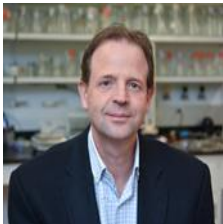


A Systems-based Approach Toward Improving Fatty Acid Production in Photosynthetic Microorganisms

Jordan Peccia

Department of Chemical and Environmental Engineering
Yale University

Abstract: The genomic diversity in biological systems has tremendous potential to solve global challenges such as the synthesis of novel chemicals and materials to ensure environmental sustainability. Addressing these challenges requires the development of a thorough understanding of biological systems and precise tools to manipulate them. This seminar will describe our lab's work on integrating systems biology approaches to understand and manipulate fatty acid synthesis in photosynthetic microorganisms. We will start with comparative transcriptomic analyses of microalgae, and then leverage large gene expression data sets and association analysis to predict non-intuitive gene-metabolite connections in cyanobacteria. The seminar will conclude with our recent efforts to implement the CRISPR/Cas9 system into photosynthetic bacteria to build rapid, multiplexed genome editing tools that match our burgeoning system-based understanding of microbial function.



Biography: Jordan Peccia is the Thomas E. Golden Jr. Professor of environmental engineering and the director of environmental engineering undergraduate studies at Yale University. His research group integrates molecular biotechnology with process engineering to address environmental problems, with recent focus on the microbiology of the built environment and producing rational approaches for genetically modifying photosynthetic microorganisms. Peccia is a member of the American Association for Aerosol Research board of directors, associate editor for the journal Indoor Air, chair of the inaugural Gordon Research Conference on Microbiology of the Built Environment, and was elected to the Connecticut Academy of Engineering and Science in 2017. He earned his PhD in environmental engineering from the University of Colorado.

When: Tuesday, April 10th, 2018 at 4 pm

Where: EP#252