

UniSysCat Online Colloquium

Prof. Dr. Anne-Frances Miller

University of Kentucky and Einstein Visiting Fellow at the TU-Berlin

Start Time: Wednesday, July 8, 2020 05:00 pm

End Time: Wednesday, July 8, 2020 06:00 pm

Online

Insights into how electron bifurcation can exploit abundant cheap fuel to drive demanding reactions

In the last decade, electron bifurcation has gained recognition as a mechanism by which organisms maximize energy efficiency and versatility. For organisms employing NAD(P)H as a redox currency, flavins are found to feature in all known bifurcating enzymes. We are exploiting the spectroscopic virtuosity of flavins in conjunction with site-directed mutagenesis to begin mapping out how the bifurcating electron transfer flavoprotein (ETF) of *Rhodospseudomonas palustris* entrains its two FADs to execute two-electron chemistry or one-electron chemistry, depending on the flavin-binding site (and the status of the enzyme). The flavin's access to both, in conjunction with the protein's control over which occurs when and where, is critical to the mechanism of this system. We hope that lessons learned from this ETF can enable man-made devices to emulate *R. palustris*' ability to fix nitrogen based on solar power.

This colloquium will take place online. More information coming soon.

Prof. Maria Andrea Mroginski + Dr. Ingo Zebger (TU Berlin)

Organizer