seminar

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**Adam P. Arkin**

**Professor**  
**Dept of Bioengineering**  
**UC Berkeley, and**  
**Sr. Faculty Scientist at LBNL**

### **Discovery and Design of Genetic Factors for Microbial Function and Fitness in Complex Environments**

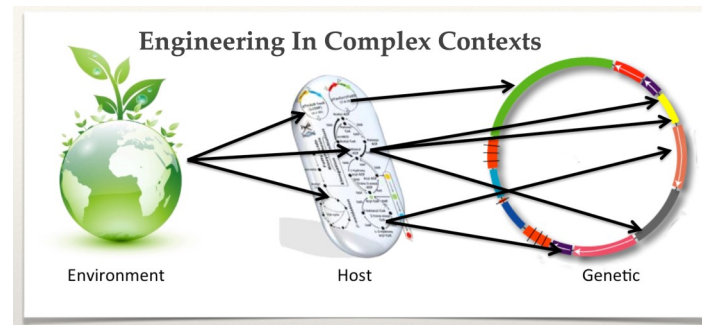
The ability of an organism to survive and operate in any environment—even one as simple as a controlled bio-reactor- is a multigenic trait. Many of the genes that confer fitness and desired activity are poorly characterized and their possible epistatic interactions opaque. Here we describe a series of high-throughput, sequence-based, genetic-manipulation technologies for characterizing the gene- based contributions to fitness and activity with sufficient resolution to assign function roles and design improved strains. We will describe how we deploy these technologies to characterize diverse microbes from environments spanning cellulosic bioreactors, ground water, soil and the human gut. We will show how we use this information in some cases to design strains for better biomanufacturing or environmental activity. We will also show how the DOE Systems Biology Knowledgebase is beginning to accelerate the analysis and sharing of these methods and results.

**Friday, December 14, 2018**

**2:30 PM**

**Laufer Center lecture hall 101**

**Host: Gabor Balazsi**



*Refreshments following the lecture*  
*Laufer Hub 110*