

Seminar Topics – E8105: Enzymatic and Biomimetic Catalysis

Mon, April 16, 2018

Topic 1: *Bringing Carbon-Silicon Bonds to Life*key literature: a) Kan, Lewis, Chen, Arnold, *Science*, **2016**, 354, 1048, b) Coelho, Brustad, Kannan, Arnold, *Science*, **2012**, 339, 307.

focus: protein engineering & biocatalysis

Topic 2: *Catalysis with Chalcogen Bonds*key literature: a) Benz, López-Andarias, Mareda, Sakai, Matile, *Angew. Chem. Int. Ed.*, **2017**, 56, 812; b) Breugst, von der Heiden, Schmauck, *Synthesis* **2017**, 49, 3224.

focus: non-covalent organocatalysis

Topic 3: *Redesign of Enzyme Shape for Drug Manufacture*key literature: Savile, Janey, Mundorff, Moore, Tam, Jarvis, Colbeck, Krebber, Fleitz, Brands, Devine, Huisman, Hughes, *Science* **2010**, 329, 305.

focus: protein engineering

Topic 4: *Merging Photoredox Catalysis and Organocatalysis*key literature: Nicewicz, MacMillan, *Science* **2008**, 322, 77.

focus: covalent organocatalysis

Topic 5: *Semi-synthetic Production of Antimalarial Artemisinin*key literature: Paddon et al., *Nature* **2013**, 496, 528.

focus: metabolic engineering

Topic 6: *What's so special about AC/CD?*key literature: a) Mayer, List, *Angew. Chem. Int. Ed.* **2006**, 45, 4193; b) Uraguchi, Terada, *J. Am. Chem. Soc.* **2004**, 126, 5356.

focus: non-covalent organocatalysis

Topic 7: *Second-generation Amination Biocatalysis*

key literature: tba

focus: biotransformations