Chemical Engineering Colloquium
~ Ma Lectureship ~

March 27, 2024

12:00 PM–1:00 PM Salisbury Labs, Room 115

Kristala L. J. Prather

Building Microbial Chemical Factories: Design, Assembly, and Engineering of Biological Routes to Chemical Compounds

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Biological systems have the potential to produce a wide array of compounds with uses that include fuels, materials, bulk chemicals, and pharmaceuticals. Our group is focused on applying principles from metabolic engineering and biocatalysis towards the design and construction of novel biosynthetic pathways for specified target compounds. This “retro-biosynthetic design” approach is aided by advancements in the development of new tools under the umbrella of synthetic biology that facilitate re-engineering of biological systems. As new pathways are designed and constructed, typical challenges such as low product yields and titers can hamper development of commercially-relevant processes. The sheer volume of chemicals that ultimately need to be produced also requires the use of a broader range of feedstocks than those traditional employed in bioprocesses. In this talk, I will review our group’s sustained efforts to both produce novel compounds through biological synthesis and develop strategies to address the inherent limitations.

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