



Department of Chemical
and Biological Engineering
UNIVERSITY OF WISCONSIN-MADISON

2020 Fall CBE Seminar Series

presents:



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Massively Parallel Functional Profiling of Biomolecular Systems

Our laboratory takes a systems and synthetic biology to understanding and designing biomolecular systems. We employ high-throughput mutational scanning, computational modeling and deep sequencing to elucidate sequence-function relationships of diverse biomolecular systems including allosteric signaling, transcription regulation, split protein systems and phage-receptor interactions. In this talk, I will describe two case studies: allostery and phage specificity. We present a function-centric approach to elucidate the molecular basis and underlying functional landscape of allostery. We show that allosteric signaling exhibits a high-degree of functional plasticity and redundancy through myriad mutational pathways. We also show that phage-host specificity is governed by common hypervariable residues in addition to residues tailored to individual bacterial hosts. Mutational profiling of these biomolecular systems then enables smart engineering strategies to create new and enhanced functionalities.

Tuesday, Nov. 10, 2020

Lecture at 4:00 p.m.

<https://uwmadison.zoom.us/j/91376473708>