

Physical Chemistry Seminar

Photosynthetic Energy Transfer – from Cyanobacterial Red Chlorophylls to Diatoms Under Stress

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External stressors modulate light-harvesting dynamics. In cyanobacteria, stressors cause changes in oligomerization state of photosystem I (PSI) which dictates the number of red chlorophylls (Chls), pigments lower in energy than the P700 reaction center. We recently used fluence-dependent transient absorption spectroscopy to interrogate energy transfer between red Chl sites in PSI of *Synechocystis* sp. PCC 6803. At high fluences, singlet-singlet annihilation is used to report on energy transfer between states that are close in energy. In the photosynthetic diatom *Phaeodactylum tricornutum*, external stressors induce a red-shifted fluorescent state known as F710. I will share recent results on the effect of iron stress on the presence and dynamics of F710 fluorescence.



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10:30am



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James Tarpo Jr. and Margaret Tarpo
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Massey Bio

Dr. Massey earned her PhD in Greg Engel's group at the University of Chicago where she studied ultrafast energy transfer in photosynthetic bacteria. Her thesis focused on orientational dynamics of energy transfer using two-dimensional electronic anisotropy. After completing her PhD, Dr. Massey began a tenure-track position at Southwestern University, a primarily undergraduate institution in Georgetown, Texas. With a team of undergraduate researchers, she is studying the effects of native environment and external stressors on light-harvesting in photosynthetic diatoms.